WEST VIRGINIA
SECRETARY OF STATE
KEN HECHLER
ADMINISTRATIVE LAW DIVISION

Form #1

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OFFICE OF WEST VIRGINIA SECRETARY OF STATE

NOTICE OF PUBLIC HEARING ON A PROPOSED RULE

AGENCY: Bureau of Environment, Division of Environmental Protection TITLE NUMBER: 47

RULE TYPE: Legislative ; CITE AUTHORITY W.Va. Code §22-18-1

AMENDMENT TO AN EXISTING RULE: YES XX NO ___

IF YES, SERIES NUMBER OF RULE BEING AMENDED: 38

TITLE OF RULE BEING AMENDED: "Solid Waste Management Regulations"

IF NO, SERIES NUMBER OF NEW RULE BEING PROPOSED: ___

TITLE OF RULE BEING PROPOSED: ___

DATE OF PUBLIC HEARING: August 15, 1994 TIME: 11:00

LOCATION OF PUBLIC HEARING: Division of Environmental Protection
10 McJunkin Road
Nitro, WV 25143
Directors Conference Room

COMMENTS LIMITED TO: ORAL ___, WRITTEN ___, BOTH XX

COMMENTS MAY ALSO BE MAILED TO THE FOLLOWING ADDRESS: WV DEP/Office of Waste Management
1356 Hansford Street
Charleston, WV 25301
Attn: Ken Ellison

The Department requests that persons wishing to make comments at the hearing make an effort to submit written comments in order to facilitate the review of these comments.

The issues to be heard shall be limited to the proposed rule.

ATTACH A **BRIEF** SUMMARY OF YOUR PROPOSAL

Authorized Signature

DEPARTMENT OF COMMERCE, LABOR & ENVIRONMENTAL RESOURCES
DIVISION OF ENVIRONMENTAL PROTECTION
1356 Hansford Street
Charleston, WV 25301-1401
July 12, 1994

Gaston Caperton
Governor
John M. Ranson
Cabinet Secretary

David C. Callaghan
Director
Ann A. Spaner
Deputy Director

BRIEFING DOCUMENT: SOLID WASTE MANAGEMENT REGULATIONS

A. **AUTHORITY:** W. Va. Code, §22-15-5, §22-15-10, §22-15-12, §22-15-13, §22-15-14

B. **SCOPE:** This legislative rule establishes requirements for the siting, bonding, installation, establishment, construction, modification, operation, and abandonment of any facility that processes, recycles, or disposes of solid waste pursuant to W.Va. Code 22-15. This rule applies to any person who owns or operates a solid waste facility or who is responsible for the processing, recycling, or disposal of solid waste.

C. **JUSTIFICATION:** This rule implements changes to the Class D solid waste facility requirements for the disposal of only Construction/Demolition waste; the amendments authorize the development of a draft general permit for noncommercial Construction/Demolition solid waste facilities that will allow for increased efficiency in permitting these facilities and clarifies beneficial reused clean waste concrete/masonry substances. In addition, this rule implements requirements for certification of landfill operators, by requiring successful completion of an approved course of instruction.

D. **CSR CITE:** Title 47, Series 38

E. **FEDERAL CITE:** None

F. **TIME SCHEDULE:**

Filing with the Secretary of State	July 13, 1994
Public Comment/Hearing Period	August 15, 1994
Filing with Legislative Rule Making Review Committee	By August 15, 1994
Rule should be implemented by	By June 1, 1995

Prepared By: Ken Ellison, Deputy Chief — 558-5929
Office of Waste Management
1356 Hansford St.
Charleston, WV 25301

Approved By: G. Maxwell Robertson — 7-13-94
G. Maxwell Robertson, Chief — Date

Authorized By: David Callaghan — 7/13/94
David Callaghan, Director — Date

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STATEMENT OF CIRCUMSTANCES WHICH REQUIRE THE PROPOSED RULE

This adoption of these revisions will eliminate the requirement for individual permits to be issued for noncommercial Construction/Demolition solid waste facilities that will all be required to meet similar requirements. The creation of a general permit will allow better utilization of resources within the Office of Waste Management. The rule establishes a legitimate beneficial reuse of clean waste concrete/masonry substances.

This adoption will also fulfill the previously "Reserved" Subsection 4.3. of the Solid Waste Management Regulations by establishing requirements for landfill operator training and certification.

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BRIEF SUMMARY OF PROPOSED RULE

This rule provides for the issuance of a draft general permit for Construction/Demolition solid waste facilities through a process that closely follows the NPDES general permit issued by the Office of Water Resources. The rule further clarifies exemptions for clean waste concrete/masonry substances and the prohibition of asbestos disposal in any Class D solid waste facility as provided in the definition of Construction/Demolition wastes.

This rule further provides for the certification of landfill operators within twelve (12) months after the effective date of this rule by requiring successful completion of an approved course of instruction in solid waste management procedures and practices for managing and operating landfills.

APPENDIX B

FISCAL NOTE FOR PROPOSED RULES

Rule Title: Title 47, Series 38, "Solid Waste Management Regulations"

Type of Rule: XX Legislative ____ Interpretive ____ Procedural

Agency Bureau of Environment

Address Division of Environmental Protection/Office of Waste Management

1356 Hansford Street

Charleston, WV 25301

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1. Effect of Proposed Rule

	ANNUAL		FISCAL YEAR		
	INCREASE	DECREASE	CURRENT	NEXT	THEREAFTER
ESTIMATED TOTAL COST	$ 0	$ 0	$ 0	$ 0	$ 0
PERSONAL SERVICES					
CURRENT EXPENSE					
REPAIRS & ALTERNATIONS					
EQUIPMENT					
OTHER					

2. **Explanation of above estimates:** The Amendments to these regulations implement a General Permit to replace individual permits for Construction/Demolition solid waste facilities. There are no significant changes expected to the fiscal note for these Amendments.

3. **Objectives of these rules:** The objective of these rules is to clarify and make more efficient the Construction/Demolition solid waste facility permitting process.

Rule Title: Title 47, Series 38, "Solid Waste Management Regulations"

4. Explanation of Overall Economic Impact of Proposed Rule.

A. Economic Impact on State Government.
No Impact.

B. Economic Impact on Political Subdivisions; Specific Industries; Specific groups of Citizens.
The Amendments in this rule eliminate the current D-2 and D-3 individual permits and the associated application fees and replace them with a general permit with an application fee that is believed to not significantly effect the economic impact. Permittees will have cost savings associated with not having to prepare individual permit applications.

C. Economic Impact on Citizens/Public at Large.
No Impact.

Date: 7/13/94

Signature of Agency Head or Authorized Reprensentative

Roger T Hall

TITLE 47
LEGISLATIVE RULES
DEPARTMENT OF NATURAL RESOURCES

SERIES 38
SOLID WASTE MANAGEMENT REGULATIONS

§47-38-1. General.

1.1. Scope and Purpose. -- This legislative rule establishes requirements for the siting, bonding, installation, establishment, construction, modification, operation, and abandonment of any facility that processes, recycles, or disposes of solid waste pursuant to W. Va. Code §20-5F. This rule applies to any person who owns or operates a solid waste facility or who is responsible for the processing, recycling, or disposal of solid waste.

1.2. Authority. -- W. Va. Code §§20-5F-4, 20-5F-5, 20-5F-5b, 20-5F-5c, and 20-5F-5d.

1.3. Filing Date. -- March 29, 1990.

1.4. Effective Date. -- May 1, 1990.

1.5 Repeal of Former Rule. -- This legislative rule repeals and replaces 47 C.S.R. 38 "Solid Waste Management Regulations" as filed and became effective on April 1, 1988.

1.6. Lawful Disposal of Solid Waste Required. -- Solid waste shall be disposed, processed, or recycled only at permitted solid waste facilities as described in section 3 of these regulations.

1.7. Incorporation by Reference. -- Whenever federal or State statutes or regulations are incorporated into these regulations by reference, the reference is to the statute or regulation in effect on November 4, 1988.

1.8. Determination of Stringency/Incorporation by Reference. There is no federal counterpart regulation.

1.9. Constitutional Takings Determination. No constitutional takings of real property are anticipated as a result of this rule.

§47-38-2. Definitions.

2.1. "Access Road" means all roads providing access to a solid waste facility from a road that is under federal, State, or local authority.

2.2. "Act" means the Solid Waste Management Act, W. Va. Code §20-5F, et seq.

2.3. "Approved Solid Waste Facility" means a solid waste facility which has a valid permit under the Act or which is otherwise authorized to conduct solid waste activities under the Act.

2.4. "Bond" means any performance bond or other form of financial assurance contemplated by W. Va. Code §20-5F-5b.

2.5. "Bulky Goods" means any stoves, washers, water heaters, or other large, discarded appliances or metal products which are introduced on a solid waste landfill for disposal.

2.6. "Chief" means the chief of the Division of Water Resources of the West Virginia Department of Natural Resources or his authorized representative.

2.7. "Class A Solid Waste Facility" means a commercial solid waste disposal facility which is authorized to handle an aggregate of ten thousand (10,000) tons or more of solid waste per month at one or more commercial solid waste disposal facilities in the county (or region if said county participates in a regional solid waste authority pursuant to W. Va. Code §20-9) in which the solid waste disposal facility is to be located.

2.8. "Class B Solid Waste Facility" means a commercial solid waste facility which receives or is expected to receive an average daily quantity of mixed solid waste equal to or exceeding one hundred (100) tons each working day, or serves or is expected to serve a population equal to or exceeding forty thousand (40,000) persons, but which does not receive or is expected to receive solid waste exceeding an aggregate of ten thousand (10,000) tons per month. Class B solid waste disposal facilities do not include construction/demolition facilities.

2.9. "Class C Solid Waste Facility" means a commercial solid waste facility which receives or is expected to receive an average daily quantity of mixed solid waste of less than one hundred (100) tons each working day, and serves or is expected to serve a population of less than forty thousand (40,000) persons. Class C solid waste disposal facilities does not include construction/demolition facilities.

2.10. "Class D Solid Waste Facility" means any solid waste facility for the disposal of only construction/demolition waste and shall not include the legitimate beneficial reuse of clean waste concrete/masonry substances for the purpose of structural fill or roadbase material. Such facilities are further defined as follows:

2.10.1. "Class D-1 Solid Waste Facility" means a commercial or noncommercial facility other than a Class D ~~those classified D-2 or D-3~~ solid waste facility permitted pursuant to section 3.16.5.d.

~~2.10.2. "Class D-2 Solid Waste Facility" means a noncommercial facility less than two (2) acres in area and where the waste to be disposed of is created by the applicant.~~

~~2.10.3. "Class D-3 Solid Waste Facility" means a noncommercial facility not more than one half (1/2) acre in area and located on land owned by the applicant.~~

2.11. "Class E Solid Waste Facility" means any solid waste facility for the purpose of recycling at which neither land disposal nor biological, chemical, or thermal transformation of solid waste occurs.

2.12. "Class F Solid Waste Facility" means any industrial solid waste disposal facility.

2.13. "Clean Water Act" or "CWA" means the Federal Water Pollution Control Act, as amended; 33 U.S.C. §1251 et seq.

2.14. "Coal Combustion By-Product Facility" means a facility for the disposal of coal combustion by-products, including coal combustion by-product landfills and coal combustion by-product disposal surface impoundments, and shall not include the legitimate beneficial use of coal combustion by-products.

2.15. "Coal Combustion By-Products" means the residuals, including fly ash, bottom ash, bed ash, and boiler slag produced by coal-fired or coal/gas-fired electrical or steam generating units. For non-electrical steam generating units burning a combination of solid waste and coal, a carbon monoxide (CO) level of less than or equal to one hundred parts per million (100 ppm) on a 24-hour average basis is required for the by-products to meet this definition. The carbon monoxide level shall be calculated on a dry gas basis corrected to seven percent (7%) oxygen.

2.16. "Commercial Solid Waste Facility" means any solid waste facility which accepts solid waste generated by sources other than the owner or operator of the facility and shall not include an approved solid waste facility owned and operated by a person for the sole purpose of disposing of solid wastes created by that person or such person and other persons on a cost-sharing or nonprofit basis and shall not include the legitimate beneficial use of coal combustion by-products or the reuse or recycling of materials for structural fill, road base, mine reclamation, and similar applications.

2.17. "Composting" means the process by which organic solid waste is biologically decomposed under controlled anaerobic or aerobic conditions to yield a humus-like product.

2.18. "Construction/Demolition Waste" means waste building materials, grubbing waste, and rubble resulting from construction, remodeling, repair and demolition operations on houses, commercial buildings, and other structures and pavements, including, but not limited to, wood, plaster, metals, asphaltic substances, bricks, blocks and concrete, other masonry materials, trees, brush, stumps, and other vegetative materials but shall not include asbestos waste.

2.19. "Cover Material" means soil or other material, approved by the chief and used in a controlled manner to cover solid waste at solid waste disposal facilities.

2.20. "Department" means the West Virginia Department of Natural Resources.

2.21. "Director" means the director of the West Virginia Department of Natural Resources or his authorized representative.

2.22. "Division" means the Division of Water Resources of the West Virginia Department of Natural Resources or its designee.

2.23. "Endangered or Threatened Species" means any species of animal or plant that is listed by the federal government as endangered or threatened in 50 C.F.R. Part 17.

2.24. "Friable Asbestos" means any material containing more than one percent (1%) asbestos by weight that hand pressure can crumble, pulverize, or reduce to powder when dry.

2.25. "Incinerator" means any device used to accomplish incineration, including incinerators associated with resource recovery.

2.26. "Industrial Solid Waste" means any solid waste resulting from mining, manufacturing, or industrial processes. Manufacturing or industrial processes, include, but are not limited to, those processes and activities carried on in factories, processing plants, refineries, slaughter houses, mills, tanneries, power generating plants, mines or mineral processing operations.

2.27. "Industrial Solid Waste Landfill" means any solid waste disposal facility which is owned, operated, or leased by an industrial establishment for the land disposal of industrial solid waste created by that person or such person and other persons on a cost-sharing or nonprofit basis. The term "industrial solid waste landfill" does not include land application units, surface impoundments, or injection wells.

2.28. "Infectious Waste" means waste with infectious characteristics including animal waste, bulk human blood and blood products, laboratory waste, pathological waste, and sharps.

2.28.1. "Animal Waste" means contaminated animal carcasses, body parts, and the bedding of animals that have a high probability of having been exposed to infectious agents during research (including research in veterinary hospitals), the production of biologicals, or the testing of pharmaceuticals.

2.28.2 "Bulk Human Blood and Blood Products" means liquid waste human blood and blood products in a free-flowing or unabsorbed state including, but not limited to, blood plasma, serum, platelets, and red or white blood corpuscles.

2.28.3. "Laboratory Wastes" means cultures and stocks of infectious agents and associated biologicals including, but not limited to, cultures from medical and pathological laboratories, cultures and stocks of infectious agents from research and industrial laboratories, wastes from the production of biologicals, and discarded live and attenuated vaccines.

2.28.4. "Pathological Wastes" means human pathological wastes including tissues, organs, and body parts and free-flowing or unabsorbed body fluids exclusive of those fixed in formaldehyde or another fixative.

2.28.5. "Sharps" means discarded articles that may cause punctures or cuts and that have a high probability of having been used in animal or human patient care or treatment or in medical, research, or industrial laboratories and of having been exposed to infectious agents. The term "sharps" includes hypodermic needles, syringes with attached needles, and scalpel blades.

2.29. "Karst Region" means a type of topography which is formed over limestone or dolomite by dissolution of the formation and is characterized by sinkholes, caves, and similar features.

2.30. "Land Application" means the application of liquid wastes onto a soil surface or the incorporation of solid waste into the soil surface for treatment and disposal.

2.31. "Landfill" means a facility or part of one at which solid waste, or its residue after treatment, is intentionally placed in or on land, and at which solid waste will remain after closure. The term "landfill " does not include a land application unit, surface impoundment, solid waste disposal surface impoundment, or injection well.

2.32. "Leachate" means any liquid that has passed through or emerged from solid waste and contains soluble, suspended, or miscible materials removed from such waste.

2.33. "Lift" means the vertical thickness of compacted solid waste and the cover material immediately above it.

2.34. "Liner" means a continuous layer of natural or man-made materials, beneath or on the sides of a surface impoundment, landfill, or landfill cell, which restricts the downward or lateral escape of solid waste, any constituents of such waste, or leachate and which complies with these regulations.

2.35. "Lower Explosive Limit" means the lowest percent by volume of a mixture of explosive gases which will propagate a flame in air at twenty-five degrees centigrade (25 degrees C) and atmospheric pressure.

2.36. "Major Alluvial Aquifer" means an aquifer composed of alluvial materials located adjacent to the Kanawha River, Little Kanawha River, and Ohio River as depicted on Groundwater Hydrology of the Minor Tributary Basins of the Kanawha River, West Virginia; Groundwater Hydrology of the Little Kanawha River Basin, West Virginia; and Groundwater Hydrology of the Minor Tributary Basins of the Ohio River, West Virginia atlas.

2.37. "Major Domestic Use Aquifer" means an aquifer which serves as a domestic or public water supply serving at least an average of twenty five (25) individuals per day for at least sixty (60) days per year, or which has at least fifteen (15) service connections.

2.38. "Major Modification" is a modification to an approved permit in which a major change to the permit is to occur as specified in section 3.18 of these regulations.

2.39. "Open Dump" means any solid waste disposal which does not have a permit under W. Va. Code §20-5F and is not otherwise authorized by an order of the chief or director, or for which a valid permit application is currently under agency review; which is in violation of state law; or where solid waste is disposed in a manner that does not protect the environment.

2.40. "Permittee" or "Operator" shall mean any person holding or executing a permit or who is otherwise authorized to conduct solid waste activities under the Act.

2.41. "Persistent Violation" means any violation of the Act, these regulations, any permit term or condition, or any order of the chief or the director issued pursuant to the Act or these regulations which is identified during two or more consecutive inspections performed by the chief or the director.

2.42. "Person," "Persons," or "Applicant" means:

2.42.1. Any industrial user, public or private corporation, institution, association, firm, or company organized or existing under the laws of this or any other state or country;

2.42.2. The State of West Virginia;

2.42.3. Any government agency, including federal facilities;

2.42.4. Any political subdivision of this State, including a county commission, municipal corporation, sanitary district, public service district, drainage district, soil conservation district, or watershed improvement district;

2.42.5. Any partnership, trust, or estate;

2.42.6. Any person or individual;

2.42.7. Any group of persons or individuals acting individually or as a group; or

2.42.8. Any legal entity whatsoever.

2.43. "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 landfill leachate collection system from which pollutants are or may be discharged to the waters of the State.

2.44. "Post-Closure" means activities after the closure of a solid waste facility which are necessary to ensure compliance with the provisions of the Act and regulations promulgated thereunder including the application of final cover, grading, revegetation, groundwater monitoring, surface water monitoring, gas monitoring and control, leachate treatment, erosion control, and the abatement of any pollution or degradation to land, water, air, or other natural resources.

2.45. "Publicly-Owned Treatment Works" or "POTW" means any device or system used in the treatment (including recycling and reclamation) of municipal sewage or industrial wastes of a liquid nature which is owned by a state or municipality as defined by section 502(4) of the Clean Water Act. This definition includes sewers, pipes, or other conveyances only if they convey wastewater to a POTW providing treatment.

2.46. "Q.A./Q.C." means quality assurance and quality control.

2.47. "Recycle" means the collection, separation, recovery and sale, or reuse of metals, glass, paper, and other materials.

2.48. "Recycling Facility" means any solid waste facility for the purpose of recycling at which neither land disposal nor biological, chemical, or thermal transformation of solid waste occurs.

2.49. "Resource Recovery Facility" means any solid waste facility at which solid wastes are mechanically, biologically, chemically, or thermally transformed for the purpose of separating, removing, or creating any material or energy for reuse or sale and at which land disposal of solid waste does not occur. Resource recovery facilities include composting plants, incinerators equipped with integral or separate heat recovery systems, and other such solid waste facilities not herein specified.

2.50. "Schedule of Compliance" means a list of activities approved or ordered by the chief or director, which may include dates or specified times for completion of each or all activities which, when completed, will result in a site, facility, or practice which is environmentally sound and conforms to the requirements of the Act, these regulations, or permit terms and conditions.

2.51. "Sewage" means water-carried human or animal wastes from residences, buildings, industrial establishments, or other places together with such groundwater infiltration and surface waters as may be present.

2.52. "Sludge" means any solid, semi-solid, residue, or precipitate separated from or created by a municipal, commercial, or industrial waste treatment plant, water supply treatment plant, or air pollution control facility, or any other such waste having similar origin.

2.53. "Solid Waste" means any garbage; paper; litter; refuse; cans; bottles; sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility; other discarded materials, including carcasses of any dead animal or any other offensive or unsightly matter; solid, liquid, semisolid, contained liquid or gaseous material resulting from industrial, commercial, mining or community activities. The term "solid waste" does not include:

2.53.1. Solid or dissolved material in sewage;

2.53.2. Solid or dissolved materials in irrigation return flows;

2.53.3. Industrial discharges which are point sources and have permits under W. Va. Code §20-5A;

2.53.4. Source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended;

2.53.5. A hazardous waste either identified or listed under W. Va. Code §20-5E;

2.53.6. Refuse, slurry, overburden, or other wastes or material -- resulting either from coal-fired electric power generation or from the exploration, development, production, storage, or recovery of coal, oil and gas, or other mineral resources -- that is placed or disposed of at a facility which is regulated under W. Va. Code §§22, 22A, or 22BA so long as such placement or disposal is in conformance with a permit issued pursuant to such chapters; and

2.53.7. Materials which are recycled by being used or reused in an industrial process to make a product, as effective substitutes for commercial products, or are returned to the original process as a substitutes for raw material feedstock.

2.54. "Solid Waste Disposal" means the practice of disposing solid waste including placing, depositing, dumping, or throwing or causing to be placed, deposited, dumped, or thrown any solid waste/

2.55. "Solid Waste Disposal Surface Impoundment" means a natural depression or man-made excavation or diked area that is designed for the disposal of solid waste containing free liquids and that is not an injection well, landfill, land application unit, or a surface impoundment as defined in section 2.58 of these regulations.

2.56. "Solid Waste Facility" means any system, facility, land, contiguous land, improvements on the land, structures, or other appurtenances or methods used for processing, recycling, or disposing of solid waste including landfills, transfer stations, incinerators, resource recovery facilities, recycling facilities, and other such facilities not herein specified.

2.57. "State Water Pollution Control Act" means W. Va. Code §20-5A, et seq.

2.58. "Surface Impoundment" means a facility or part of a facility which is a natural topographic depression, man-made excavation, or diked area that is designed to hold an accumulation of contaminated surface runoff or leachate or both.

2.59. "Transfer Station" means a combination of structures, machinery, or devices at a place or facility where solid waste is taken from collection vehicles and placed in other transportation units for movement to another solid waste management facility.

2.60. "Uppermost Significant Aquifer" means the first, uppermost aquifer encountered which is laterally persistent under the entire site and is free flowing throughout the year. This defines the

aquifer which flows all twelve (12) months of the year and can be encountered under any given point on the permitted site.

2.61. "USGS" means the United States Geological Survey.

2.62. "Vector" means any insect, rodent, or other organism capable of directly or indirectly transmitting infectious diseases or pathogenic organisms from one person to another or from an animal to a person.

2.63. "Water Resources," "Water," or "Waters" means any and all water on or beneath the surface of the ground, whether percolating, standing, diffused or flowing, wholly or partially within this State, or bordering this State and within its jurisdiction, and includes, without limiting the generality of the foregoing, natural or artificial lakes, rivers, streams, creeks, branches, brooks, ponds (except farm ponds, industrial settling basins and ponds and water treatment facilities), impounding reservoirs, springs, wells, watercourses, and wetlands.

2.64. "Wetlands" means those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that, under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

2.65. "100-Year Flood" means a flood of a magnitude equalled or exceeded once in one hundred (100) years.

§47-38-3. Solid Waste Facility and Permitting Requirements.

3.1. Prohibitions. No person may establish, construct, operate, maintain, or allow the use of property for a solid waste facility within an area where there is a reasonable probability that the facility will cause:

3.1.1. A significant adverse impact upon wetlands;

3.1.2. A significant adverse impact upon any endangered or threatened species of animal or plant;

3.1.3. A statistically significant adverse impact upon any surface water;

3.1.4. A statistically significant adverse impact upon groundwater quality;

3.1.5. A violation of surface water quality standards found in 46 C.S.R. 1;

3.1.6. The migration and concentration of explosive gases in any facility structure, excluding the leachate collection system or gas control or recovery system components, or in the soils or air at or beyond the facility property boundary in excess of twenty-five percent (25%) of the lower explosive limit for such gases at any time; or

3.1.7. The emission of any air contaminant exceeding the limitations for those substances as set by the West Virginia Air Pollution Control Commission.

3.2. Location Standards. Unless otherwise approved by the director in writing, a person may not establish, construct, operate, maintain, or allow the use of property for a landfill in the following areas:

3.2.1. Within three hundred (300) feet of any surface water (facility drainage or sedimentation control structures are exempt from this distance calculation);

3.2.2. Within three hundred (300) feet of any wetlands (facility drainage or sedimentation control structures are exempt from this distance calculation);

3.2.3. Within a perennial stream;

3.2.4. Within a 100-year floodplain;

3.2.5. Within one thousand (1,000) feet of the nearest edge of the right-of-way of any state trunk highway, interstate or federal aid primary highway, or the boundary of any public park unless the facility is screened by natural objects, plantings, fences, or other appropriate means so that it is not readily visible from the highway or park;

3.2.6. Within two hundred (200) feet of known faults that have had displacement in Holocene time (i.e., during the last eleven thousand years);

3.2.7. Within ten thousand (10,000) feet of any airport runway used or planned to be used by turbojet aircraft or within five thousand (5,000) feet of any airport runway used only by piston type aircraft or within other areas where a substantial bird hazard to aircraft would be created;

3.2.8. Within five hundred (500) feet of a dwelling occupied at the time of initial facility siting, unless written permission is received from the owner of the dwelling;

3.2.9. Within twelve hundred (1,200) feet of any public or private water supply well in existence at the time of initial facility siting.

3.2.10. Within one thousand (1,000) feet of any area considered by the director to be unmonitorable due to extreme geologic and hydrologic conditions (e.g., immaturely to maturely developed karst terrain, solution cavities);

3.2.11. Above deep-mine workings or within the critical angle of draw of such workings, unless otherwise approved by the director in writing; or

3.2.12. Within surface mined areas, unless otherwise approved by the director in writing.

Note: All distance measurements prescribed in section 3.2 of these regulations refer to distances as measured from the edge of the proposed boundary of a facility at the end of its active life.

3.3. Approvable Facilities.

3.3.1. Approvable Solid Waste Facilities. Solid waste facilities for which approval may be granted include the following, or any combination thereof:

3.3.1.a. Class A Solid Waste Facility;

3.3.1.b. Class B Solid Waste Facility;

3.3.1.c. Class C Solid Waste Facility;'

3.3.1.d. Class D Solid Waste Facility;

3.3.1.e. Class E Solid Waste Facility;

3.3.1.f. Class F Solid Waste Facility; or

3.3.1.g. Other solid waste facility approved in writing by the director.

3.4. Pre-Siting Requirements for Commercial Solid Waste Facilities.

3.4.1. In order to obtain a permit to construct and operate a commercial solid waste facility in this State after June 10, 1989, a person shall:

3.4.1.a. Publish a Class II legal advertisement in a qualified newspaper, as defined in W. Va. Code §59-3-1, serving the county in which the proposed facility is to be located. This legal advertisement shall include:

3.4.1.a.A. A description of the location or locations at which the proposed facility may be sited;

3.4.1.a.B. Statement of the anticipated size of the proposed facility, in acres; and

3.4.1.a.C. An estimate of the volume, type, and origin of solid waste to be handled at the proposed facility;

3.4.1.b. File a pre-siting notice with the director within five (5) days of the publication of the legal advertisement required under section 3.4.1.a. of these regulations. The pre-siting notice shall include:

3.4.1.b.A. A certification of publication of the legal advertisement required under section 3.4.1.a. of these regulations from the newspaper in which such advertisement was published;

3.4.1.b.B. A description of each location at which the proposed facility may be sited;

3.4.1.b.C. A United States Geological Survey (USGS) topographic map showing the location and anticipated boundaries of each site being considered for the proposed facility;

3.4.1.b.D. An estimate of the volume, type, and origin of solid waste to be handled at the proposed facility; and

3.4.1.b.E. Other information required by the director; and

3.4.1.c. Provide a copy of the pre-siting notice to the appropriate county or regional solid waste authority or county commission within five (5) days of the publication of the legal advertisement required under section 3.4.1.a. of these regulations.

3.4.2. The director, at his discretion, may hold a public hearing on the contents of the pre-siting notice if he receives information or public comment which warrants such a hearing.

3.4.2.a. A public hearing on the contents of a pre-siting notice will be conducted in accordance with the provisions of section 3.23 of these regulations.

3.4.2.b. The director may substitute the public hearing held by the county or regional solid waste authority during the county appraisal or county siting process for the hearing contemplated by section 3.4.2 of these regulations.

3.4.3. Based on comments received at the public hearing or upon recommendations received from the county or regional solid waste authorities within ninety (90) days after their receipt of the pre-siting notice, the director may require the person who submitted that notice to furnish additional information on the

siting of the proposed facility. Such additional information may include, but not be limited to, the following:

3.4.3.a. Impacts upon transportation facilities;

3.4.3.b. Impacts upon public water supplies;

3.4.3.c. Impact upon land use patterns;

3.4.3.d. Impacts upon agricultural, commercial and residential real estate values;

3.4.3.e. Impacts upon wildlife;

3.4.3.f. Impacts upon endangered or threatened species of animals or plants;

3.4.3.g. Impacts upon aesthetics;

3.4.3.h. Impacts upon socioeconomic conditions;

3.4.3.i. Impacts to water resources; and

3.4.3.j. Other impacts as determined by the director.

3.5. Facility Permits.

3.5.1. Permit Required. A permit must be obtained from the chief prior to the installation, establishment, construction, modification, operation, or closure of any solid waste facility.

3.5.2. Single Document. Permits issued pursuant to these regulations shall meet the requirements of W. Va. Code §§20-5A and 20-5F and all associated regulations and only one document for any solid waste facility will be issued by the chief.

3.5.3. Term of Permit. All permits issued pursuant to these regulations shall have a fixed term not to exceed five (5) years from the date of issuance. The chief may administratively extend any permit expiration date for a period of up to one (1) year.

3.5.4. Existing Permits. A person who, on the effective date of these regulations, holds a valid Department permit to conduct a commercial solid waste activity must submit a request to the chief for a minor modification of that permit, in accordance with the provisions of section 3.18 of these regulations, so that the applicable provisions of these regulations can be incorporated into the terms and conditions of the existing permit. The permit modification shall be completed no later than June 10, 1990.

3.6. Permit Application Fees.

3.6.1. Each application for a solid waste facility permit must be accompanied by a nonrefundable application fee in accordance with the schedule of fees in Appendix A of these regulations.

3.6.2. A fee equal to ten percent (10%) of the application fee listed in Appendix A of these regulations must accompany a permit application refiled due to incompleteness.

3.7. Permit Application Requirements. A permit shall be obtained from the chief prior to the installation, establishment, construction, modification, operation, or closure of any solid waste facility. Unless otherwise specified in these regulations or on application forms prescribed by the director, all applications for a solid waste facility permit must include the following:

3.7.1. Forms and Number of Copies. The application shall be made on the forms prescribed by the chief. Four copies of the application, including all supporting documents, shall be submitted to the chief; a fifth copy shall be submitted to the county or regional solid waste authority for the area in which the proposed facility is to be located.

3.7.2. Property Rights. The application shall provide a description of the legal documents upon which the applicant bases his legal right to enter and conduct operations on the solid waste facility permit area and whether that right is the subject of pending court litigation.

3.7.3. Certification. All application documents related to engineering and design plans and specifications shall be compiled, signed, and sealed by a professional engineer who is registered to practice in West Virginia;

3.7.4. Cover Letter. The application shall include a letter detailing the desired Department action or response.

3.7.5. Table of Contents. The application shall include a table of contents listing all sections of the submittal.

3.7.6. Visuals. The applications shall include appropriate maps, figures, photographs, and tables to clarify information or conclusions. The visuals must be legible. All maps, plan sheets, drawings, isometrics, cross-sections, and aerial photographs shall:

3.7.6.a. Be no smaller than eight and one-half inches by eleven inches (8-1/2" x 11") and, if larger, shall be folded to eight and one-half inches by eleven inches (8-1/2" x 11");

3.7.6.b. Be of appropriate scale to show all required details in sufficient clarity;

3.7.6.c. Be numbered, referenced in the narrative, titled, have a legend of all symbols used, contain horizontal and vertical scales, where applicable, and specify drafting or origination dates;

3.7.6.d. Use uniform scales;

3.7.6.e. Contain a north arrow:

3.7.6.f. Use USGS datum as a basis for all elevations;

3.7.6.g. Contain a survey grid with maximum dimension of two hundred (200) feet square based on monuments established in the field which is referenced to State plane coordinates;

3.7.6.h. Show original topography and the grid system on plan sheets showing construction, operation, or closure topography; and

3.7.6.i. Show survey grid location and reference major plan sheets on all cross-sections. A reduced diagram of a cross-section location plan view map shall be included on the sheets with the cross- section.

3.7.7. Quality Assurance and Quality Control Plans. The application shall include quality assurance and quality control (Q.A./Q.C.) plans to be implemented to assure conformity of the solid waste facility construction and monitoring with applicable standards.

3.7.7.a. The Q.A./Q.C. plans shall include a delineation of the quality assurance and quality control management organization, including the chain of command of the Q.A./Q.C. inspectors and contractors;

3.7.7.b. The Q.A./Q.C. plans shall include a description of the required level of experience and training for the contractor, his crew, and Q.A./Q.C. inspectors for every major phase of construction in sufficient detail to demonstrate that the installation methods and procedures required in these regulations will be properly implemented;

3.7.7.c. The Q.A./Q.C. plans shall include a description of the quality assurance and quality control testing procedures for every major phase of construction. At a minimum, these Q.A./Q.C. testing procedures shall include:

3.7.7.c.A. The frequency of inspection, field testing, and sampling for laboratory testing;

3.7.7.c.B. The sampling and field testing procedures and equipment to be utilized;

3.7.7.c.C. The calibration of field testing equipment;

3.7.7.c.D. The frequency of performance audits;

3.7.7.c.E. The sampling size;

3.7.7.c.F. The soils or geotechnical laboratory to be used;

3.7.7.c.G. The laboratory procedures to be utilized;

3.7.7.c.H. The calibration of laboratory equipment;

3.7.7.c.I. The laboratory's Q.A./Q.C. procedures;

3.7.7.c.J. The limits for test failure; and

3.7.7.c.K. A description of the corrective procedures to be used upon test failure; and

3.7.7.d. The Q.A./Q.C. plans shall include a description of the quality assurance and quality control sampling and analysis procedures. At a minimum, these Q.A./Q.C. procedures shall encompass the sampling and analysis of water, surface water, leachate, and gas required under these regulations.

3.7.8. Technical Procedures. All technical procedures used to investigate a solid waste facility shall be the current standard procedures as specified by the American Society for Testing Materials or by the United States Geological Survey or other equivalent, appropriate methods approved by the chief.

3.7.8.a. All technical data submitted in the application shall be accompanied by the names of persons or organizations that collected or analyzed the data, the dates of the collection, and an analysis of the data and description of the methodology used to collect and analyze the date.

3.7.9. Endangered Species and Historic Sites. The application shall include a letter from the Department's Division of Wildlife Resources addressing the known presence of any endangered or threatened species of animals or plant in the vicinity of the proposed facility. The application shall also include a letter from the West Virginia Department of Culture and History addressing the presence of any known historical, scientific, or archaeological areas in the vicinity of the proposed facility.

3.7.10. Bonding and Financial Assurance. Sufficient bond shall be submitted to the Department in compliance with the

provisions of section 3.13. of these regulations.

3.7.11. Disclosure Statement. The application shall include the name of the applicant or any officer, director, or manager thereof; shareholder owning five percent (5%) or more of its capital stock, beneficial or otherwise; or other person conducting or managing the affairs of the applicant or the proposed licensed premises and must be submitted to the director in compliance with section 3.14 of these regulations.

3.7.12. Facility Expansion. In an application for an expansion of an existing facility, the effectiveness of the existing design and operation shall be discussed. An evaluation of relevant monitoring data and a discussion of all plan modifications and remedial actions shall be included in the application. Any significant adverse impacts to the waters of the State or to any endangered or threatened species of animal or plant that could result from the expansion shall also be noted and discussed.

3.7.13. Waste Reduction and Recovery Information. The application shall include a discussion of the alternatives to the facility, as well as a description of any waste reduction incentives and recycling services to be instituted or provided with the proposed facility as contained in section 3.7.13 of these regulations.

3.7.13.a. Waste Types, Origins, and Quantities. The application shall include a brief description of the types, origins, and quantities of household, commercial, industrial construction/demolition, and other wastes anticipated to be accepted at the proposed facility and a calculation of waste quantities by composition based on State-estimated figures or other data if readily available.

3.7.13.b. Description of Technologies. The application shall include a brief description of the technologies and methodologies of waste reduction, reuse, recycling, composting and energy recovery as applicable to the wastes anticipated to be accepted at the proposed facility.

3.7.13.c. Ongoing Program. The application shall include a brief description of any known waste reduction or recovery programs in the area to be served by the proposed facility that handle the type of waste anticipated to be accepted at the proposed facility, including a description of their potential for expansion.

3.7.13.d. Recommendations. The application shall include a brief description of any recommendations for waste reduction and recovery in approved area-wide solid waste management plans for all counties in the area to be served by the proposed facility.

3.7.13.e. Current Studies. The application shall include a brief description of any known waste reduction or recovery studies being conducted for wastes anticipated to be accepted at the proposed facility.

3.7.13.f. Available Recovery Markets. The application shall include a description of the nearest available markets for recoverable material from the waste anticipated to be accepted at the proposed facility including:

3.7.13.f.A. Market name and address;

3.7.13.f.B. Market requirements for minimum quantities and preparation for deliverable material; and

3.7.13.f.C. Prices paid for materials, including both current prices and ranges for the past three (3) years, if available to the public.

3.7.13.g. Potential Energy Markets. The application shall include a brief description of energy users within the service area capable of using at least twenty-five percent (25%) of the energy available in the waste stream anticipated at the proposed facility or for the energy available from a minimum of twenty-five (25) tons of waste per day, whichever is greater. At a minimum, consideration must be given to both electrical generation and to steam production.

3.7.13.h. Future Effects. The application shall include a brief description of any efforts to be implemented to either assist in the expansion of existing waste reduction and recovery programs or to develop new programs for waste reduction and recovery.

3.7.14. Geotechnical Information. The application shall include an analysis of the geologic, hydrogeologic, topographic, and hydrologic features of the facility site that may be favorable or unfavorable for facility development in compliance with the requirements of section 3.8 of these regulations.

3.7.15. Identification and Characterization of Potential Borrow Sources. The application shall include an identification and characterization of the potential borrow sources as detailed in section 3.12 of these regulations.

3.7.16. Proposed Design and Operation. The application shall include a proposed design based on conclusions outlined in the construction design section of the application as designated in section 3.10 of these regulations. A general discussion of the proposed operating procedures must also be included.

3.7.17. Landfill Liners. The application shall include plans, drawings, cross-sections, and specifications for a liner system as designated in section 3.11 of these regulations.

3.7.18. Verification of Application. The application shall include a notarized signature of a principal officer, or ranking public official, verifying that the information contained in the application is true and correct to the best of that individual's knowledge and belief.

3.8. General Geologic and Hydrologic Submission Requirements.

3.8.1. Site Information. The application shall include the following information regarding the potential site:

3.8.1.a. Total acres of site;

3.8.1.b. Total acres of disposal area;

3.8.1.c. Planned life of facility;

3.8.1.d. Previous existence of a mine or quarry at the site;

3.8.1.e. A 7.5 minute USGS topographic map, or an eight and one-half inch by eleven inch (8-1/2" x 11") copy of a portion thereof, showing:

3.8.1.e.A. The site and its boundaries;

3.8.1.e.B. The area surrounding the site for at least fifteen hundred (1,500) feet beyond the site boundaries;

3.8.1.e.C. The name of the quadrangle;

3.8.1.e.D. The date of last map revision;

3.8.1.e.E. The latitude and longitude of the center of the site; and

3.8.1.e.F. The location of the items listed in section 3.8.1.1 of these regulations, unless such items are instead shown on the large-scale map;

3.8.1.f. A description of the site location;

3.8.1.g. A description of the site terrain;

3.8.1.h. A description of any title, deed, or usage restrictions affecting the proposed permit area;

3.8.1.i. The name of the town nearest to the site;

3.8.1.j. The name of the county in which the site is located;

3.8.1.k. A large-scape map -- with a minimum scale of one inch equal to two hundred feet (1 inch = 200 feet) and a maximum contour interval of ten (10) feet -- showing the location of the items listed in section 3.8.1.1 of these regulations, unless such items are instead shown on the 7.5 minute topographic map;

3.8.1.l. All of the following which occur either within the site boundaries or within fifteen hundred (1,500) feet of the site boundaries must be indicated on the large-scale map or the 7.5 minute topographic map or both;

3.8.1.1.A. Water supply wells;

3.8.1.1.B. Springs;

3.8.1.1.C. Wetlands (e.g., swamps, bogs, marshes);

3.8.1.1.D. Streams;

3.8.1.1.E. Public water supplies;

3.8.1.1.F. Other bodies of water;

3.8.1.1.G. Underground or surface mine;

3.8.1.1.H. Mine pool discharges;

3.8.1.1.I. Mine spoil piles;

3.8.1.1.J. Quarries or sand and gravel pits;

3.8.1.1.K. Gas and oil wells;

3.8.1.1.L. Water quality monitoring points;

3.8.1.1.M. Occupied dwellings;

3.8.1.1.N. Roads;

3.8.1.1.O. Power lines and pipelines;

3.8.1.1.P. Public buildings;

3.8.1.1.Q. Sinkholes;

3.8.1.1.R. Property boundaries;

3.8.1.1.S. Owners of record both surface and subsurface;

3.8.1.1.T. Easements or right-of-ways; and

3.8.1.1.U. One hundred (100) year flood plain boundary.

3.8.2. Soils Information. Backhoe test pits or drilled test borings shall be employed to determine soil types, characteristics, and conditions. A minimum of four (4) test pits or borings for the first ten (10) or less acres and one (1) test pit or boring for each additional ten (10) or less acres must be excavated or drilled on a uniform grid pattern across the site and each proposed borrow source. Test pits or borings for Class F Solid Waste Facilities shall be located so as to identify all soil types distributed over the site. The applicant shall provide the following:

3.8.2.a. A list of each soil series and phase present on the site and each borrow source and soil maps with site and borrow source boundaries as an attachment;

3.8.2.b. The locations of all test pits or borings made to describe soils and determine their depth;

3.8.2.c. A description of soil horizons containing seventy-five percent (75%) or more coarse fragments (as per the United Soil Classification System) including:

3.8.2.c.A. Minimum thickness of soil to horizons with seventy-five percent (75%) or more coarse fragments;

3.8.2.c.B. Soil thickness determination procedures; and

3.8.2.c.C. Degree of weathering of coarse fragments.

3.8.2.d. Test pit or excavation descriptions including depth to all horizons, color, texture, structure, consistence, depth to and color of any mottles;

3.8.2.e. Results of laboratory analyses of soil samples taken from test pits or borings including analyses for grain size, Ph, permeability, and Atterberg limits for predominate soil types; and

3.8.2.f. A description of the following general soil characteristics;

3.8.2.f.A. Drainage characteristics of soil;

3.8.2.f.B. Maximum slopes at the proposed site; and

3.8.2.f.C. Shallowest depth from surface to mottling.

3.8.2.g. A minimum of four (4) representative samples for the first ten (10) or less acres and one (1) additional sample for each additional ten (10) or less acres must be tested for the relationship of water content to dry density using either the Modified or Standard Proctor method. Each Proctor curve must be developed with a minimum of five (5) points.

3.8.2.h. A minimum of twenty percent (20%) of the samples used to develop the Proctor curves must be used to evaluate soil permeability. This evaluation must be accomplished by determining the maximum density and optimum moisture through a Proctor test (D-698) and then testing for permeability at a dry density between ninety-five percent (95%) and one hundred percent (100%) of the maximum and within four percent (4%) of optimum moisture.

3.8.3. Site Geological Information. A minimum of four (4) test corings shall be performed at any landfill site with a permitted surface area of ten (10) or less acres and one (1) additional test coring performed for each additional five (5) acres up to one hundred fifty (150) acres, not to exceed fifteen (15) holes. Any acreage over one hundred fifty (150) acres shall require one (1) additional test coring per ten (10) or less acres. Such test corings shall be distributed over the entire site area to give an accurate description of subsurface conditions for the area of the site which is intended for use as a landfill. The depth at which coreholes shall terminate shall be determined by the following: the first coring shall be placed in the lowest point of the proposed disturbed area and cored to the upper most significant aquifer that is to be monitored or corings shall penetrate to a minimum depth of one hundred (100) feet in the absence of the aquifer. Upon the completion of drilling, drilling logs for all completed coreholes shall be submitted to the chief.

3.8.3.a. The site geological analysis should provide the following information:

3.8.3.a.A. Sediments.

3.8.3.a.A.(a) A notation of the presence of any sedimentary deposits under the proposed site including, but not limited to, colluvial, alluvial, or lacustrine;

3.8.3.a.A.(b) A description of the type and texture of unconsolidated materials;

3.8.3.a.A.(c) The thickness of unconsolidated materials including the maximum, minimum, and how the thickness was determined procedurally; and

3.8.3.a.A.(d) A description of the different formations of unconsolidated materials and the effects of these sediments on potential discharges from the landfill;

3.8.3.a.B. Bedrock.

3.8.3.a.B.(a) The formations and names;

3.8.3.a.B.(b) The lithologies including major lithologic names in the area (e.g., Morgantown, Sandstone, Ames Limestone) plotted on the large-scale map;

3.8.3.a.B.(c) An indication of all areas where bedrock outcrops within the site and fifteen hundred (1,500) feet of the site boundaries on the large-scale map;

3.8.3.a.B.(d) A characterization of the degree of bedrock weathering;

3.8.3.a.B.(e) The shallowest depth from surface to bedrock; and

3.8.3.a.B.(f) For carbonate rock show any undrained depressions or sinkholes existent on site or within fifteen hundred (1,500) feet of the site shown on the large-scale map or the 7.5 minute topographic map or both;

3.8.3.a.C. Structure.

3.8.3.a.C.(a) An indication of all of the following types of fracture zones on-site and within fifteen hundred (1,500) feet of the site boundaries on the large-scale map or the 7.5 minute topographic map or both:

3.8.3.a.C.(a)(A) Traces;

3.8.3.a.C.(a)(B) Lineaments;

3.8.3.a.C.(a)(C) Joints; and

3.8.3.a.C.(a)(D) Faults.

3.8.3.a.C.(b) A brief description of the influence that these fracture zones have on the movement of infiltrated water and groundwater;

3.8.3.a.C.(c) A description of the regional bedrock structures in the area of the site;

3.8.3.a.C.(d) A detailed description of the local bedrock structure. Construct a structural geologic map with a scale of one inch equal to two hundred feet (1 inch = 200 feet)

using the structural contour intervals. For bedrock dip at angles of zero to five degrees, contour intervals shall be five (5) feet; for angles of five to thirty degrees, contour internals shall be ten (10) feet; and for angles of greater than thirty (30) degrees, contour intervals shall be twenty-five (25) feet. Use of intermediate contours in areas of low structural relief for greater detail is required;

3.8.3.a.C.(e) A description of folding as it applies to the site including strike and plunge of fold axis and location of the site in relation to the local structure;

3.8.3.a.C.(f) The strike and dip of bedding planes;

3.8.3.a.C.(g) A description of the joints and fractures including strike, dip, and open joints and a description of the spacing of the joints;

3.8.3.a.C.(h) A description of all faults located on or within fifteen hundred (1,500) feet of the site boundaries including the strike and dip of faults and an indication of all faults in the area of the site on a map; and

3.8.3.a.C.(i) A minimum of two (2) geologic profiles using bedrock outcrops and corehole information including the vertical exaggeration to adequately illustrate the geology of the site; and

3.8.3.a.D. Mining.

3.8.3.a.D.(a) A notation of the presence of any abandoned, reclaimed, active, or inactive surface mines on the site;

3.8.3.a.D.(b) A list of any extractable coal seams beneath the site;

3.8.3.a.D.(c) Any active or inactive deep mines located on-site or within fifteen hundred (1,500) feet of the site boundaries including minimum depth to mined area, aerial extent of mined area as shown, and type of minerals mined. (If coal, give the names of seams.); and

3.8.3.a.D.(d) Any mine maps or related information for mined areas under the site or within fifteen hundred (1,500) feet of the site boundaries.

3.8.4. Hydrologic Information. A minimum of four (4) monitoring wells shall be drilled to intersect the uppermost significant aquifer at all landfill sites. Monitoring wells -- one (1) upgradient and three (3) downgradient -- shall monitor the same

aquifer. If previously drilled geologic corings are to be used as monitoring wells and the uppermost significant aquifer has been drilled through, then those holes proposed to monitor groundwater may be plugged from the bottom of the hole to the uppermost significant aquifer with a sodium bentonite grout, then properly screened and cased.

3.8.4.a. Groundwater monitoring wells shall meet the following specifications:

3.8.4.a.A. All monitoring well casings and screens shall be constructed of a minimum of two (2) inch (inner diameter) Schedule 40 polyvinylchloride (PVC) plastic pipe, or other casing satisfactory to the chief. Lengths of pipe shall be joined using threaded couplings. Borehole diameter shall be a minimum of six (6) inches larger than the PVC casing. If approved by the director, the borehole diameter may be smaller if proven methods are employed to facilitate the emplacement of the filter pack and annular sealant.

3.8.4.a.B. The screened interval for monitoring wells shall consist of ten (10) to a maximum of twenty (20) feet of properly sized, pre-constructed, commercially available well screen of the same material and diameter as the casing, or screen as approved by the chief. The bottom of the screen shall be capped. Should the uppermost aquifer thickness exceed twenty (20) feet or be comprised of several hydraulically connected formations, then a cluster of wells or some other type of multiple zone monitoring system may be required at the discretion of the chief.

3.8.4.a.C. All wells shall be sand or gravel-packed (depending on screen size) from the base of the well to a level a minimum of two (2) feet and a maximum of five (5) feet above the top of the screen. An impervious two (2) foot or greater bentonite seal shall be installed on top of the gravel packing.

3.8.4.a.D. All wells shall be continuously grouted from the top of the impervious seal to above the groundwater table. Wells shall not be grouted with cement below the potentiometric surface of the uppermost significant aquifer.

3.8.4.a.E. From below the frost line, the cap shall be composed of concrete (using expanding cement) blending into a four (4) inch thick apron extending three (3) feet or more from the outer edge of the borehole.

3.8.4.a.F. Upon completion, all wells shall be fully developed and pumped to determine the yield of the well.

3.8.4.a.G. The elevation of the top of the well casing shall be two (2) to three (3) feet above the elevation of the ground surface.

3.8.4.a.H. All wells shall be properly tagged with permit number, top of casing elevation, well number, and flagged or otherwise made visible so they can be readily located in the field, and avoided by onsite heavy equipment.

3.8.4.a.I. All wells shall be provided with a means of protection from tampering, vandalism, or damage.

3.8.4.b. Well Drilling. The method used to drill the groundwater monitoring wells shall be described in the application. The latitude and longitude of each well to within plus or minus one second and the USGS datum elevation of the top of each well shall be included in the application.

3.8.4.c. Water Table. The maximum and minimum depth to the zone of saturation shall be included in the application.

3.8.4.c.A. Seasonal water table fluctuations at the above locations and seeps and springs affected by seasonal changes shall be described in the application.

3.8.4.c.B. Perched or special water table conditions shall be described in the application.

3.8.4.c.C. The minimum depth to a perched water table shall be provided in the application.

3.8.4.c.D. The occurrence of groundwater drainage to deep mines shall be determined and, if found, mine discharges must be identified on the large-scale map or the 7.5 minute topographic map or both, as required under section 3.8.1.1 of the these regulations.

3.8.4.d. Groundwater Movement.

3.8.4.d.A. A large-scale map (1 inch = 200 feet) showing all groundwater flow directions shall be constructed and included in the application. The water table/potentiometric surface shall be contoured on this map using an appropriate contour interval.

3.8.4.d.B. The approximate rate of groundwater flow and the method used to determine that flow shall be provided in the application.

3.8.4.d.C. The method used to determine groundwater flow directions shall be included in the application.

3.8.4.d.D. The location of all groundwater discharge points related to the site shall be shown on the large-scale map required under section 3.8.4.d.A. of these regulations.

3.8.4.d.E. If the site is in a groundwater discharge or recharge zone, this fact shall be noted in the application.

3.8.4.d.F. The rate of groundwater flow at the site and its effects on the operation of the proposed facility shall be discussed in the application.

3.8.4.e. Groundwater Quality Analyses. The results of an analysis of the water from each groundwater monitoring well at the site shall be provided in the application. All sampling must be conducted using sampling procedures approved by the chief. Analyses for the following parameters shall be conducted: alkalinity, ammonia nitrogen, arsenic, barium, bicarbonate, biochemical oxygen demand (BOD-5 day), cadmium, calcium, chemical oxygen demand (COD), chlorides, chromium, cyanide, iron, lead, dissolved manganese, magnesium, mercury, nickel, nitrate, pH, potassium, selenium, silver, sodium, sulfate, total dissolved solids (TDS), total organic compounds (TOC), total phenolic materials, zinc, and any other parameter specified by the chief in writing.

3.8.4.e.A. The monitoring parameters listed in section 3.8.4.e. of these regulations shall be reported as total metals unless otherwise specified by the chief.

3.8.4.f. Surface Water.

3.8.4.f.A. The name of the nearest stream to the site and its 7Q10 low flow shall be included in the application.

Note: "7Q10" means the seven (7) consecutive day drought flow with a ten (10) year return frequency.

3.8.4.f.B. The surface drainage area of the tributary on which the site is located shall be plotted on a map and included in the application.

3.8.4.f.C. The estimated peak surface water drainage flow of the tributary on which the site is located for a 25-year, 24-hour rainfall event shall be included in the application.

3.8.4.f.D. The maximum and minimum of surface slopes of the tributary on which the site is located shall be included in the application.

3.8.4.f.E. The results of an analysis of water from one (1) grab sample from the nearest stream to the site shall be included in the application. This analysis shall be performed for the same parameters listed in section 3.8.4.e and 3.8.4.e.A of these regulations with the addition of suspended solids.

3.8.5. Water Budget. A water budget shall be prepared for the periods of time during active operations, when the maximum amount of area has been filled but not capped, and following facility closure at any landfill site. At a minimum, the following factors must be considered in the preparation of the water budget:

3.8.5.a. Average monthly temperature;

3.8.5.b. Average monthly precipitation;

3.8.5.c. Evaporation;

3.8.5.d. Evapotranspiration;

3.8.5.e. Surface slope and topsoil texture;

3.8.5.f. Soil moisture holding capacity and root zone depth;

3.8.5.g. Runoff coefficients;

3.8.5.h. Moisture contribution from the waste; and

3.8.5.i. Any groundwater contribution.

3.8.6. Liners and Leachate Collection System Efficiency. The collection efficiency of the leachate collection system at the landfill shall be calculated using an approved analytical or numerical method. The factors to be considered in the calculation of collection efficiency must include:

3.8.6.a. The saturated hydraulic conductivity of the liner;

3.8.6.b. Liner thickness;

3.8.6.c. The saturated hydraulic conductivity of the drainage blanket;

3.8.6.d. Drainage blanket porosity;

3.8.6.e. The base slope of the liner;

3.8.6.f. The maximum flow distance across the liner;

3.8.6.g. Annual infiltration; and

3.8.6.h. Any groundwater inflow.

3.8.7. Leachate Generation. Information gained from the collection efficiency calculations shall be used to predict the daily volume of leachate collected from the landfill.

3.8.8. Waste and Leachate Characterization.

3.8.8.a. Industrial Wastes. Unless otherwise approved, the physical and chemical characteristics of all wastes and leachates shall be analyzed and described. When more than one waste is generated, testing shall be performed on each waste stream. All leaching tests shall be done in accordance with published test procedures. Physical tests shall be done in accordance with ASTM standards or published test procedures. All testing procedures shall be documented. The proposed testing program -- including the leaching test method, the leaching media, the parameters to be analyzed for, and the detection limits for each parameter specified -- should be discussed with the chief prior to initiation of the work. Actual field leachate data may be substituted for chemical characterization data of the waste at facilities for the disposal of industrial wastes only if approved in writing by the chief.

3.8.8.b. Municipal Wastes. Actual field leachate data from existing facilities of similar size, design, and waste type or an estimate of the anticipated leachate quality available from other sources shall be included for all facilities for the disposal of municipal solid waste.

3.8.9. Liquid and Non-Liquid Waste Storage. All solid waste storage tanks, containers, liquid waste storage tanks and surface impoundments located at solid waste facilities are subject to regulation under section 3.8.9 of these regulations.

3.8.9.a. An application for a permit to construct and operate a solid waste facility which includes a waste storage area must contain the following:

3.8.9.a.A. A description of the non-liquid or liquid waste to be stored;

3.8.9.a.B. The estimated volume of the non-liquid or liquid waste generated and a proposed recordkeeping system to record actual quantities stored;

3.8.9.a.C. A schedule of stored waste removal;

3.8.9.a.D. A description of the final treatment and disposal of the stored waste; and

3.8.9.a.E. A description of the storage facility design.

3.9. Existing Land Use and Environmental Assessment.

3.9.1. Land Use Information. The application shall discuss the present and former land uses at the facility and the

surrounding area. A thorough discussion of land uses which may have an impact upon the suitability of the property for waste disposal or affected groundwater quality shall be included in the application. The application shall address all areas that may affect or be affected by the proposed facility; at a minimum, this will be the area within one (1) mile of the permit area for Class A solid waste facilities and within one-half (1/2) mile of the permit for all other facilities. The presentation of land use information in the application shall be supplemented with land use maps and, at a minimum, shall specifically address the following:

3.9.1.a. Adjacent Landowners. The identity and location of the adjacent landowners must be determined. This information may be presented on a plat map but must check current ownership conditions and note any changes.

3.9.1.b. Land Use Zoning. The application shall review land use zoning in the area and give particular attention to areas where zoning variances will be required, where agricultural impact statements may be required, or where floodplain, river corridors, or wetlands are designated.

3.9.1.c. Documentation of Present Land Uses. The application shall include a description of the present land use in the area. Particular emphasis shall be placed on the discussion of known recreational, historical, archaeological, or environmentally unique areas. The application shall include a letter from the Department's Division of Wildlife Resources addressing the known presence of any endangered or threatened species of animal or plant in the vicinity of the proposed facility. The application shall include a letter from the West Virginia Department of Culture and History addressing the presence of any known historical, scientific, or archaeological areas in the vicinity of the proposed facility. The need for an archaeological survey of the proposed limits of waste fill prior to development shall also be addressed in the application.

3.9.1.d. Transportation and Access. Present and proposed transportation routes and access roads, including any weight restrictions, shall be delineated in the application.

3.9.2. Environmental Review. The application shall include an environmental assessment section which addresses the following items:

3.9.2.a. Project Summary. The application shall include a brief summary of the project, with particular attention given to the following:

3.9.2.a.A. The purpose and need for the proposed facility including the history and background on the project;

3.9.2.a.B. A listing of the statutory authority and other relevant local, State, and federal permits or approvals required for the proposed facility as well as a discussion of the need for exemptions, zoning changes, and any other special permits; and

3.9.2.a.C. The estimated cost and funding source for the facility.

3.9.2.b. Proposed Physical Changes. The application shall include a brief description of the proposed physical changes that will result from the project, with particular attention given to the following:

3.9.2.b.A. The changes in terrestrial resources including the quantity of material to be excavated and the lateral extent of soil removal. This discussion must also cover the quantity and source of materials to be imported for construction of the liner, final cover system, drainage blanket and perimeter berms. Any other significant terrestrial modifications such as soil placement necessary to reach the proposed sub-base grades, construction of access roads, surface water drainage features, and sedimentation controls must also be outlined;

3.9.2.b.B. The changes in aquatic resources including the potential impacts to streams, wetlands, lakes, and drainage basin. This discussion must include discharge rates and volumes for groundwater control structures, leachate collection systems, and surface water runoff under existing conditions as well as that anticipated during active operation and following closure of the facility;

3.9.2.b.C. Building, treatment units, roads, and other structures to be constructed in conjunction with the facility. This discussion must include the size of the facilities and the number of miles of road to be constructed;

3.9.2.b.D. Emissions and discharges such as dust, diesel exhaust, odors, gases, leachate, surface water runoff, and collected groundwater associated with facility preparation, construction, operation, closure, and following closure of the facility;

3.9.2.b.E. Other changes anticipated with facility development ; and

3.9.2.b.F. Maps, plans, and other descriptive material to clarify the discussion such as a county map showing the general area of the project, a USGS topographic map, a plat map, zoning map, county wetlands map, and a facility development plan.

3.9.2.c. Existing Environment. The application shall include a brief description of the existing environment that may be affected by the project, with particular attention given to the following:

3.9.2.c.A. The physical environment including the regional and local topography, geology, surface water drainage features, hydrogeologic conditions, air, wetlands, and earth borrow sources as well as an evaluation of the groundwater quality data and overall performance of any existing solid waste facility;

3.9.2.c.B. The dominant aquatic and terrestrial plant and animal species and habitats found in the area including any threatened or endangered species and the amount, type, and hydraulic value of wetlands;

3.9.2.c.C. Land use information including dominant features and zoning in the area;

3.9.2.c.D. Social and economic conditions including any ethnic or cultural groups; and

3.9.2.c.E. Other special resources such as archaeological, historical, state natural areas, and prime agricultural lands.

3.9.2.d. Environmental Consequences. The application shall include a brief discussion of the probable adverse and beneficial impacts of the project, including primary, indirect, and secondary impacts, with particular attention given to the following:

3.9.2.d.A. The physical impacts which would be associated with facility design, construction, and operation, including visual impacts if applicable;

3.9.2.d.B. The biological impacts including destruction and creation of habitat, alteration of the physical environment and any impacts to endangered or threatened species;

3.9.2.d.C. The impacts on land use;

3.9.2.d.D. The social and economic impacts to local residents, cultural groups, and the communities and industries served by the facility;

3.9.2.d.E. Other special resources such as archaeological, historical, state natural areas, and prime agricultural lands; and

3.9.2.d.F. Probable adverse impacts that cannot be avoided including groundwater and surface water impacts,

modifications of topography and any borrow source limitations on development around the facility, any loss of agricultural or forest land, displacement of wildlife, and adverse aesthetic impacts for people in and around the facility.

3.10. Proposed Landfill Design.

3.10.1. Report Preparation. The application shall include a report describing the proposed landfill design. At a minimum, this report shall include the following:

3.10.1.a. Preliminary materials balance calculations, including sources for berms, liner, final cover system, drainage blanket, topsoil, daily and intermediate cover, and any other fill needed to construct the facility;

3.10.1.b. Proposed methods for leachate and gas control including collection, containment, and treatment. The capability of the wastewater treatment plants to accept leachate must be discussed and an identification made of the wastewater treatment plants the applicant is negotiating with to accept the leachate, if the plant is not directly controlled by the applicant;

3.10.1.c. Proposed operating procedures including the method of facility development, filling sequence, access control for each phase, surface water control, screening, covering frequency, as applicable, exclusion of hazardous wastes and other special design features;

3.10.1.d. A description of the proposed groundwater, leachate, surface water, gas, air, unsaturated zone, and other monitoring programs to be implemented to meet the requirements of section 4.11 of these regulations;

3.10.1.e. Proposed closure plan and final use as specified in section 6.1 of these regulations;

3.10.1.f. Proposed method of demonstrating financial responsibility for closure and long-term care requirements including preliminary itemized cost estimates for land acquisition, facility preparation, construction of each major phase, daily operation, closure, and long-term care. An estimated cost per ton for disposal must also be included;

3.10.1.g. Proposed design for access roads;

3.10.1.h. Proposed design for drainage and sediment control; and

3.10.1.i. Proposed revegetation plan including seed mixture, seed bed preparation, fertilizers, mulching, and maintenance schedule.

3.10.2. Preliminary Engineering Plans. The preliminary engineering design must be presented on twenty-four inch by thirty-six inch (24" x 36") plan sheets (unless an alternative size is approved by the chief in writing) as follows:

3.10.2.a. Proposed access, lateral extent of filling, phases of facility development, sub-base and base grades, slopes and the leachate collection system. The existing conditions map shall be used as a base map for this plan sheet;

3.10.2.b. A plan sheet showing present topography, proposed base and sub-base grades, final grades, and liner and final cover system configuration displayed on all geologic cross-sections intersecting the landfill;

3.10.2.c. A monitoring plan sheet showing the proposed groundwater, leachate, surface water, gas, air unsaturated zone, and any other monitoring programs;

3.10.2.d. A drainage plan sheet showing:

3.10.2.d.A. The directional flow of water on and away from the land to be affected;

3.10.2.d.B. The location of all erosion and sedimentation control structures;

3.10.2.d.C. The component drainage area together with a table showing total acreage and disturbed acreage within each component; and

3.10.2.d.D. A sediment structure table showing type of sediment control structure, total contributing drainage area (acres), disturbed acreage controlled by total disturbance in drainage area (acres), and storage capacity (acre-feet);

3.10.2.e. A detailed plan sheet showing proposed closure sequence and final grades; and

3.10.2.f. A plan sheet showing the details of proposed design features for the major engineering structures at the facility;

3.10.3. Sequencing of Solid Waste Disposal.

3.10.3.a. Solid Waste Placement Schedule. The sequence of solid waste disposal shall be specified in a schedule of solid waste placement which shall be approved by the chief. The solid waste placement schedule shall correspond to a horizontal control grid system, with grid elements having maximum dimensions of two hundred (200) feet square. The horizontal control grid system shall be referenced to a permanent physical marker or object on the

site, with vertical control referenced to an elevation established for the marker. The solid waste placement schedule shall specify the order in which grid elements (maximum two hundred (200) square feet in size) will be used for solid waste disposal for each lift of every solid waste fill area.

3.10.3.b. Solid Waste Disposal Coordination. The schedule of solid waste placement shall be coordinated with the construction of on-site access roads, surface water drainage system, leachate collection system and other facility construction in solid waste fill areas.

3.11. Landfill Liners.

3.11.1. The application shall contain plans, drawings, and cross-sections, and specifications for a liner system to demonstrate compliance with performance standards including the following:

3.11.1.a. The design of the liner system;

3.11.1.b. The thickness and characteristics of the subbase;

3.11.1.c. The thickness and characteristics of the leachate detection zone;

3.11.1.d. The design for the leachate monitoring system in the leachate detection zone;

3.11.1.e. The nature and thickness of the liner material;

3.11.1.f. The thickness and characteristics of the leachate collection zone;

3.11.1.g. The design for the leachate collection system in the collection zone;

3.11.1.h. The thickness and characteristics of the protective cover; and

3.11.1.I. A plan for installing the liner system.

3.11.2. The application shall include a quality assurance and quality control plan for the construction and installation of the liner system. At a minimum, the Q.A./Q.C. plan shall include:

3.11.2.a. A description of the testing procedures and construction methods proposed to be implemented during construction of the liner system;

3.11.2.b. A description of the manner in which the protective cover and liner system will be maintained and protected in unfilled portions of the disposal area prior to and during placement of the initial lift of solid waste; and

3.11.2.c. A description of the manner in which the protective cover and liner system will be protected from weather prior to and during placement of the initial lift of solid waste.

3.11.3. The application shall demonstrate that leachate will not adversely affect the physical or chemical characteristics of the proposed liner system, or inhibit the liner's ability to restrict the flow of solid waste, solid waste constituents or leachate, based on the most recent edition of EPA Method 9090, Compatibility Test for Wastes and Membrane Liners, or other documented data.

3.12. Identification and Characterization of Potential Borrow Sources for Landfills.

3.12.1. General. The application shall contain a description of each proposed borrow source for liner and capping purposes including the volume of acceptable material, total acreage, ownership, location, present land use, transportation routes and any access restrictions, travel distance from the proposed waste disposal facility, surface water drainage patterns, and significant hydrologic features such as surface waters, springs, drainage divides, and wetlands.

3.12.2. Field and Laboratory Investigations. At a minimum, preliminary field and laboratory investigations to define the physical characteristics of the proposed borrow material must include the information specified in section 3.8.2 of these regulations unless an alternative geotechnical investigation program is approved by the chief in writing. Applicants may submit an alternative program in cases where previous information exists regarding the proposed source.

3.12.3. Data Presentation. The following information must be submitted with the application:

3.12.3.a. The calculated volume of acceptable material based on the information obtained from the test pits or borings;

3.12.3.b. Property boundaries and test pit/boring locations shown on a USGS topographic map with a scale of one inch equal to five hundred feet (1 inch = 500 feet). The mapped area must extend a minimum of five hundred (500) feet beyond the proposed borrow source;

3.12.3.c. An isopach map showing the thickness of acceptable material;

3.12.3.d. A description of the methods to be used for separating the acceptable material from any unacceptable material;

3.12.3.e. A proposal for maintaining drainage, sedimentation control, and proper abandonment of the property; and

3.12.3.f. All data obtained from the testing program.

Note: It may be necessary to obtain federal, State, or local permits prior to excavating materials from a borrow source near surface waters or wetlands. It is the responsibility of the applicant or property owner to obtain any such permits.

3.13. Bonding and Financial Assurance.

3.13.1. Requirements for Commercial Solid Waste Facilities.

3.13.1.a. The chief will not approve a new, reissued, renewed, or modified permit for a commercial solid waste facility unless the applicant first submits to the director a bond in accordance with these regulations and the bond is approved by the director.

3.13.1.b. The bond must be submitted after the application is approved but before the permit is issued.

3.13.1.c. A person who holds a valid Department permit to conduct a commercial solid waste activity on the effective date of these regulations must file a bond with the director prior to receiving the permit modification required under section 3.5.4 of these regulations.

3.13.2. General Bonding and Financial Assurance Requirements.

3.13.2.a. All bonds must be submitted under the requirements of these regulations on a form prepared and furnished by the director, must be made payable to the State of West Virginia, and must provide for continuous liability from the initiation of operations at the facility for the full term of the permit and for up to ten (10) years after final closure of the permit site. Any further time period necessary to achieve compliance with the requirements in the closure plan of the permit shall be considered an additional liability period.

3.13.2.b. If a permit applicant elects to offer a certificate or securities as a bond, then the cash deposit or market value of such securities or certificates must be equal to or greater than the sum of the bond.

3.13.2.c. Bonds shall be conditioned on compliance with the Solid Waste Management Act, the regulations promulgated

thereunder, orders issued by the chief or the director, and the terms and conditions of the permit.

3.13.2.d. Bonds will be reviewed for legality and form in accordance with established Department procedures.

3.13.2.e. Bonds will be placed with the State treasurer to be held in the name of the State in trust for the purpose for which the deposit is made when the permit is issued.

3.13.2.f. With the director's permission, the permittee may remove the deposit if it is replaced with an equivalent or greater deposit.

3.13.2.g. If for any reason a permittee fails to maintain proper bonding, the director shall issue a cease and desist order and revoke the permit and the permittee shall become fully liable for the amount of the bond.

3.13.3. Form of Bond or Other Financial Assurance.

3.13.3.a. The director will accept the following types of bonds:

3.13.3.a.A. A surety bond;

3.13.3.a.B. A collateral bond (including cash and securities);

3.13.3.a.C. An escrow account;

3.13.3.a.D. Letters of credit;

3.13.3.a.E. Performance bonding fund participation (as established by the director); and

3.13.3.a.F. A combination of these methods.

3.13.3.b. If collateral bonding is selected by the permittee only the following forms of collateral bonding will be allowed:

3.13.3.b.A. Cash deposit;

3.13.3.b.B. Collateral securities; and

3.13.3.b.C. Certificates:

3.13.3.b.C.(a) Bonds of the United States or its possessions;

3.13.3.b.C.(b) Bonds of the Federal Land Bank;

3.13.3.b.C.(c) Bonds of the Homeowners Loan Corporation;

3.13.3.b.C.(d) Full Faith and General Obligation bonds of the State of West Virginia or other states and of any West Virginia county, district, or municipality, or of other states; and

3.13.3.b.C.(e) Certificates of deposit in a bank in this State in favor of the Department.

3.13.4. Special Terms and Conditions for Surety Bonds.

3.13.4.a. The director will not accept the bond of a surety company that has failed or unduly delayed, as determined by the director, in making payment on a forfeited surety bond.

3.13.4.b. The director will accept only the bond of a surety authorized to do business in this State when the surety bond is signed by an appropriate official of the surety as determined by the director. If the principle place of business of the surety is outside of this State, the surety bond must also be signed by an authorized resident agent of the surety.

3.13.4.c. The bond must provide that full payment will be made under the bond within thirty (30) days of receipt of the Department's declaration of forfeiture by the surety.

3.13.4.d. The director will not accept surety bonds from a surety company when the total bond liability to the Department on bonds filed by the permittee, the principal and related parties exceeds the surety company's single risk limit.

3.13.4.e. The bond shall provide that the surety and the principal are jointly and severally liable for payment of the bond amount.

3.13.4.f. The director will provide in the bond that the amount shall be confessed to judgment and execution upon forfeiture.

3.13.4.g. The Department will retain, during the term of the bond, and upon forfeiture of the bond, a property interest in the surety's guarantee of payment under the bond which may not be affected by the bankruptcy, insolvency, or other financial incapacity of the permittee or principal on the bond.

3.13.4.h. The bond shall provide that the surety will give written notice to the principal and the Department within ten (10) days of a notice received or an action failed by or with a regulatory agency having jurisdiction over the surety alleging one of the following:

3.13.4.h.A. The insolvency or bankruptcy of the surety.

3.13.4.h.B. Violations of regulatory requirements applicable to the surety, when as a result of the violations, suspension or revocation of the surety's license to do business in this State or another state is under consideration by the regulatory agency.

3.13.5. General Terms and Conditions for Collateral Bonds.

3.13.5.a. The applicant may submit a collateral bond in one or more of the following forms:

3.13.5.a.A. Cash.

3.13.5.a.B. Certified checks, cashier's checks, or treasurer's checks which are issued, drawn on or certified by a bank or banking institution authorized to do business in this State.

3.13.5.a.C. Automatically renewable and assignable certificates of deposit from banks or banking institutions authorized to do business in this State.

3.13.5.a.D. Automatically renewable, irrevocable standby letters of credit from banks or banking institutions authorized to do business in this State.

3.13.5.a.E. Negotiable bonds of the United States Government; the Federal Land Bank; the Homeowners Loan Corporation; and Full Faith and General Obligation bonds of the State of West Virginia or other states, and of any West Virginia county, district, or municipality, or of other states.

3.13.5.b. The market value of the collateral deposited must be at least equal to or greater than the sum of the required bond amount.

3.13.5.c. The director will place collateral submitted under these regulations with the State treasurer, who is responsible for its custody and safe keeping until released or collected and deposited in an appropriate fund designated by the director.

3.13.5.d. Collateral must be in the name of the permittee, and pledged and assigned to the State free and clear of claims or rights. The pledge or assignment shall vest in the State a property interest in the collateral which shall remain until released under the terms of these regulations, and may not be affected by the bankruptcy, insolvency, or other financial incapacity of the permittee.

3.13.5.e. The State will ensure that its ownership rights to collateral deposited are established to make the collateral readily available to the State upon forfeiture. The director may require proof of ownership, and other means such as secondary agreements, as he deems necessary to meet the requirements of these regulations. If the director determines that collateral deposited does not meet the requirements of these regulations, he may take action under the law to protect the State's interest in the collateral.

3.13.6. Collateral Bonds; Escrow.

3.13.6.a. The director may authorize the permittee to establish an escrow account deposited in one or more federally-insured accounts payable on demand only to the director, or directly deposited with the director.

3.13.6.b. Escrow funds deposited in federally-insured accounts shall not exceed the maximum insured amount under applicable federal insurance programs such as the Federal Deposit Insurance Corporation (F.D.I.C.) or the Federal Savings and Loan Insurance Corporation (F.S.L.I.C.).

3.13.6.c. Interest paid on an escrow account shall be retained in the escrow account and applied to the bond value of the escrow account unless the director has approved that the interest be paid to the permittee. In order to qualify for interest payment, the permittee shall request such action in writing during the permit application process.

3.13.7. Collateral Bonds; Letters of Credit.

3.13.7.a. Bank letters of credit submitted as collateral for collateral bonds are subject to the following conditions:

3.13.7.a.A. The letter of credit must be a standby or guarantee letter of credit issued by a federally-insured or equivalently protected bank or banking institution authorized to do business in this State. The letter of credit may not be issued without a credit analysis substantially equivalent to a credit analysis applicable to a potential borrower in an ordinary loan situation. A letter of credit so issued must be supported by the customer's unqualified obligation to reimburse the issuer for monies paid under the letter of credit.

3.13.7.a.B. The letter of credit must be irrevocable and must be so designated.

3.13.7.a.C. The director may not accept letters of credit issued for a customer when the amounts of the letter of credit, aggregated with other loans and credits extended to the customer, exceeds the issuer's legal lending limit for that

customer as defined in the United States Banking Code (12 U.S.C. §§21-220).

3.13.7.a.D. Letters of credit must name the West Virginia Department of Natural Resources beneficiary and shall be payable to the Department upon demand, in part or in full, upon presentation of the Department's drafts, at sight. The Department's right to draw upon the letter of credit does not require documentary or other proof by the Department that the customer has violated the conditions of the bond, the permit, or another requirement.

3.13.7.a.E. The director will not accept letters of credit from a bank which has failed or delayed in making payment on a letter of credit previously submitted as collateral to the Department.

3.13.7.b. The director will not accept letters of credit from a bank for any person, on all permits held by that person, in excess of three (3) times the company's maximum single obligation as provided by State law.

3.13.7.c. The director will provide in the indemnity agreement that the amount shall be confessed to judgement upon forfeiture.

3.13.7.d. The letter of credit must provide that:

3.13.7.d.A. The bank will give prompt notice to the permittee and the director of any notice received or action filed alleging the insolvency or bankruptcy of the bank, or alleging any violations of regulatory requirements which could result in suspension or revocation of the bank's charter or license to do business.

3.13.7.d.B. In the event the bank becomes unable to fulfill its obligations under the letter of credit for any reason, notice shall be given immediately to the permittee and the director.

3.13.7.d.C. Upon the incapacity of a bank by reason of bankruptcy, insolvency, or suspension or revocation of its charter or license, the permittee must be deemed to be without bond coverage. The director shall issued an order against any operator who is without bond coverage. The notice will specify the period within which bond coverage must be replaced. If the permittee cannot replace the bond within the specified period of time, then the director shall immediately revoke the permit. The permittee shall be fully liable for the amount of the bond coverage.

3.13.7.d.D. The estimated bond value of all collateral posted as bond assurance will be subject to a margin

bond value to market value ratio as determined by the director. This margin will reflect legal and liquidation fees, as well as value depreciation, marketability and fluctuations which might affect the net cash available to the director in performing closure or other remedial measures. The bond value of collateral may be evaluated at any time, but must be evaluated as part of permit renewal. In no case may the bond value exceed the market value.

3.13.7.e. The issuing bank must waive the rights of setoff or liens which it has or might have against the letter of credit.

3.13.7.f. If the director collects an amount under the letter of credit due to failure of the permittee to replace the letter of credit after demand by the director, the Department will hold the proceeds as cash collateral.

3.13.8. Collateral Bonds; Certificates of Deposit.

3.13.8.a. Certificates of deposit submitted as collateral for collateral bonds are subject to the following conditions:

3.13.8.a.A. The certifications of deposit must be made payable to the permittee and shall be assigned to the Department by the permittee, in writing, as required by the director and on forms provided by the director. The assignments must be recorded upon the books of the bank issuing the certificate.

3.13.8.a.B. The certificate of deposit must be issued by a federally-insured or equivalently protected bank or banking institution which is authorized to do business in this state.

3.13.8.a.C. The director will not accept certificates of deposit from a bank or banking institution when the accumulated total of certificates of deposit issued by the bank or banking institution for the operator is in excess of one hundred thousand dollars ($100,000), or the maximum insurable amount as determined by the F.D.I.C. or the F.S.L.I.C., if the banking institution is insured by the F.D.I.C. or F.S.L.I.C. If it is insured by an equivalent method administered by the State, similar limits apply.

3.13.8.a.D. The certificate of deposit must state that the bank issuing it waives the rights or setoff or liens which it has or might have against the certificate.

3.13.8.a.E. The certificate of deposit must be automatically renewable and fully assignable to the State.

Certificates of deposit must state on the face that they are automatically renewable.

3.13.8.a.F. The permittee must submit certificates of deposit in amounts which will allow the Department to liquidate the certificates prior to maturity, upon forfeiture, for the full amount of the bond determined in accordance with and required by these regulations, without penalty to the Department.

3.13.8.a.G. The director will not accept certificates of deposit from banks which have failed or unduly delayed in making payment on certificates of deposit which have previously been submitted as collateral to the Department.

3.13.8.a.H. The permittee is not entitled to interest accruing after forfeiture is declared by the Department, unless and until the forfeiture declaration is ruled invalid by a court having jurisdiction over the Department, and the ruling is final.

3.13.9. Collateral Bonds; Negotiable Bonds.

3.13.9.a. Negotiable bonds submitted and pledged as collateral for collateral bonds are subject to the following conditions:

3.13.9.a.A. The director may determine the current market value of governmental securities for the purpose of establishing the value of the securities for bond deposit.

3.13.9.a.B. The current market value shall be at least equal to the amount of the required bond.

3.13.9.a.C. The Department may periodically revalue the securities and may require additional amounts if the current market value is insufficient to satisfy the bond amount requirements for the facility.

3.13.9.a.D. The permittee may request and receive the interest accruing on governmental securities with the Department as the same becomes due and payable. No interest will be paid for post-forfeiture interest accruing during appeals and after resolution of the appeals, when the forfeiture is adjudicated, decided, or settled in favor of the state.

3.13.10. Surety/Collateral Combination Bonds.

3.13.10.a. The director may accept a bond which is comprised of surety and collateral bond instruments otherwise allowed by these regulations. The instruments must be construed as part of the entire bond for the facility. The director may refuse to accept the bond if he determines that the financial guarantee of

the bond is unacceptable, or for another reason does not meet the purposes of the Act, these regulations, or orders of the chief or the director.

3.13.11. Other Forms of Bonding. (Reserved).

3.13.12. Replacement of Existing Bond.

3.13.12.a. The director may allow a permittee to replace an existing surety or collateral bond with another surety or collateral bond, if the liability which has accrued against the bond, the permittee and the facility is transferred to the replacement bond. The replacement bond must include an endorsement by the permittee acknowledging the retroactivity of the liability to the date of issue of the original solid waste permit or a prior date determined by the director. The bond amount for this replacement bond will be determined under these regulations, but may not be less than the amount on deposit with the Department.

3.13.12.b. The Department will not release existing bonds until the permittee has submitted and the director has approved acceptable replacement bonds. A replacement of bonds under section 3.13.12 of these regulations does not constitute a release of bond under these regulations.

3.13.13. Bond Amounts.

3.13.13.a. In accordance with the provisions of W. Va. Code §20-5F-5b, all permits shall be bonded for at least ten thousand dollars ($10,000).

3.13.13.b. Bond amounts for landfills which meet or exceed the liner requirements of these regulations shall be set at one thousand to four thousand dollars ($1,000 to $4,000) per acre at the discretion of the director.

3.13.13.c. Bond amounts for single liner landfills currently approved by the director shall be six thousand dollars ($6,000) per acre.

3.13.13.d. Bond amounts for landfills that do not have liners shall be eight thousand dollars ($8,000) per acre.

3.13.13.e. Bond amounts for solid waste facilities other than landfills that exceed the requirements of these regulations shall be set at one thousand to four thousand dollars ($1,000 to $4,000) per acre at the discretion of the director.

3.13.13.f. Bond amounts for solid waste facilities other than landfills that meet the requirements of these regulations shall be set at four thousand to eight thousand dollars ($4,000 to $8,000) per acre at the discretion of the director.

3.14. Disclosure Statement.

3.14.1. Every applicant shall file a disclosure statement with the director at the time the application is filed, unless exempt from such disclosure under the provisions of section 3.14.4 of these regulations.

3.14.2. Disclosure statements shall be filed by submitting an original and one (1) certified copy of all papers, including Personal History Disclosure Forms, to the director accompanied by a nonrefundable investigation fee in accordance with the schedule of fees in Appendix A of these regulations.

3.14.2.a. Additional certified copies of disclosure statements, or any portions thereof, shall be supplied upon the request of the director.

3.14.2.b. Within sixty (60) days of receipt of a disclosure statement from an applicant, the director shall advise the applicant if the disclosure statement is incomplete on its face, and shall specify what additional information is required.

3.14.3. Any person required to be listed in the disclosure statement, other than a non-supervisory employee required to be listed, shall be fingerprinted for identification and investigation purposes in accordance with procedures established by the director.

3.14.3.a. Completed fingerprint cards shall be supplied by the applicant with the filed disclosure statement. The applicant shall arrange for the taking of fingerprints.

3.14.3.b. Fingerprints must be taken and verified by an employee of a police agency authorized to take fingerprints. (Most local police departments and state police will provide this service. Some charge a fee.)

3.14.4. Exemptions. The following persons are exempted from the requirement to submit a disclosure statement:

3.14.4.a. Any department, division, agency, commission or authority of the federal government or any state, or any county, municipality, or agency thereof.

3.14.4.b. Any person whose application or permit is solely for a Class D-2, Class D-3, Class E, or Class F facility.

3.14.5. Contents of Disclosure Statement. The disclosure statement shall be filed on forms supplied by the director and shall include the following information:

3.14.5.a. The full name, business address, home address, date of birth, and social security number of the following:

3.14.5.a.A. The applicant or any officer, director, or manager thereof:

3.14.5.a.B. Any shareholder owning five percent (5%) or more of its capital stock, beneficial or otherwise; and

3.14.5.a.C. Any other person conducting or managing the affairs of the applicant or the proposed permitted premises;

3.14.5.b. The full name and business address of any company which collects, transports, treats, stores, or disposes of solid waste or hazardous waste in which the applicant holds an equity interest;

3.14.5.c. A description of the experience and credentials in, including any past or present permits for, the collection, transportation, treatment, storage, or disposal of solid waste or hazardous waste possessed by the applicant, including any individual or entity listed in section 3.14.5.a of these regulations;

3.14.5.d. A listing, explanation and status of any notices of violation or prosecution, administrative orders, or permit revocations issued by any state or federal authority, which are pending or have resulted in a finding or a settlement of a violation of any law or regulation relating to the collection, transportation, treatment, storage, or disposal of solid waste or hazardous waste by the applicant, or any individual or entity listed in section 3.14.5.a of these regulations;

3.14.5.e. A listing, explanation and status of any judgement of liability or conviction which was rendered, pursuant to any State or federal statute or local ordinance, against the applicant, or any individual or entity listed in section 3.14.5.a of these regulations;

3.14.5.f. A listing of all labor, trade, and business associations in which the applicant was a member or with which the applicant had a collective bargaining agreement;

3.14.5.g. A listing of any agencies outside of West Virginia which had regulatory responsibility over the applicant in connection with its collection, transportation, treatment, storage, or disposal of solid waste or hazardous waste;

3.14.5.h. A listing of all persons employed by the applicant in its solid or hazardous waste operations in West Virginia and not otherwise required to be listed, and as to each, the full name, home address, date of birth, and social security number;

3.14.5.i. As to every person required to be listed in the disclosure statement, a completed Personal History Disclosure Form on forms supplied by the director, including information about family, education, and employment history; and

3.14.5.j. Any other information the director may require that relates to the competency, reliability, or good character of the applicant.

3.14.6. The disclosure statement shall be notarized.

3.14.7. Disclosure statements shall be signed by each of the following:

3.14.7.a. If of a corporation, by its president, its chairman of the board, any other chief executive officer thereof, its secretary and its treasurer.

3.14.7.b. If of a partnership, by each of its partners; if of a limited partnership, only by each of its general partners.

3.14.7.c. If of any other business concern, by its chief executive officer, its secretary, and its treasurer.

3.14.7.d. If of a natural person, by the person himself.

3.14.8. Personal History Disclosure Forms shall be signed by the individual described thereon.

3.14.9. All signatures shall be signed in ink and dated on original papers, but may be photocopies, typed, stamped or printed on copies. The name and address of the signatory shall be typed, stamped, or printed beneath each signature.

3.14.10. Change of Information on Disclosure Statement. Where an applicant has an application pending before the director and any of the information required to be included in a disclosure statement changes, or any additional information should be added after the filing of the statement, the applicant or permittee shall provide that information to the director in writing within thirty (30) days of the change or addition.

3.14.11. Permittees shall report to the director within thirty (30) days any changes or additions in the following information required to be included in the disclosure statement:

3.14.11.a. The name of the permittee;

3.14.11.b. The names or identities of any officer, director, or manager thereof, shareholder owning five percent (5) or more of its capital stock, beneficial or otherwise, or other

person conducting or managing the affairs of the applicant or the proposed permitted premises;

3.14.11.c. The name and business address of any company which collects, transports, treats, stores, or disposes of solid waste or hazardous waste in which the permittee acquires an equity interest:

3.14.11.d. A listing and explanation of any notices of violation, administrative orders, or license revocations issued by any State or federal authority;

3.14.11.e. Any judgement of liability or conviction rendered against the permittee or against any key employee, officer, director, or manager thereof, shareholder owning five percent (5%) or more of its capital stock, beneficial or otherwise, or other person conducting or managing the affairs of the applicant or the proposed permitted premises; and

3.14.11.f. Any collective bargaining agreement entered into with a labor organization not previously listed on a disclosure statement, and any new membership in a trade or business association.

3.14.12. Any other changes in the information contained in a permittee's disclosure statement currently on file with the director shall be reported on an annual update to be filed with the director.

3.14.13. Changes of information required to be reported pursuant to section 3.14.11 of these regulations may be filed by letter, on amendment forms supplied by the director, or on copies of applicable portions of disclosure statement forms. The person filing the report of change shall swear to or affirm the truth of the information contained therein.

3.14.14. Annual updates shall be filed on amendment forms supplied by the director, or on copies of applicable portions of the disclosure statement or Personal History Disclosure Form. Annual updates shall include a recapitulation of any changes previously reported pursuant to section 3.14.11 of these regulations.

3.14.15. Changes of information shall be filed by submitting an original and one certified copy to the director.

3.14.16. Annual updates shall be notarized.

3.14.17. Where an applicant or permittee has submitted multiple amendments to its disclosure statement, or the information concerning an applicant or permittee has undergone substantial change, or if the disclosure statement currently on file with the

director is more than five (5) years old, the director, in his discretion, may require the applicant or permittee to file a new disclosure statement.

3.14.18. Additional Information; Duty to Cooperate. All applicants and permittees have the continuing duty to provide any assistance or information requested by the director and to cooperate in any inquiry, investigation, or hearing conducted by the director. If, upon issuance of formal request to answer any inquiry or produce information, evidence or testimony, any applicant or licensee refuses to comply, the permit of that person may be denied or revoked by the director.

3.14.19. Physical Evidence. Upon request, the applicant shall supply physical evidence, including, but not limited to, photographs or handwriting exemplars of any individual listed on the disclosure statement or any amendment thereof.

3.14.20. Disqualification Criterion. No permit shall be approved by the director unless the applicant demonstrates compliance with the provisions of W. Va. Code §20-5F-4(c).

3.14.21. Cause for Permit Revocation. In addition to any other cause set forth elsewhere in these regulations, any permit may be revoked for any violation of W. Va. Code §20-5F-4(c).

3.14.22. Severance of Disqualifying Individuals. Notwithstanding the disqualification of any applicant or permittee pursuant to these regulations, the director may issue or renew a permit if the applicant or permittee servers the interest of or affiliation with the person who would otherwise cause that disqualification.

3.14.22.a. Where the disqualifying individual is the owner of any equity interest or interest in the debt liability of the permittee or applicant, he must completely divest himself of that interest. Where immediate sale of the interest would work an economic hardship on the individual, the permittee or applicant, the director may, in his discretion, allow for divestiture over a period of time not to exceed one (1) year.

3.14.22.b. Arrangements such as blind trusts will be acceptable only as part of divestiture arrangement under which the trustee is obliged to sell the disqualifying individual's interest within a period not to exceed two (2) years.

3.14.22.c. Before the chief will issue or renew a permit to an applicant or permittee which has severed a disqualifying individual, the applicant or permittee must submit to the director an affidavit, sworn to by the chief executive officer, attesting to the severance of the disqualifying individual and describing the terms, circumstances, and conditions of that severance. Any

instruments pertaining to that severance (such as a trust agreement) shall be submitted with the affidavit.

3.14.23. Confidential Information. Any information received pursuant to section 3.14 of these regulations shall be kept confidential by the Department to the extent allowable by state law including W. Va. Code §29B-1-1.

3.14.24. Convicted Persons Generally. No permittee shall knowingly hire as an officer or director any person who has been convicted of any of the crimes enumerated in these regulations or in W. Va. Code §20-5F-4(c) without first submitting a disclosure statement to and obtaining approval of the director. No permittee shall knowingly allow any person who has been convicted of any of the crimes enumerated in these regulations or in W. Va. Code §20-5F-4(c) to acquire an equity interest or debt liability interest without first submitting a disclosure statement to and obtaining approval of the director.

3.14.24.a. In connection with any such request, the permittee shall file with the director an amended disclosure statement, containing the necessary information about the person, including any evidence the permittee wishes to bring forth demonstrating the person's rehabilitation.

3.14.24.b. The director shall consider whether the person has affirmatively demonstrated rehabilitation, and shall consider the factors set forth in determining whether to grant permission to the permittee to employ the individual or allow him to acquire an interest in the permit.

3.14.24.c. Any permittee that violates the provisions of section 3.14 of these regulations may be subject to having its permit revoked, notwithstanding the rehabilitation of the individual in question.

3.14.25. Environmental Compliance History. The chief or the director may refuse to grant any permit if he has reasonable cause to believe, as indicated by documented evidence, that the applicant, or any officer, director or manager, thereof, or shareholder owning twenty percent (20%) or more of its capital stock, beneficial or otherwise, or other person conducting or managing the affairs of the applicant or of the proposed permitted premises, in whole or part has exhibited a pattern of violating the environmental statutes or regulations of this State, any other state, or the federal government.

3.14.26. Mitigation and Restitution. In the case of persons convicted of violating the criminal provisions of any federal or state environmental statute or regulations, or persons convicted of any crime which involved the violation of such statutes or regulations, the director will not consider such person

rehabilitated unless he has made all reasonable efforts to clean up or mitigate any environmental damage caused by the activities for which he was convicted, and to make restitution to any victims injured thereby.

3.15. Water Pollution Control Requirements.

3.15.1. For the purposes of leachate collection and treatment for wastewater and associated facility discharges, the wastewater facility and all appurtenances must meet the permit information requirements for such treatment as set out in W. Va. Code §§20-5, 20-5A, and 20-5F and all regulations promulgated thereunder. For the purposes of section 3.15 of these regulations only, the requirements in 46 C.S.R. 2 are hereby incorporated by reference. For landfills a single document will be issued pursuant to section 3.5.2 of these regulations.

3.16. Specific Application and Permitting Requirements.

3.16.1. Requirements for Landfills. The applicant must submit all information required under section 3 of these regulations in order to constitute a completed application.

3.16.2. Requirements for Incinerators.

3.16.2.a. General Requirements. The applicant must submit the following information to the chief in order to obtain a permit for a resource recovery, industrial, or municipal solid waste incinerator facility:

3.16.2.a.A. All information required under sections 3.7.1. through 3.7.12, 3.7.13.a, 3.7.15, 3.7.16, 3.8.9, 3.9, 3.10.1.h, 3.10.1.i, 3.13, 3.14, and 3.15 of these regulations.

3.16.2.a.B. Detailed drawings of waste storage areas and clean-up areas showing drainage schemes;

3.16.2.a.C. Recordkeeping procedures;

3.16.2.a.D. A waste management plan describing the handling and storage of the incoming waste and the disposition of the ash and other streams, alternate disposal options, screening procedures and handling options for screened waste, and clean-up procedures;

3.16.2.a.E. Dust control procedures;

3.16.2.a.F. A waste characterization plan;

3.16.2.a.G. A contingency plan indicating firefighting equipment, communication procedures with community agencies, and arrangements for emergency assistance; and

3.16.2.a.H. A start-up schedule.

3.16.2.b. Required Permits. At a minimum, two (2) permits will be required for incinerator facilities:

3.16.2.b.A. A permit from the West Virginia Air Pollution Control Commission; and

3.16.2.b.B. A permit for solid waste storage areas and support facilities from the West Virginia Department of Natural Resources.

3.16.2.c. Exemptions.

3.16.2.c.A. Except for those facilities handling special wastes as provided in section 4.13 of these regulations, incinerators having a design capacity of five hundred (500) pounds per hour or less are exempt from the permitting requirements of section 3.16 of these regulations. However, such an incinerator must be designed and operated to meet the performance standards of section 5 of these regulations and with all appropriate regulations of the West Virginia Air Pollution Control Commission.

3.16.2.c.B. Incinerators burning only clean wood waste are exempt from all permitting requirements of section 3.16 of these regulations. However, such incinerators must be designed and operated to meet the performance standards of section 5 of these regulations and with all appropriate regulations of the West Virginia Air Pollution Control Commission.

3.16.3. Requirements for Transfer Stations.

3.16.3.a. General Requirements. The applicant must submit the following information to the chief in order to obtain a permit for a transfer station:

3.16.3.a.A. All information required under sections 3.7.1 through 3.7.12, 3.7.15, 3.7.16, 3.8.1, 3.8.9, 3.9, 3.13, 3.14, and 3.15 of these regulations.

3.16.3.a.B. A description of the solid waste storage or loading areas;

3.16.3.a.C. A description of the areas of land for which a bond will be posted;

3.16.3.a.D. The location and use of buildings and related facilities which will be used in the operation; and

3.16.3.a.E. The location of scales and weigh stations to be used in the operation.

3.16.3.b. Operations Plan. An application to conduct transfer station activities shall include an operations plan that includes the following:

3.16.3.b.A. A narrative description of the general operating plan for the proposed facility including:

3.16.3.b.A.(a) The origin, composition, and weight or volume of solid waste that is proposed to be received at the facility;

3.16.3.b.A.(b) The proposed operating hours for the facility;

3.16.3.b.A.(c) The process to be used at the facility;

3.16.3.b.a.(d) The daily operational methodology of the proposed process;

3.16.3.b.a.(e) The loading rate;

3.16.3.b.a.(f) The proposed capacity of the facility; and

3.16.3.b.A.(g) The expected life of the facility.

3.16.3.b.B. A plan for an alternative waste handling or disposal system during periods when the proposed facility is not in operation, including procedures to be followed in case of equipment breakdown (e.g., the use of standby equipment, extension of operating hours, and contractual agreements for diversion of municipal waste to other facilities); and

3.16.3.b.C. A plan for hiring and training equipment operators and other personnel in the design and operation of the facility.

3.16.3.c. Plan for Access Roads. An application to conduct transfer station activities shall contain designs, cross-sections, and specifications for access roads, including load limits, in accordance with section 4.5.6 of these regulations.

3.16.3.d. Stormwater, Soil Erosion, and Sedimentation Control Plan. An application to conduct transfer station activities shall include a plan to manage surface water and control erosion during the phases of construction and operation on the permit area. Calculations indicating water quantities shall be based on the 25-year, 24-hour rainfall event. The plan shall include fully dimensioned diversion ditches and indicate length, gradient, and cross-section for configuration by reach and

capacities for ditch volume by reach. Calculations which are necessary to support design and siting shall be included in the plan.

3.16.3.e. Groundwater Monitoring Plan. If required by the chief, the applicant shall submit a groundwater monitoring plan to detect contamination, degradation or pollution of groundwater from the facility.

3.16.3.f. Soil Monitoring Plan. If required by the chief, the applicant shall submit a soil monitoring plan, capable of detecting soil contamination from the facility.

3.16.3.g. Nuisance Control Plan. An application to conduct transfer station activities shall contain a plan to prevent hazards or nuisances from vectors, odors, noise, dust, and other nuisances not otherwise provided for in the permit application. The plan shall provide for the routine assessment of vector infestation and shall also provide for counter measures. The plan may include a control program involving a contractual arrangement for services with an exterminator.

3.16.3.h. Litter Control Plan. An application to conduct transfer station activities shall contain a plan to control litter.

3.16.3.i. Contingency Plan. An application to conduct transfer station activities shall contain a contingency plan relating to emergency procedures, hazard prevention, emergency equipment, and the implementation of the contingency plan.

3.16.4. Requirements for Recycling Facilities.

3.16.4.a. Applicability. All recycling facilities shall provide notice and obtain a permit in accordance with the provisions of section 3.16.4 of these regulations.

3.16.4.a.A. Recycling facilities existing on the effective date of these regulations shall be considered to have a valid permit from the Department if the requirements of section 3.16.4.b. of these regulations are met.

3.16.4.a.B. Recycling facilities which are developed after the effective date of these regulations shall be considered to have a valid permit from the Department upon fulfilling the requirements of section 3.16.4.b and 3.16.4.c of these regulations.

3.16.4.b. Notification of Activity.

3.16.4.b.A. Existing Qualifying Recycling Facilities. Any existing recycling facility which qualifies for a permit under section 3.16.4.a of these regulations shall notify the

chief of its existence within ninety (90) days of the effective date of these regulations.

3.16.4.b.B. New Qualifying Recycling Facilities. Any new recycling facility which qualifies for a permit under section 3.16.4.a of these regulations shall notify the chief of its existence prior to installation, establishment, construction, modification, or operation of the recycling facility.

3.16.4.b.C. Form of Notification. Notification required by section 3.16.4.b of these regulations shall be made to the chief on forms and in the manner prescribed by the director.

3.16.3.c. Recycling Permitting Requirements. (Reserved)

3.16.3.d. Other Recycling Requirements. (Reserved)

3.16.3.e. Resource Recovery Permitting Requirements. (Reserved).

3.16.5. Requirements for Construction/Demolition Landfills.

3.16.5.a. General Requirements. All construction/demolition landfills shall apply for and receive approval from the chief prior to operation unless otherwise specified by section 3.16.5 of these regulations. Not withstanding the provisions of section 3.16.5 of these regulations, a Class D solid waste facility which qualifies as a commercial solid waste facility pursuant to W. Va. Code §20-5F shall be required to meet all appropriate landfill requirements specified by these regulations.

3.16.5.b. Exemptions. The disposal of trees, stumps, woodchips, and yard waste generated from land clearing when generation and disposal occurs on the same property is exempt from the requirements of these regulations. A landowner using construction/demolition waste material to improve the grade of his land if the area of that land does not exceed one-half acre is exempt from the requirements of these regulations, provided that the landowner does not fill wetlands, adheres to best management practices for construction and maintains cover over the material. The construction/demolition waste material exemption for landowners does not apply to multiple one-half acre sites on the same parcel of land.

3.16.5.c. Class D-1 Solid Waste Facilities. A Class D-1 solid waste/facility permit shall be obtained for the disposal of construction/demolition waste in cases where a noncommercial Class D~~-2~~ solid waste facility general permit specified by section 3.16.5.d. ~~or Class D-3 certificate of approval for disposal~~ is not applicable.

3.16.5.c.A. Except as provided in sections 3.16.5.c.A.(a) through 3.16.5.c.A.(d) of these regulations, an applicant for a Class D-1 solid waste facility permit shall meet all of the requirements in section 3 of these regulations.

3.16.5.c.A.(a). In lieu of the test corings required in section 3.8.3 of these regulations, available literature and field reconnaissance may be used to obtain the information required in section 3.8.3 of these regulations.

3.16.5.c.A.(b) A minimum of one (1) downgradient monitoring well shall be drilled to intersect the uppermost significant aquifer. If the permit area is between five (5) to ten (10) acres, a minimum of two (2) downgradient monitoring wells will be drilled. If the permit area is greater than ten (10) acres, a minimum of three (3) monitoring wells will be drilled.

3.16.5.c.A.(c) Class D-1 solid waste facilities are exempted from the requirements of section 3.8.4.d.A, 3.8.3.a.C.(d), and 3.8.3.a.C.(i) of these regulations.

3.16.5.c.A.(d) Upon written request, the chief may exempt a Class D-1 solid waste facility from compliance with a specific requirement in section 3 of these regulations that he deems to be inappropriate or he may modify such requirement for that particular facility..

3.16.5.d. Class D General Permit ~~-2 Solid Waste Facilities~~.

3.16.5.d.A. ~~A person may apply for a Class D-2 solid waste facility permit in lieu of a Class D-1 solid waste facility permit if:~~ Coverage. The chief may issue a general permit to regulate noncommercial construction/demolition solid waste facilities except those covered by individual permits.

3.16.5.d.B. Administration. General permits may be modified, revoked, reissued or suspended in accordance with the applicable requirements of section 3.18. of this series.

3.16.5.d.B.(a) The chief may require any person authorized by a general permit to apply for and an individual permit. Any interested person may petition the chief to take action under this subparagraph. Cases where an individual permit may be required include the following:

3.16.5.d.B.(a)(A) The permittee is not in compliance with the conditions of the general permit.

3.16.5.d.B.(a)(B) A change has occurred in the availability of the best management practices or demonstrated

technology for the control or abatement of problems applicable to the facility.

3.16.5.d.B.(a)(C) Specific regulations are promulgated for solid waste facilities covered by the general permit.

3.16.5.d.B.(b) The director may require any owner or operator authorized by a general permit to apply for an individual permit as provided in paragraph 3.16.5.d.B.(a) of this section, only if the owner or operator has been notified in writing that a permit application is required. This notice shall include a brief statement of reasons for this decision, an application form, a statement setting a time for the owner or operator to file the application, and a statement that on the effective date the individual permit the general permit as it applies to the individual permittee shall automatically terminate. The director may grant additional time upon request of the applicant.

3.16.5.d.B.(c) Any owner or operator authorized by a general permit may request to be excluded from the coverage of a general permit by applying for an individual permit. The owner or operator shall submit an application under section 3.5. with reasons supporting the request, to the director, no later than ninety (90) days after the general permit notice in accordance with section 3.21.

3.16.5.d.B.(d) Upon issuance of a general permit, the director shall cause to be published a notice of issuance as a Class I legal advertisement in a qualified daily or weekly newspaper and by any other means reasonably calculated to give notice of issuance to the persons affected by it.

~~3.16.5.d.A.(a) The disposal area does not exceed two (2) acres in size;~~

~~3.16.5.d.A.(b) The site preparation, disposal of construction/demolition material, regrading and revegetation can be completed within one hundred eighty (180) days from the date of permit issuance. Upon expiration of the permit only one (1) permit renewal may be granted by the chief. Such permit renewal period may not exceed one hundred eighty (180) days.~~

~~3.16.5.d.A.(c) The landfill site is not prohibited under section 3.2 of these regulations.~~

~~3.16.5.d.B. Except as provided in sections 3.16.5.d.B.(a) and 3.16.5.d.B.(b) of these regulations, Class D-2 solid waste facilities may be exempted by the chief from compliance with the requirements of section 3 of these regulations.~~

~~3.16.5.d.B.(a) An application for a Class D-2 solid waste facility permit shall comply with the requirements in section 3.5 and 3.6 of these regulations.~~

~~3.16.5.d.B.(b) Upon written notice from the chief, the applicant for a Class D-2 solid waste facility permit must publish notice of the draft permit in the form of a Class I legal advertisement in a newspaper of general circulation in the county or region in which the facility is proposed to be located. The advertisement must provide a minimum of ten (10) days for public review and comment upon such application. The applicant must meet all other requirements of section 3.20 of these regulations.~~

~~3.16.5.e. Class D-3 Solid Waste Facilities.~~

~~3.16.5.e.A. A landowner may apply for a Class D-3 solid waste facility certificate of approval for disposal in lieu of a Class D-1 or Class D-2 solid waste facility permit in order to use construction/demolition waste material to improve the grade of his land if the area of that land does not exceed one-half (1/2) acre.~~

~~3.16.5.e.A.(a) A class D-3 landfill certificate of approval for disposal shall be valid for one hundred eighty (180) days from the date of its issuance.~~

~~3.16.5.e.A.(b) The chief or the director may limit the number of Class D-3 solid waste facility certificates of approval for disposal issued in a particular area of any county.~~

3.17. Draft Permit.

3.17.1. Once an application is complete, the chief shall tentatively decide whether to prepare a draft permit or to deny the application.

3.17.1.a. If the director tentatively decides to issue a general permit, he or she shall prepare a draft general permit that shall contain the following information:

3.17.1.a.A. All conditions under sections 3.5. and 3.6. and Subsection 5.4.3.;

3.17.1.a.B. Permit application requirements;

3.17.1.a.C. All compliance schedules;

3.17.1.a.D. All limitations, standards, prohibitions and conditions, and all variances that are to be included.

3.17.2. If the chief decides to prepare a draft permit, a draft permit shall be prepared that contains the following information:

3.17.2.a. All conditions under section 3 of these regulations;

3.17.2.b. All compliance schedules; and

3.17.2.c. Standards for treatment, storage, and disposal and other permit conditions under section 4 or 5 of these regulations.

3.17.3. A fact sheet shall be prepared by the chief for every draft permit for each solid waste facility or activity and for every general permit. The fact sheet shall briefly set forth the principal facts and the significant factual, legal, methodological, and policy questions considered in preparing the draft permit. The chief shall send this fact sheet to the applicant and, on request, to any other person.

3.17.4. The fact sheet shall include, when applicable:

3.17.4.a. A brief description of the type of facility or activity which is the subject of the draft permit.

3.17.4.b. The type and quantity of wastes which are proposed to be or are being recycled, treated, stored, or disposed of, injected, emitted, or discharged. A description of the type of wastes shall include, but not be limited to, the characteristics of the waste materials and the potential effects on public health and the environment.

3.17.4.c. A brief summary of the basis for the draft permit conditions including references to applicable statutory or regulatory provisions.

3.17.4.d. A rationale explaining why any requested variances or alternatives to required standards do or do not appear justified.

3.17.4.e. A description of the procedures for reaching a final decision on the draft permit including:

3.17.4.e.A. The beginning and ending dates of the comment period and the address where comments will be received;

3.17.4.e.B. The procedures for requesting a hearing and the nature of that hearing; and

3.17.4.e.C. Any other procedures by which the public may participate in the final decision.

3.17.4.f. The name and telephone number of a person to contact for additional information.

3.18. Permit Modification, Suspension, and Revocation.

3.18.1. Actions by the chief.

3.18.1.a. Permits may be modified, revoked and reissued, suspended, or revoked by the chief. Permits may only be modified, revoked and reissued, suspended, or revoked for the reasons specified in section 3.18 of these regulations.

3.18.1.a.A. When a permit is modified, only the conditions subject to modification are reopened. All other conditions of the permit will remain in effect for the duration of the permit.

3.18.1.a.B. The chief may require additional information and, in the case of a major modification, may require submission of a new permit application.

3.18.1.b. If the chief tentatively decides to modify a permit, he will prepare a modified draft permit and will follow the public notice procedures in section 3.21 of these regulations. The chief may request additional information or require the submission of an updated permit application from the applicant.

3.18.2. Causes for Modification or Permittee-Requested Reissuance of Permits.

3.18.2.a. Minor Modification. Permits may be modified by the chief at any time except for major modifications as listed in section 3.18.2.b of these regulations. Minor modification does not require the preparation of a draft permit or the completion of the public notice procedures.

3.18.2.a.A. A minor modification may be approved by the chief for a permittee proposing to increase the volume of solid waste accepted at his facility by an amount of ten percent (10%) or less upon application in alternate years, unless such an increase requires a change in the classification of the facility.

3.18.2.b. Major Modifications. The following are causes for major modification, but not reissuance, of a permit unless the permittee so requests or agrees. These causes require the preparation of a draft permit and public notice and the opportunity for a public hearing as required by these regulations unless an emergency is declared by the director.

3.18.2.b.A. The capacity of the waste disposal unit will be increased over the permitted capacity except as provided in section 3.18.2.a.A. of these regulations;

3.18.2.b.B. The performance, efficiency, or longevity of the liner system will be decreased;

3.18.2.b.C. The efficiency or performance of the leachate management system will be affected;

3.18.2.b.D. A new gas treatment system will be installed or the efficiency or performance of an existing gas management system will be decreased;

3.18.2.b.E. The performance or operation of the surface water control system will be significantly affected;

3.18.2.b.F. A decrease in the quality or quantity of data from any environmental monitoring system will occur;

3.18.2.b.G. A change in the design or configuration of the regraded area will occur;

3.18.2.b.H. The amount or type of post-closure financial assurance will change;

3.18.2.b.I. The facility boundary will be significantly changed;

3.18.2.b.J. The post-closure land use of the property will change;

3.18.2.b.K. A remedial action to protect groundwater is necessary;

3.18.2.b.L. The permit is to be transferred to a new operator;

3.18.2.b.M. Operating authorization is being sought to place into service a structure constructed pursuant to a construction Q.A./Q.C. program; or

3.18.2.b.N. Other similar modifications as determined by the chief.

3.18.3. Permit Suspension or Revocation.

3.18.3.a. Suspension. A solid waste facility permit may be suspended by order of the chief or the director for any of the following reasons:

3.18.3.a.A. Violation of the Act, these regulations or any order of the chief or the director issued thereunder;

3.18.3.a.B. Interference with a representative of the chief or the director in the performance of his duties;

3.18.3.a.C. Failure to adhere to the terms and conditions of the permit or any order issued by the chief or the director under the Act or these regulations; or

3.18.3.a.D. Discovery of failure in the application or during the permit issuance process to fully disclose all significant facts or the permittee's misrepresentation of any significant fact at any time.

3.18.3.b. Revocation. A solid waste facility permit may be revoked by order of the chief or the director for any of the following reasons:

3.18.3.b.A. Any deficiency at the solid waste facility constituting an imminent pollution, health, or safety hazard;

3.18.3.b.B. Persistent violation of these regulations, permit terms and conditions, or orders issued by the chief or the director under the Act or these regulations;

3.18.3.b.C. Discovery of failure in the application or during the permit issuance process to fully disclose all significant facts or the permittee's misrepresentation of any significant fact at any time; or

3.18.3.b.D. Any cause which would require disqualification pursuant to these regulations from receiving a permit upon original application.

3.18.3.c. Effect of Permit Suspension or Revocation.

3.18.3.c.A. Suspension. All solid waste processing, recycling, or disposal activities and the receipt of any solid waste at the solid waste facility shall cease immediately upon receipt of an order of suspension. Activities at the facility may recommence only after expiration of the order of suspension or upon revocation of that order by the issuing authority.

3.18.3.c.B. Revocation. All solid waste processing, recycling, or disposal activities and the receipt of any solid waste at the solid waste facility shall cease immediately upon receipt of an order of revocation. The solid waste facility owner shall submit either an application for a permit to close the facility or an application for new solid waste facility permit within the time specified in the order of revocation.

3.18.3.c.C. Environmental Monitoring and Control. Environmental monitoring and control activities specified in an order of suspension or in an order of revocation shall continue at the solid waste facility for the duration of such order or until

the authority who issued that order approves the cessation of such activities.

3.19. Transfer of Permit.

3.19.1. A permit issued by the chief in accordance with the provisions of these regulations may be transferred to another person. The person seeking to succeed to the rights granted by the permit shall:

3.19.1.a. File a completed application with the chief on forms and in a manner prescribed by the director, including disclosure statements as required by section 3.14 of these regulations;

3.19.1.b. Provide performance bond coverage at least equal to that of the original permitted in accordance with section 3.13 of these regulations. It shall be affirmatively demonstrated to the director that a bond in the full amount of that required for the permit will be kept in full force and effect before, during, and after the transfer of the permit rights;

3.19.1.c. Provide for public notice in accordance with section 3.21 of these regulations; and

3.19.1.d. Obtain the chief's approval for the transfer of permit in writing.

3.19.2. The chief may refuse to transfer any permit and require that a new application for a solid waste facility permit be submitted prior to any transfer of permit responsibility or rights. Such refusal shall be made in writing giving reasons therefor.

3.19.3. A permittee who wishes to assign the operation of the solid waste facility through an agreement, contract, or other legal instrument, to another party but retain the permit must request prior written approval on forms prescribed by the director. Such party shall complete disclosure statements as required under section 3.14 of these regulations.

3.20. Permit Renewal.

3.20.1. Application for Permit Renewal. An application for the renewal of a valid permit that proposes no major modification to the permit shall be on forms prescribed by the director and shall contain the following:

3.20.1.a. The name and address of the permittee, location of the permit area including the county, and the permit number;

3.20.1.b. A statement that the terms and conditions of the permit are being satisfactorily met;

3.20.1.c. A statement that the operation is in compliance with the applicable environmental protection standards of the Act and all applicable rules and regulations;

3.20.1.d. A statement that the performance bond or other financial assurance for the operation will continue in effect.

3.20.1.e. A progress map of the same size and scale as the proposal map;

3.20.1.f. A certification that the information set forth in the form and progress map is true and accurate; and

3.20.1.g. A notarized signature of the principal officer of the permittee in accordance with section 3.7.18 of these regulations.

3.20.2. Public Notice. An applicant seeking to renew a valid permit who does not propose any major modification to that permit shall meet the public notice requirements of section 3.21 of these regulations. The Department will receive comments only upon the contents of the application for renewal. A public hearing may be held at the discretion of the chief.

3.20.3. Modification and Renewal. If an application is received which proposes a major modification to the existing permit and the renewal of that permit, it shall be treated as a major modification pursuant to section 3.18.2.b of these regulations in addition to the requirements of section 3.20 of these regulations.

3.21. Public Notice.

3.21.1. Scope.

3.21.1.a. Public notice shall be given whenever either of the following actions have occurred:

3.21.1.a.A. A draft permit has been prepared; or

3.21.1.a.B. A hearing has been scheduled under section 3.23 of these regulations.

3.21.2. Timing.

3.21.2.a. Public notice of the preparation of a draft permit shall allow at least thirty (30) days for public comment. Upon request of the permittee, the public comment period will be extended for an additional thirty (30) days. Further extension of the comment period may be granted by the chief for good cause shown

but in no case may the further extension exceed an additional thirty (30) days.

3.21.2.b. Public notice of a public hearing shall be given at least thirty (30) days before the hearing. Public notice of the hearing may be given at the same time as public notice of the draft permit and the two (2) notices may be combined.

3.21.2.c. A notice required under section 3.21 of these regulations may be combined with that notice required under W. Va. Code §20-5A.

3.21.3. Methods. Public notice shall be given by the following methods:

3.21.3.a. By mailing a copy of a notice to those persons whose names are included on a mailing list maintained by the Department.

3.21.3.b. By the chief publishing the public notice as a Class II legal advertisement in a qualified newspaper, as defined in W.Va. Code §59-3-1, serving the county where the facility will be located. The chief may also require that legal advertisement be placed in newspapers of adjacent counties. The cost of the publication will be born by the applicant who must send a certification of publication to the Division within twenty (20) days after publication.

3.21.3.c. Any other method reasonably calculated to give actual notice of the action in question to the persons potentially affected by it, including press releases or any other forum or medium to elicit public participation.

3.21.4. Contents.

3.21.4.a. All public notices issued under section 3.21 of these regulations shall contain the following information:

3.21.4.a.A. The name and address of the office processing the permit action for which notice is being given;

3.21.4.a.B. The name and address of the permittee or permit applicant, and if different, of the facility or activity regulated by the permit, except in the case of general permits;

3.21.4.a.C. A brief description of the business conducted at the facility or activity described in the permit application or in the draft permit, when there is no application;

3.21.4.a.D. The name, address, and telephone number of a person from whom interested persons may obtain further

information, including copies of the draft permit and the application;

3.21.4.a.E. A brief description of the comment procedures required by section 3.21.2 of these regulations and the time and place of any hearing that will be held, including a statement of procedures to request a hearing (unless a hearing has already been scheduled) and other procedures by which the public may participate in the final permit decision;

3.21.4.a.F. A general description of the location of proposed permit area including streams;

3.21.4.a.G. A clear and accurate location map. A map of a scale and detail found in the West Virginia General Highway Map will be the minimum standard for acceptance. The map size must be at a minimum two inches by two inches (2" x 2"). Longitude and latitude lines and a north arrow must be indicated on the map and such lines will cross at or near the center of the proposed permit area; and

3.21.4.a.H. A description of the activities covered in the application, including the type of solid waste facility, the types, amounts, and origins of solid wastes to be handled, site improvements, and solid waste handling methods.

3.21.4.b. In addition to the contents required under section 3.21.4.a of these regulations, public notices for hearings shall contain the following information:

3.21.4.b.A. A reference to the date of previous public notices relating to the permit;

3.21.4.b.B. The date, time, and place of the hearing; and

3.22.4.b.C. A brief description of the nature and purpose of the hearing, including the applicable rules and procedures.

3.22. Public Comments and Requests for Public Hearings.

3.22.1.During the public comment period provided under section 3.21.2 of these regulations, any interested person may submit written comments on the draft permit and may request a public hearing, if no public hearing has already been scheduled. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. All comments shall be considered in making the final decision and shall be answered as provided in section 3.25 of these regulations.

3.23. Public Hearings.

3.23.1. The chief shall hold a public hearing in the vicinity of the proposed facility whenever he finds, on the basis of requests, a significant degree of public interest on issues relevant to the draft permit. The chief also may hold a public hearing at his discretion whenever such a hearing might clarify one or more issues involved in the permit decision.

3.23.2. Any person may submit oral or written statements and data concerning the draft permit. Reasonable limits may be set upon the time allowed for oral statements, and the submission of statements in writing shall automatically be extended to ten (10) days after the close of any public hearings under section 3.23 of these regulations.

3.23.3. A tape recording or written transcript of the hearing shall be made available to the public, upon request.

3.24. Reopening of the Public Comment Period.

3.24.1. If any data, information, or arguments submitted during the public comment period raise substantial new questions concerning a permit, or if as a result of comments submitted by someone other than the permittee, or the chief determines to revise any condition of the permit that had been sent to initial public notice, the chief shall take one or more of the following actions:

3.24.1.a. Prepare a new draft permit.

3.21.1.b. Reopen or extend the public comment period to give interested persons an opportunity to comment on the information or arguments submitted.

3.21.4.c. Conduct a public hearing.

3.24.2. Comments filed during the reopened comment period shall be limited to the substantial new questions that caused its reopening. The public notice shall define the scope of the reopening.

3.25. Public Participation File. The applicant for a permit for a solid waste facility, major modification, or closure shall maintain a public participation file. The file shall contain all written comments received during the public comment period, copies or tapes of transcripts of all meetings held by the applicant in response to any public comment, and a copy of the applicant's written response to all written comment letters received during the public comment period. These response letters shall clearly address each point in each comment letter including any actions taken by the applicant to address the comment. The response letters shall be sent by certified mail and the signed return receipts shall also be included in the public participation file.

The complete public participation file shall be submitted to the chief by the applicant, within thirty (30) days of the end of the public comment period designed in the public notice. The chief must approve the public participation file prior to permit issuance.

3.26. Public Availability of Information. Public availability of information relating to facility permits shall be governed by the provisions of W. Va. Code §29B.

3.27. Issuance and Effective Date of Permit.

3.27.1. After the close of the public comment period on a draft permit, the chief shall issue a final permit decision. The chief shall provide written notification of his decision to the applicant and to each person who has submitted written comments or requested notice of the final permit decision. For the purposes of section 3.27 of these regulations, a "final permit decision" means the final decision of the chief to issue, deny, modify, revoke and reissue, or terminate a permit.

3.27.2. If the final permit decision is to deny, modify, or terminate a permit, the chief shall provide the reasons therefor in his written notification to the applicant. This notification shall also include reference to the procedures for appealing the final permit decision.

3.27.3. A final permit decision shall become effective not less than thirty (30) days after the date of notice of the decision, unless an earlier date is requested by the applicant and agreed upon by the chief.

3.28. Permit Review by the director.

3.28.1. The director may refuse to grant a permit in accordance with the provisions of W. Va. Code §20-5F-4(c). Written notification of such a refusal, and the reasons therefore, shall be provided to the applicant.

3.28.2. Within thirty (30) days of his receipt of a permit application, compliance schedule, closure plan, or major modification application, the director shall determine whether such application, schedule, or plan is complete (i.e., in proper order for technical review to commence) and shall notify the applicant of his determination in writing. If the director determines that such application, schedule, or plan is not complete, the notification shall advise the applicant of the deficiencies that require remedy.

3.29. Appeals. Appeal of permit decisions shall be conducted in accordance with the provisions of W. Va. Code §20-5F-7.

§47-38-4. Landfill Performance Standards.

4.1. Enforcement of Landfill Performance Standards. Enforcement of the performance standards in section 4 of these regulations shall be conducted in accordance with the provisions of W. Va. Code §20-5F.

4.2. Assessment Fees. Permittees are required under the provisions of W. Va. Code §20-5F-5a and 110 C.S.R. 6A to pay solid waste assessment fees.

4.3. Operator Training and Certification. ~~(Reserved).~~

4.3.1. Operation of every commercial solid waste disposal facility "landfill", must be conducted under the direction of an individual who has authority and knowledge to make and implement decisions regarding operating conditions at the facility (called in this subsection a "individual in responsible charge") and who has attended and successfully completed a course of instruction in solid waste management procedures and practices. Such course of instruction must be approved in writing by the director.

4.3.2. Individuals in responsible charge of new landfills and new individuals in responsible charge of existing landfills must attend and successfully complete a course of instruction within twelve (12) months from the effective date of this rule.

4.3.3. An approved course of instruction shall include at a minimum, the role of sanitary landfills in integrated solid waste management, basics of site selection, complying with design requirements, waste acceptance and screening, leachate management, landfill gas management, landfill operational techniques, environmental/operational and permit compliance inspections, field exercise and homework assignment, landfill economics, closure and post-closure care, state/federal regulations, permitting requirements and a written examination sanctioned by an internationally recognized certification organization or an accredited college of university program.

4.3.4. Successful completion of an approved course of instruction by an individual in responsible charge must include passing the written examination and the award of a certificate as a certified manager, and

4.3.4.a. The individual must demonstrate that he or she has remained current in the field of solid waste management by attending at least thirty (30) contact hours of continuing education every three years and providing proof thereof upon request.

4.4. Operations Manual. Every facility must develop and maintain, on site, an operations manual. Existing facilities must develop such a manual within ninety (90) days of the effective date of these regulations, unless granted a written extension of

preparation time by the chief. New facilities must have a manual in place on the first day of business operations. The manual must include a table of contents which outlines, by section title and page number, the discussion required by these regulations.

4.4.1. General Information. The operations manual must identify the following items:

4.4.1.a. The facility title;

4.4.1.b. The engineering consultants;

4.4.1.c. The name and address of the facility owner and the name of the facility operator, the permit holder or permittee;

4.4.1.d. The location of the facility by latitude and longitude and county;

4.4.1.e. The proposed area of waste fill;

4.4.1.f. The anticipated life of the facility and its disposal capacity;

4.4.1.g. The waste contributors, including all municipalities and major commercial and industrial customers;

4.4.1.h. The waste type and quantity and origin to be disposed; and

4.4.1.i. Any exemptions requested from the Department.

4.4.2. Monitoring. The manual must include a description of required groundwater, surface water, gas, unsaturated zone, and leachate monitoring programs developed in accordance with the approved Q.A./Q.C. plan and the provisions of section 4.4 of these regulations.

4.4.3. Operations. The manual must describe the daily operations of the facility including a discussion of the following items;

4.4.3.a. The timetable for the phases of facility development;

4.4.3.b. The waste types accepted or excluded;

4.4.3.c. Typical waste handling techniques, and methods for handling unusual waste types;

4.4.3.d. Procedures for excluding the receipt of hazardous waste;

4.4.3.e. The hours of operation;

4.4.3.f. Traffic routing;

4.4.3.g. Drainage and erosion controls;

4.4.3.h. Windy, wet, and cold weather disposal operations;

4.4.3.i. Fire protection equipment;

4.4.3.j. Anticipated staffing requirements;

4.4.3.k. Methods for disease vector, dust, and odor control;

4.4.3.l. Daily clean-up;

4.4.3.m. Direction of filling;

4.4.3.n. Salvaging;

4.4.3.o. Record keeping and reporting requirements;

4.4.3.p. Parking for visitors, users, and employees;

4.4.3.q. A listing of the backup equipment available; and

4.4.3.r. A listing of local emergency response personnel.

4.4.4. Design. A general discussion of the design of the major engineering features, such as base grade configuration and relationships to subsurface conditions, anticipated waste types and characteristics, phases of development, traffic routing, liner design, facility monitoring, final capping, closure and long-term care and other similar design features.

4.4.5. Appendix. An appendix shall be included which lists the references used and includes any additional data not previously presented, supplemental design calculations, material specifications, operating agreements such as draft leachate treatment agreements or signed soil borrow agreements, documents related to long-term care funding, and other appropriate information.

4.5. Minimum Design Criteria for Landfills.

4.5.1. Design Capacity. The minimum design capacity of a landfill must equal or exceed the expected volume of solid waste and daily and intermediate cover that will be disposed of at the

facility within ten (10) years after operations begin. Expansions of existing facilities are not subject to the ten-year minimum design capacity requirement.

4.5.2. Drainage and Sediment Control Plan.

4.5.2.a. Stream Channel Diversions.

4.5.2.a.A. Design Capacity.

4.5.2.a.A.(a) The design capacity of channels for temporary and permanent channel diversions shall be at least equal to the capacity of the unmodified stream channel immediately upstream and downstream of the diversion.

4.5.2.a.A.(b) The temporary and permanent channel diversions are to be designed so that the combination of channel, bank, and floodplain configuration is adequate to pass safely the peak runoff of a 10-year, 24-hour rainfall event for a temporary channel diversion and a 100-year, 24-hour rainfall event for a permanent channel diversion.

4.5.2.a.B. Removal of Temporary Diversions. Temporary channel diversions shall be removed when they are no longer needed to achieve the purpose for which they were approved as long as downstream facilities which were being protected are modified or removed.

4.5.2.a.C. Stream Channel Specifications. The drainage and sediment control plan shall contain the following plans, design data, and specifications concerning stream channels:

4.5.2.a.C.(a) A "stream channel design computation sheet" to be completed for each proposed temporary or permanent stream channel diversion;

4.5.2.a.C.(b) Construction plans showing:

4.5.2.a.C.(b)(A) A plan view of the area showing centerline profiles of existing stream channel and proposed location of the temporary or permanent stream channel (drawn to scale);

4.5.2.a.C.(b)(B) Profiles along the centerline of the existing and temporary or permanent stream channel showing original ground, proposed and existing stream bottom (drawn to scale);

4.5.2.a.C.(b)(C) A cross-section showing original ground limits, bottom width, side slopes, depth of flow, floodplain configuration; and

4.5.2.a.C.(b)(D) A detailed sequence of the installation of temporary or permanent stream channel diversions;

4.5.2.a.C.(c) Construction specifications; and

4.5.2.a.C.(d) Maintenance schedule and procedures for maintenance.

4.5.2.b. Diversions.

4.5.2.b.A. Run-On Control System. A landfill permittee must design, construct, operate, and maintain a run-on control system capable of preventing flow onto any part of the disposal area during peak discharge from at least a 25-year, 24-hour rainfall event.

4.5.2.b.B. Design Capacity. Diversions shall have the capacity to pass safely the peak discharge from the contributing watershed from a 25-year, 24-hour rainfall event.

4.5.2.b.C. Diversions Specifications. The drainage and sediment control plan shall contain the following plans, design data, and specifications concerning diversions:

4.5.2.b.C.(a) A "Diversion Design Computation Sheet" to be completed for each proposed diversions;

4.5.2.b.C.(b) Construction plans showing:

4.5.2.b.C.(b)(A) A surveyed profile along the centerline of the diversion showing original ground line and proposed diversion bottom;

4.5.2.b.C.(b)(B) A channel cross-section showing the original ground line, bottom width, side slopes, depth of flow, freeboard, and other pertinent information drawn to scale;

4.5.2.b.C.(b)(C) The type of soil in which the diversion will be excavated. Either the soil shall be sampled and classified at intervals of five hundred (500) feet or a demonstration of erosion potential based on existing soils information shall be made; and

4.5.2.b.C.(b)(D) The type and design of the outlet proposed for each diversion;

4.5.2.b.C.(c) Maintenance schedule and procedures for maintenance; and

4.5.2.b.C.(d) Construction and vegetation specifications.

4.5.2.c. Sediment Control. Sediment control structures shall be constructed in appropriate locations in order to control sedimentation. All runoff from the disturbed area shall pass through a sedimentation pond or ponds (e.g., an earth embankment, excavated ponds, gabions, and cribs). All sediment control structures must be designed, constructed, and maintained in accordance with the contents of the U.S. Soil Conservation Service's "Erosion and Sediment Control Handbook for Developing Areas (West Virginia)" unless the chief approves the use of an equivalent handbook of guidance.

4.5.2.c.A. Design and Construction Requirements.

4.5.2.c.A.(a) All sediment control structures shall be constructed and certified prior to the commencement of any earth-moving or grading activities in upgradient areas which may contribute runoff to such control structures. Any change to the approved control structures made during construction shall be indicated on "as-built" plans showing the approved design, the changes made, and reference points. All "as-built" plans shall be submitted to the chief.

4.5.2.c.A.(b) All sediment control structures shall be located as near as possible to the disturbed area. All sediment control structures shall be located out of perennial streams unless otherwise approved by the director.

4.5.2.c.A.(c) All sediment control structures shall have the capacity to store 0.125 acre-feet of sediment for each acre of disturbed area in the structure's watershed.

4.5.2.c.A.(d) All discharges from sediment control structures shall not cause a violation of state and federal water quality standards and shall meet effluent limitations.

4.5.2.c.A.(e) All sediment control structures shall be designed, constructed, and maintained to prevent short-circuiting.

4.5.2.c.A.(f) All sediment control structures shall be cleaned out when the sediment accumulation reaches sixty percent (60%) of this design capacity. Clean-out elevation shall be indicated on plans submitted for the structure. Sediment removal and disposal shall be done in a manner that minimizes adverse effects on surface water and groundwater quality.

4.5.2.c.A.(g) All sediment control structures shall be designed, constructed, and maintained to meet the following safety standards:

4.5.2.c.A.(g)(A) An adequate structural foundation must be provided for all structures through the clearing

of trees and brush and the exclusion of organic material. Earth materials used in the construction shall be free of trees, roots, brush, frozen soil, organic materials, coal processing waste, construction waste, and other debris. All earth materials must be properly compacted to prevent excessive settlement.

4.5.2.c.A.(g)(B) Sediment control structures which normally impound water to an elevation of less than five (5) feet above the upstream toe of the structure and have a normal storage volume of less than twenty (20) acre-feet must provide a combination of principal and emergency spillways that will safely discharge a minimum 25-year, 24-hour rainfall event without overtopping of the structure. The principal spillway requirements may be waived by the chief if the emergency spillway is designed to safely by-pass the peak rate of discharge of a 25-year, 24-hour rainfall event in an open channel constructed of non-erodible material and capable of maintaining sustained flows. Where storage excavated below the natural stream level into natural ground comprises at least seventy percent (70%) of the total normal storage volume of the pond, the combination of principal and emergency spillways must safely discharge a minimum 10-year, 24-hour rainfall event without overtopping of the structure. All spillways must discharge an adequate distance beyond the downstream toe of the structure in a natural drainway to prevent erosion of the downstream toe.

4.5.2.c.A.(g)(C) A minimum difference in elevation of one and one-half (1.5) feet between the principal and emergency spillways must be provided. A minimum difference in elevation of one (1) foot between the maximum design flow elevation in the emergency spillway or exit channel and the top of the settled embankment must be provided.

4.5.2.c.A.(g)(D) Stabilization and revegetation of the embankment must be provided.

4.5.2.c.A.(h) Sediment control structures which impound water to an elevation of more than five (5) feet above the upstream toe of the structure and have a normal storage volume of twenty (20) acre-feet or impound water to an elevation of twenty (20) feet or more above the upstream toe of the structure shall be constructed, inspected, and closed in accordance with section 6 of these regulations. In addition to the requirements of section 6 of these regulations, the following minimum standards shall be adhered to:

4.5.2.c.A.(h)(A) An appropriate combination of principal and emergency spillways shall be provided to discharge safely the runoff resulting from a 100-year, 6-hour rainfall event. All spillways must discharge an adequate distance beyond the downstream toe of the structure in a natural drainway to prevent erosion of the downstream toe.

4.5.2.c.A.(h)(B) The embankment shall be designed and constructed with a static safety factor of at least 1.5.

4.5.2.c.A.(h)(C) Appropriate barriers shall be provided to control seepage along the conduits that extend through the embankment.

4.5.2.c.A.(h)(D) All inspection reports and approvals shall be provided to the chief.

4.5.2.c.A.(i) Any sediment control structure that does or will impound or divert water and that is or will be twenty-five (25) feet or more in height from the natural bed of a stream or watercourse measured at the downstream toe of the barrier and which does or can impound fifteen (15) acre-feet or more of water or that is or will be six (6) feet or more in height from the natural bed of such stream or watercourse measured at the downstream toe of the barrier and which does or can impound fifty (50) acre-feet or more of water is, by definition, a "dam" subject to regulation under the provisions of W. Va. Code §20-5D.

4.5.2.c.A.(j) Discharge Structures. Discharge from temporary or permanent sediment control structures, diversions, or stream channel diversions shall be controlled by energy dissipators, riprap channels or other devices approved by the chief to reduce erosion, to prevent deepening or enlargement of stream channels, and to minimize disturbance of the hydrologic balance. Discharge structures shall be designed in accordance with standard engineering procedures.

4.5.2.c.B. Abandonment Procedures. Minimum requirements for abandoning sediment control structures prior to total release of bond are as follows:

4.5.2.c.B.(a) Excavated Sediment Pond (Dugout Type). There is no required abandonment procedure for excavated ponds unless they have an embankment. If they have an embankment, they shall follow the abandonment procedures outlined in section 4.5.2.c.B.(b) of these regulations.

4.5.2.c.B.(b) Embankment-Type Sediment Dams; Embankment-Type Excavated Sediment Dams; Crib and Gabion Control Structures. Sediment dams and all accumulated sediment above the dam shall be removed from the natural drainway if they are built across it. Dams adjacent to natural drainways shall be abandoned by diverting the entrance channel to the natural drainways, thus preventing any future surface runoff from entering the impoundment. When sediment dams are removed, the natural drainway shall be returned to its original profile and cross-section as near as practical. An original profile and cross-section view for the channel shall be submitted with the drainage plan. The channel

sides and bottom shall be rock riprap. The riprap shall extend up to the top of the channel. The riprap requirement may be waived where the bottom and sides of the channel consist of bedrock. Provisions must be made to control sediments during dam removal and any necessary stream channel work.

4.5.2.c.B.(c) Revegetation of Disturbed Areas. All areas disturbed during abandonment of a sediment control structure shall be seeded and mulched immediately to stabilize the area.

4.5.3. Access Roads.

4.5.3.a. Access Road Construction Plans. Construction plans for an access road (i.e., a road used for facility access or for the haulage of solid waste to the facility) shall contain the following:

4.5.3.a.A. A plan view drawn to scale showing the station baseline, the location of each culvert with the drainage flow direction, the location of each intermittent or perennial streams with its flow direction, and other data pertinent to the construction of the access road.

4.5.3.a.B. A surveyed profile drawn to scale (the scale should be no greater than 1 inch = 100 feet horizontal and 1 inch = 50 feet vertical) showing the road surface, the location and size of culverts, station elevations, original ground, and percent grades.

4.5.3.a.C. A cross-section of the access road showing culverts and their slopes, fill material, original ground, ditches, and sediment control devices.

4.5.3.a.D. A structure computation sheet and a cross-section showing all data pertinent to the crossing of each intermittent or perennial stream.

4.5.3.a.E. Construction specifications -- covering excavation, selection and placement of materials, vegetative protection against erosion, road surfacing, drainage, and sediment control -- that incorporate the design criteria set forth in section 4.5.3.b of these regulations.

4.5.3.a.E.(a) All grades referred to in section 4.5.3.b of these regulations shall be subject to a tolerance of two percent (2%). All linear measurements referred to in section 4.5.3.b of these regulations shall be measured from the horizontal and shall be subject to a tolerance of five percent (5%).

4.5.3.a.E.(b) All primary access roads for the facility, including those leading to the active area, must be

designed for all-weather operation in accordance with standards promulgated by the West Virginia Department of Highways.

4.5.3.b. Access Road Construction.

4.5.3.b.A. Grades. The grading of an access road shall be such that:

4.5.3.b.A.(a) The overall grade shall not exceed ten percent (10%).

4.5.3.b.A.(b) The maximum pitch grade shall not exceed fifteen percent (15%) for three hundred (300) feet in each one thousand (1,000) feet of road construction. The intersection of the access road with an existing highway must be designed to provide sufficient sight distance and minimum interference with traffic on the highway.

4.5.3.b.A.(c) The surface shall pitch toward the ditchline at the minimum rate of one-half (1/2) inch per foot of surface width or crowned at the minimum rate of one-half (1/2) inch per foot of surface width as measured from the centerline of the access road.

4.5.3.b.B. Curves. The grade on switchback curves shall be reduced to less than the approach grade and should not be greater than ten percent (10%);

4.5.3.b.C. Cut Slopes. Cut slopes should not be steeper than 1:1 in soils or 1:4 in rock.

4.5.3.b.D. Drainage Ditches. A ditch shall be provided on both sides of a throughcut and on the inside shoulder of a cutfill section, with ditch relief culverts being spaced according to grade. Water shall be intercepted or directed around and away from a switchback. All ditchlines shall be capable of passing the peak discharge of a 1-year, 24-hour rainfall event. Where super elevation to the inside of a curve will improve the safety of the access road, such as in the head of a hollow, a ditchline may be located on the outside shoulder of the cutfill section provided that the ditchline is designed so that it will remain stable and that drainage control in accordance with the Act is also provided for water on the outside of the curve.

4.5.3.b.E. Drainage Culverts. Ditch relief culverts shall be installed wherever necessary to insure proper drainage of surface water beneath or through the access road.

4.5.3.b.E.(a) Culverts shall be installed in accordance with the following spacings:

4.5.3.b.E.(a)(A) For a road grade of zero to five percent (0% to 5%), the spacing shall be three hundred to eight hundred (300 to 800) feet;

4.5.3.b.E.(a)(B) For a road grade of six to ten percent (6% to 10%), the spacing shall be two hundred to three hundred (200 to 300) feet; and

4.5.3.b.E.(a)(C) For a road grade of eleven to fifteen percent (11% to 15%), the spacing shall be one hundred to two hundred (100 to 200) feet.

4.5.3.b.E.(b) Culverts shall cross the access road at a thirty (30) degree angle downgrade with a minimum grade of three percent (3%) from inlet to outlet, except in intermittent or perennial streams where the pipe shall be straight and coincide with the normal flow.

4.5.3.b.E.(c) The inlet end of each culvert shall be protected by a headwall of stable material as approved by the chief and the slope at the outlet end shall be protected with an apron of rock riprap, energy dissipator, or other material approved by the chief.

4.5.3.b.E.(d) Culverts shall be covered by compacted fill to a minimum depth of one (1) foot or one-half (1/2) of the culvert diameter, whichever is greater.

4.5.3.b.E.(e) Alternative culvert designs may be submitted to the chief for approval in cases where the design criteria in section 4.5.3.b.E of these regulations is deemed to be impractical.

4.5.3.b.F. Culvert Openings. Culvert openings installed on an access road shall not be less than one hundred (100) square inches in area, but, in any event, all culvert openings shall be adequate to carry storm runoff of a peak discharge capacity of a 1-year, 24-hour rainfall event from the contributing watershed and shall receive necessary maintenance to function properly at all times.

4.5.3.b.G. Intermittent or Perennial Stream Crossing. Culverts, bridges, or other drainage structures shall be used to cross intermittent or perennial streams. Consideration shall be given to such factors as weather conditions, season of the year, and time period for construction with regard to using measures to minimize adverse effects to the water quality and stream channel. In no event shall the sediment load of the stream be significantly increased or the water quality be significantly decreased during the construction period. Water control structures shall be designed with a discharge capacity capable of passing the runoff for a 10-year, 24-hour rainfall event from the contributing

watershed. If approved by the chief, the capacity of the water control structure itself can be at least equal to or greater than stream channel discharge capacity immediately upstream and downstream of the crossing provided the structure can pass at least a 1-year, 24-hour rainfall event.

4.5.3.b.H. Sediment Control. A sediment storage volume must be provided equal to 0.125 acre-feet for each acre of disturbed area or a lesser value as approved by the chief. Temporary erosion and sedimentation control measures shall be implemented during construction until permanent control can be established.

4.5.3.b.I. Seeding of Slopes. All disturbed area including fill and cut slopes, shall be seeded and mulched immediately after the construction of an access road and maintained thereafter as necessary to control erosion.

4.5.3.b.J. Surfacing. An access road shall not be surfaced with any acid-producing or toxic material and the surface must be maintained in a manner that controls or prevents erosion and siltation.

4.5.3.c. Removal of Drainage Structures. Bridges, culverts, and stream crossings necessary to provide access to the facility shall not be removed until reclamation is completed and approved by the chief. The same precautions as to water quality are to be taken during removal of drainage structures as those taken during construction and use.

4.5.3.d. Existing Access Roads. Where existing roads are to be used for access or haulage, the requirements of sections 4.5.3.b.A through 4.5.3.b.E of these regulations shall be waived by the chief if it can be demonstrated that reconstruction to meet the requirements of section 4.5.3 of these regulations would result in greater environmental harm than is produced by existing conditions and that the drainage requirements in section 4.5.3.b of these regulations can otherwise be met.

4.5.3.e. Infrequently Used Access Roads. Access roads constructed for and used only to provide infrequent service to facilities such as monitoring devices may be exempted by the chief from compliance with the requirements of sections 4.5.3.b.A, 4.5.3.b.H, and 4,5.3.b.I of these regulations.

4.5.3.f. Dust Control. All reasonable means shall be employed to control dust from the surface of access roads.

4.5.3.g. Abandonment of Access Roads. Access roads shall be abandoned in accordance with the following:

4.5.3.g.A. Every effort shall be made when an access road is abandoned to prevent erosion by the use of culverts, water bars, or other devices. Water bars or earth berms shall be installed in accordance with the following spacings;

4.5.3.g.A.(a) For a grade of zero to five percent (0% to 5%), the spacing shall be three hundred to eight hundred (300 to 800) feet;

4.5.3.g.A.(b) For a grade of six to ten percent (6% to 10%), the spacing shall be two hundred to three hundred (200 to 300) feet; and

4.5.3.g.A.(c) For a grade of eleven to fifteen percent (11% to 15%), the spacing shall be one hundred to two hundred (100 to 200) feet.

4.5.3.g.B. The land covered by an access road shall be seeded and mulched immediately after the abandonment of the road in accordance with section 4.5.6 of these regulations.

4.5.4. Liners.

4.5.4.a. Liner System Requirements. A person who receives a permit for a landfill after November 4, 1988 -- including a permit that results in an expansion of a currently permitted landfill -- shall design, construct, operate, and maintain a liner system at that landfill. "Nothing within these regulations shall be construed to allow the installations of any line or system (sic) on areas not lined as of November 30, 1989, that is not in conformance with section 4.5.4.a.E or 4.5.4.a.G of these regulations. Landfills that do have an article 5f permit and a liner installed as of November 30, 1989, may install a liner as approved by the chief." Nothing within section 4.5.4.a.E or 4.5.4.a.G of these regulations on areas not lined as of November 30, 1989. Areas where solid waste is or has been disposed of as of November 30, 1989 shall either be closed or retrofitted with a liner system in accordance with the following:

Editor's Note: The amendment of section 4.5.4.a by Senate Bill 243 (passed March 10, 1990) produced two errors that may confuse the reader. First, the phrase "line or system" in the second sentence of this section is a typographical error that should read "liner system." Second, the second sentence of this section ("Nothing within these regulations...") was intended to supersede the fourth sentence ("Nothing within section 4.5.4..."); the repetition of the stated prohibition was unintentional.

4.5.4.a.A. A landfill for which a valid closure permit has been issued pursuant to W. Va. Code §20-5F-5 may remain in operation until November 30, 1991 -- at which time such landfill shall be closed in conformance with its permit and these

regulations -- provided that, by November 30, 1990, such landfill has in place:

4.5.4.a.A.(a) Groundwater monitoring wells in conformance with the requirements of section 3.8.4 of these regulations;

4.5.4.a.A.(b) A groundwater monitoring program in conformance with the requirements of section 4.11 of these regulations;

4.5.4.a.A.(c) An effective leachate treatment capability; and

4.5.4.a.A.(d) Sediment runoff control.

4.5.4.a.B. A landfill that meets all of the requirements enumerated in section 4.5.4.a.A of these regulations and that has in place a liner underlying the facility that has been proven to the chief to be of adequate construction may remain in operation until November 30, 1992, at which time such landfill shall be closed in conformance with its permit and these regulations.

4.5.4.a.C. A landfill that meets all of the requirements enumerated in sections 4.5.4.a.A and 4.5.4.a.B of these regulations, but for which a valid permit to operate has been issued rather than a closure permit, may remain in operation in such condition until November 30, 1992, after which date solid waste shall be placed in such facility only over a liner system designed, constructed, operated, and maintained in conformance with these regulations.

4.5.4.a.D. After November 30, 1992, all landfilled solid waste shall be placed above a liner system designed, constructed, operated, and maintained in conformance with these regulations.

4.5.4.a.E. A liner system shall consist of the following elements:

4.5.4.a.E.(a) Subbase, which is the prepared layer of soil or earthen materials upon which the remainder of the liner system is constructed;

4.5.4.a.E.(b) Leachate detection zone, which consists of a perforated piping system within a layer of soil or earthen material placed on top of the subbase and upon which the composite liner is placed;

4.5.4.a.E.(c) Composite liner, which consists of two (2) components; the compacted clay component topped with the synthetic liner; and

4.5.4.a.E.(d) Leachate collection and protective cover zone which is a leachate collection system within a prepared layer of soil or earthen material placed over the composite liner.

4.5.4.a.F. Active areas of existing landfills which have installed liners, leachate collection systems, and groundwater monitoring programs, as of the effective date of these regulations, which are in compliance with the former solid waste guidelines of the Department may petition the director to allow use of an alternate liner system, if:

4.5.4.a.F.(a) A demonstration is made to the director that an alternate design will provide the same degree of protection of the groundwater resources as the liner system described in section 4.5.4.a.E of these regulations. The demonstration must include a series of groundwater monitoring well sampling analyses as well as direction-of-migration and rate-of-flow studies showing that there are no existing or potential groundwater pollution problems; and

4.5.4.a.F.(b) A bond is posted in the amount of eight thousand dollars ($8,000) for each acre of the facility where the alternate liner is to be used.

4.5.4.a.G. In order to allow for the development of new technology, applicants may petition the director to allow installation of an alternate liner system upon a demonstration to the director that the alternate system will be equally or more protective of the groundwater resources than the liner described in section 4.5.4.a.E of these regulations.

4.5.4.b. Liner System Limitations.

4.5.4.b.A. No person may construct a liner system for a facility unless there is at least four (4) feet maintained between the bottom of the subbase of the liner system and the seasonal high groundwater table.

4.5.4.b.A.(a) Soil mottling shall indicate the presence of a seasonal high groundwater table.

4.5.4.b.A.(b) Drainage systems may be utilized to maintain a four (4) foot isolation distance between the bottom of the subbase of the liner system and the seasonal high groundwater table. The drainage system shall be limited to drain tile, piping, and french drains.

4.5.4.b.B. No person may construct a liner system for a facility unless at least eight (8) feet can be maintained between the bottom of the subbase of the liner system and the permanent groundwater table.

4.5.4.b.C. A minimum of four (4) feet vertical separation shall be maintained between the bottom of the subbase of the liner system and bedrock unless otherwise approved by the chief. If backfilled material is used, the nature of these materials is subject to approval by the chief.

4.5.4.b.D. If the approved design plans provide for the placement of additional adjacent liner, waste may not be placed within fifteen (15) feet of an edge of the liner that will be joined by additional adjacent liner. The edge shall be protected by soil cover or another method approved in the permit until additional liner is added.

4.5.4.b.E. If the approved design plans do not provide for the placement of additional adjacent liner, waste may not be placed within five (5) feet of an edge of the liner.

4.5.4.b.F. A liner berm at least four (4) feet high shall be constructed and maintained along the edge of the liner to prevent the lateral escape of leachate.

4.5.4.b.G. The edge of the liner shall be clearly marked.

4.5.4.b.H. The operator shall comply with additional requirements the chief deems necessary to protect public health, safety, and the environment.

4.5.4.c. Liner System Subbase.

4.5.4.c.A. The subbase portion of a liner system shall:

4.5.4.c.A.(a) Be at least six (6) inches thick and compacted to a Standard Proctor density of at least ninety-five percent (95%) at three to five percent (3% to 5%) wet of optimum;

4.5.4.c.A.(b) Have a minimum bearing capacity of two and one-quarter tons per square foot plus one-half of the total applied load in pounds per square foot:

4.5.4.c.A.(c) Be no more permeable than 1×10^{-6} cm/sec based on laboratory and field testing;

4.5.4.c.A.(d) Be hard, uniform, smooth, and free of debris, rock, plant materials, and other foreign material; and

4.5.4.c.A.(e) Have a slope of at least two percent (2%).

4.5.4.c.A.(f) The subgrade construction certification and a Q.A./Q.C. report shall be submitted to the chief prior to the placement of any material over the subgrade.

4.5.4.d. Liner System Leachate Detection Zone.

4.5.4.d.A. The leachate detection zone shall:

4.5.4.d.A.(a) Create a flow zone between the subbase and the composite liner more permeable than 1 x 10^{-3} cm/sec based on laboratory and field testing. The leachate detection zone including piping system must be designed and placed on a minimum slope of two percent (2%);

4.5.4.d.A.(b) Be at least twelve (12) inches thick;

4.5.4.d.A.(c) Be comprised of clean soil or earthen materials that contain no debris, plant material, or material with sharp edges;

4.5.4.d.A.(d) Have geotextile material placed within the leachate detection zone in such a manner as to prevent clogging of the piping system. The geotextile material must not be placed directly against pipes; and

4.5.4.d.A.(e) Contain a perforated piping system capable of detecting and intercepting liquid within the leachate detection zone and conveying the liquid to central collection points.

4.5.4.d.A.(e)(A) The slope, size, and spacing of the piping system shall assure that liquids drain efficiently from the leachate detection zone;

4.5.4.d.A.(e)(B) The distance between pipes in the piping system may not exceed one hundred (100) feet on center;

4.5.4.d.A.(e)(C) The pipes shall be installed perpendicular to the slope with continuous positive slope;

4.5.4.d.A.(e)(D) The minimum diameter of the perforated pipe shall be four (4) inches with a wall thickness of Schedule 40 or greater;

4.5.4.d.A.(e)(E) The pipe shall be capable of supporting anticipated loads without failure based on facility design;

4.5.4.d.A.(e)(F) Rounded stones or aggregates shall be placed around the pipes of the piping system. The stones or aggregates shall be sized to prevent clogging of the pipes and damage to subgrade and composite liner;

4.5.4.d.A.(e)(G) The piping system shall be installed in a fashion that facilitates cleanout, maintenance, and monitoring. Manholes or cleanout risers shall be located along the perimeter of the leachate collection piping system. The number and spacing of the manholes or cleanout risers shall be sufficient to insure proper maintenance of the piping system by water jet flushing or an equivalent method;

4.5.4.d.A.(e)(H) The leachate detection system shall be cleaned and maintained as necessary; and

4.5.4.d.A.(e)(I) The leachate detection zone construction certification and a Q.A./Q.C. report shall be submitted to the chief prior to the placement of the composite liner.

4.5.4.e. Liner System Composite Liner.

4.5.4.e.A. The compacted clay component shall:

4.5.4.e.A.(a) Be a minimum compacted thickness of two (2) feet;

4.5.4.e.A.(b) Be compacted in six (6) inch lifts;

4.5.4.e.A.(c) Be no more permeable than 1×10^{-7} cm/sec based on laboratory and field testing;

4.5.4.e.A.(d) Be free of particles greater than two (2) inches in any dimension;

4.5.4.e.A.(e) Be placed without damaging the subgrade and leachate detection zone;

4.5.4.e.A.(f) Be placed during a period of time when both the air temperature and the soil temperature are above freezing so that neither the compacted clay nor the subbase are frozen;

4.5.4.e.A.(g) Have a slope of at least two percent (2%) to facilitate the drainage of leachate across the liner surface; and

4.5.4.e.A.(h) Be designed, operated, and maintained so that the physical and chemical characteristics of the liner and liner's ability to restrict the flow of solid waste, solid waste constituents, or leachate is not adversely affected by the leachate.

4.5.4.e.A.(i) The director may approve the substitution of three (3) feet of compacted soil for the required two (2) feet of compacted clay if equivalency of groundwater protection can be proven.

4.5.4.e.B. Synthetic component shall:

4.5.4.e.B.(a) Be no more permeable than 1×10^{-7} cm/sec based on laboratory and field testing;

4.5.4.e.B.(b) Have a minimum thickness of sixty (60) mils;

4.5.4.e.B.(c) Be installed in accordance with manufacturer's specifications under the supervision of an authorized representative of the manufacturer;

4.5.4.e.B.(d) Be inspected for uniformity, damage, and imperfections during construction or installation;

4.5.4.e.B.(e) Have a slope of at least two percent (2%) to facilitate the drainage of leachate across the liner surface;

4.5.4.e.B.(f) Be designed to withstand the calculated tensile forces acting upon the synthetic materials when installed on slopes greater than twenty-five percent (25%);

4.5.4.e.B.(g) Have field seams oriented parallel to the line of the maximum slope and not across the slope. In corners and irregularly-shaped locations, the number of field seams should be minimized. No horizontal seam should be less than five (5) feet from the toe of slope;

4.5.4.e.B.(h) Have the seam area free of moisture, dust, dirt, debris, and foreign material of any kind before seaming. Field seaming is prohibited when the ambient air temperature is below five degrees centigrade (5 degrees C), above forty degrees centigrade (40 degrees C), during precipitation or when winds are in excess of twenty (20) miles per hour;

4.5.4.e.B.(i) Be anchored a minimum of twenty-four (24) inches horizontally back from the edge of the top of the slope. The liner shall be anchored by cutting a trench twelve (12) to sixteen (16) inches in depth, laying the liner across three (3)

sides of the trench, backfilling the trench, and compacting the backfill material; and

4.5.4.e.B.(j) Be installed under the direction of a field crew foreman with documented successful liner installation experience.

4.5.4.e.C. The certification on the construction of the composite liner compacted clay component and a Q.A./Q.C. report shall be submitted to the chief prior to the placement of the synthetic component.

4.5.4.e.D. The composite liner synthetic component construction certification and a Q.A./Q.C. report shall be submitted to the chief prior to the placement of the leachate collection and protective cover zone.

4.5.4.f. Liner System Leachate Collection and Protective Cover Zone.

4.5.4.f.A. The leachate collection and protective cover zone shall:

4.5.4.f.A.(a) Create a flow zone between the composite liner and solid waste more permeable than 1×10^{-3} cm/sec based on laboratory and field testing. The leachate collection zone including the piping system must be designed and placed on a minimum slope of two percent (2%) to facilitate efficient leachate drainage and prevent ponding on the composite liner;

4.5.4.f.A.(b) Be at least eighteen (18) inches thick;

4.5.4.f.A.(c) Be constructed of soil or earthen materials to ensure that the hydraulic leachate head on the composite liner does not exceed one (1) foot at the expected flow capacity from the drainage area except during storm events;

4.5.4.f.A.(d) Be comprised of clean soil or earthen materials that contain no debris, plant material, rocks, or other solid material larger than one-quarter (1/4) inch in diameter and no material with sharp edges;

4.5.4.f.A.(e) Be graded, uniformly compacted, and smoothed;

4.5.4.f.A.(f) Be installed in a manner that prevents damage to the composite liner;

4.5.4.f.A.(g) Contain a perforated piping system capable of intercepting liquid within the leachate collection zone

and conveying the liquid to control collection points. The piping system shall also meet the following:

4.5.4.f.A.(g)(A) The slope, sizing and spacing of the piping system shall assure that liquids drain efficiently from the leachate collection zone;

4.5.4.f.A.(g)(B) The distance between pipes in the piping system may not exceed one hundred (100) feet on center;

4.5.4.f.A.(g)(C) The pipes shall be installed perpendicular to the slope with continuous positive slope;

4.5.4.f.A.(g)(D) The minimum diameter of the perforated pipe shall be four (4) inches with a wall thickness of Schedule 40 or greater;

4.5.4.f.A.(g)(E) The pipe shall be capable of supporting anticipated loads without failure based on facility design;

4.5.4.f.A.(g)(F) Rounded stones or aggregates shall be placed around the pipes of the piping system. The stones or aggregates shall be sized to prevent clogging of the pipes and damage to the composite liner;

4.5.4.f.A.(g)(G) The piping system shall be installed in a fashion that facilitates cleanout, maintenance, and monitoring. Manholes or cleanout risers shall be located along the perimeter of the leachate detection piping system. The number and spacing of the manholes or cleanout risers shall be sufficient to insure proper maintenance of the piping system by water jet flushing or an equivalent method; and

4.5.4.f.A.(g)(H) The leachate collection system shall be cleaned and maintained as necessary; and

4.5.4.f.A.(h) Have geotextile material placed within the leachate collection system in such a manner as to prevent clogging of the piping system. The geotextile material must not be placed directly against pipes.

4.5.4.f.B. The leachate collection zone construction certification and a Q.A./Q.C. report shall be submitted to the chief prior to the placement of solid waste.

4.5.4.g. Liner System Engineer Certification.

4.5.4.g.A. The liner system shall be inspected during construction by a registered professional engineer.

4.5.4.g.B. Upon completion of construction of each major element of the liner system, subbase, leachate detection zone, composite liner, leachate collection zone, and protective cover and prior to the deposition of waste, the engineer shall certify to the chief under seal that the element or stage was constructed as approved in the permit.

4.5.4.h. Liner System Initial Placement of Solid Waste. The first eight (8) feet of solid waste placed on the protective cover may not contain material capable of penetrating or puncturing the protective cover.

4.5.5. Quality Assurance and Quality Control. The quality control measures and tests required by the Q.A./Q.C. plan under section 4.5.5 of these regulations shall be employed to insure that the engineering design and performance standards are achieved.

4.5.5.a. The Q.A./Q.C. inspector shall inspect those aspects of the subgrade preparation including, but not limited to, the following:

4.5.5.a.A. Site preparation, clearing, and grubbing;

4.5.5.a.B. Excavation of subgrade to required elevations;

4.5.5.a.C. Compaction of subgrade to design density at proper moisture content to achieve required strength and stability to support the liner;

4.5.5.a.D. Moisture content density and field strength test performed as required;

4.5.5.a.E. Compacted lift thickness;

4.5.5.a.F. Compaction equipment, weight, speed, and number of passes;

4.5.5.a.G. Method of moisture addition;

4.5.5.a.H. Proof rolling of subgrade; and

4.5.5.a.I. Fine finishing of the subgrade for acceptability of area to be lined.

4.5.5.b. The Q.A./Q.C. inspector shall inspect those aspects of the liner system including, but not limited to, the following:

4.5.5.b.A. Liner material to insure that the material being used meets specifications;

4.5.5.b.B. Liner material stockpiling, storage, and handling to prevent damage;

4.5.5.b.C. Inlet/outlet structure or penetration through the liner to insure compatibility with the liner system;

4.5.5.b.D. Final grades of liner to insure that they are within acceptable tolerances;

4.5.5.b.E. Final inspection of liner for acceptability prior to placement of cover material;

4.5.5.b.F. Compacted clay component of the liner with respect to the following:

4.5.5.b.F.(a) Compaction of liner to design density at the proper moisture content to achieve the required hydraulic conductivity and maintain strength and stability;

4.5.5.b.F.(b) Uniformity of compactive effort;

4.5.5.b.F.(c) Compacted lift thickness;

4.5.5.b.F.(d) Compacted liner thickness;

4.5.5.b.F.(e) Compaction equipment weight, speed, and number of passes;

4.5.5.b.F.(f) Moisture content, density, hydraulic conductivity, and field infiltration tests to ensure that they are performed as required; and

4.5.5.b.F.(g) Repairs and corrective or remedial action performed as required;

4.5.5.b.G. Synthetic liner component with respect to the following:

4.5.5.b.G.(a) Liner panel placement is in accordance with required configuration;

4.5.5.b.G.(b) Permanent and temporary anchoring procedures are followed;

4.5.5.b.G.(c) Overlap and seam width are in accordance with the design;

4.5.5.b.G.(d) The area of seaming is clean and supported;

4.5.5.b.G.(e) The uniformity and continuity of seams or welds;

4.5.5.b.G.(f) Cap strips are installed on all seams;

4.5.5.b.G.(g) Qualitative and quantitative field seaming tests are performed as required on imperfections in seams, wrinkles, and fishmouths and that all imperfections are repaired as required; and

4.5.5.b.G.(h) Corrective or remedial action taken;

4.5.5.b.H. The Q.A./Q.C. inspector shall inspect those aspects of the leachate detection, collection, and protective cover systems including, but not limited to, the following:

4.5.5.b.H.(a) Material stockpiling, storage, and handling to prevent damage;

4.5.5.b.H.(b) Drainage layer placement;

4.5.5.b.H.(c) Thickness of the detection and collection zones;

4.5.5.b.H.(d) Grain size analysis and relative density or compaction tests are performed as required;

4.5.5.b.H.(e) Uniformity of the soil;

4.5.5.b.H.(f) Grades and alignments within acceptable tolerances;

4.5.5.b.H.(g) Placement of stone or aggregate around piping system;

4.5.5.b.H.(h) Proper implementation of action to protect the piping system and the other components of the liner from the loads and stresses due to the traffic of backfilling equipment; and

4.5.5.b.H.(i) Proper placement of the filter cloth layers on the top of the leachate detection zone and within the leachate collection and protective cover zone; and

4.5.5.b.I. Daily Q.A./Q.C. reports shall be prepared by the Q.A./Q.C. inspectors and maintained in a bound log book which shall be available at the job site at all times for inspection by the chief or the director. All lab reports and field testing results shall be signed and dated by the inspector, and shall be attached to the log book reports. The log book reports shall include, but not be limited to, the following:

4.5.5.b.I.(a) Identification of project name, location, and date;

4.5.5.b.I.(b) Weather conditions including:

4.5.5.b.I.(b)(A) Temperature (daily high and low);

4.5.5.b.I.(b)(B) Barometric pressure;

4.5.5.b.I.(b)(C) Wind direction and speed;

4.5.5.b.I.(b)(D) Last precipitation event; and

4.5.5.b.I.(b)(E) Amount of precipitation;

4.5.5.b.I.(c) Description and location of construction currently underway;

4.5.5.b.I.(d) Equipment and personnel at work at each unit;

4.5.5.b.I.(e) Description and location of areas being tested or observed;

4.5.5.b.I.(f) Off-site material received and quality verification documentation;

4.5.5.b.I.(g) Calibration of test equipment;

4.5.5.b.I.(h) Description and location of remedial action taken; and

4.5.5.b.I.(i) Decisions and comments including conversations, directives, and directions for the following:

4.5.5.b.I.(i)(A) Acceptance or failure of inspection or tests;

4.5.5.b.I.(i)(B) Acceptance or failure of daily work unit performance;

4.5.5.b.I.(i)(C) Problems encountered and corrective action taken;

4.5.5.b.I.(i)(D) On-going corrective action;

4.5.5.b.I.(i)(E) In-field modifications; and

4.5.5.b.I.(i)(F) Assessment of overall project quality.

4.5.6. Revegetation Plan.

4.5.6.a. Function of Annual and Biennial Cover Crops. On areas where excessive erosion is likely to occur, rapid establishment of vegetative cover shall be required. Immediate seeding of approved annuals and biennials on such areas shall be considered as a means for achieving temporary vegetative cover only.

4.5.6.b. Minimum Requirements of Soil Amendments.

4.5.6.b.A. A minimum of six hundred pounds per acre (600 lbs/acre) of 10-20-10 or 10-20-20 fertilizer, or equivalent, shall be applied. Fertilizer rates based on soil analysis conducted by a qualified lab may be substituted for the minimum fertilizer rate.

4.5.6.b.B. Lime shall be required where soil pH is less than 5.5. Lime rates shall be such that a standard soil pH of 6.0 will be achieved.

4.5.6.b.C. Mulch shall be used on all disturbed areas. A list of approved materials and minimum rates to be applied is available from the chief.

4.5.6.c. Standards for Evaluating Vegetative Cover.

4.5.6.c.A. Final Revegetative Report. The report shall be submitted to the chief within sixty (60) days after the final cover or cap has been completed and contain the actual acreage planted including application rates of soil amendments, mulch, and seeding mixture.

4.5.6.c.B. Time for Inspection. Prior to the spring and fall planting seasons, the operator shall review all disturbed areas. Those areas that will not be disturbed again must be graded, limed, fertilized, mulched, and seeded. Those areas that have been previously seeded but are deficient of vegetative cover must be reseeded to establish a satisfactory stand of vegetation. Disturbed areas that may sit idle for an extended period shall be temporarily revegetated.

4.5.6.c.C. Standards for Perennials. Standards for legumes and perennial grasses shall require at least a ninety percent (90%) ground cover. Substandard areas shall not exceed one-quarter acre in size, nor total more than ten percent (10%) of the seeded area.

4.5.7. Miscellaneous. All facilities must be designed to meet the following requirements:

4.5.7.a. A method of controlling any dust or windblown debris must be included in the facility design. The factors which will be considered by the chief when evaluating alternative provisions for controlling dust and windblown debris includes the remoteness of the facility, natural screening and windbreaks, and waste types;

4.5.7.b. Access to the facility must be restricted through the use of fencing, natural barriers, or other methods approved in writing by the director;

4.5.7.c. A minimum separation distance of one hundred (100) feet must be maintained between the limits of waste filling and adjacent property line. A minimum distance of fifty (50) feet must be maintained between any permanent berms or excavations associated with the facility (excluding surface water diversion structures) and the adjacent property line;

4.5.7.d. The facility must be designed so that final grades in each phase are reached as soon as possible and the open area used for refuse filling is minimized;

4.5.7.e. The grade of the final surface of the facility shall not be less than three percent (3%) nor more than twenty-five percent (25%) unless otherwise approved by the chief as a part of the issued permit. Long slopes shall incorporate runoff control measures and terracing in order to minimize erosion. For sites having a natural slope greater than twenty-five percent (25%), a slope up to thirty-three percent (33%) may be considered acceptable if terracing is incorporated at least every twenty (20) feet of vertical distance with runoff control.

4.5.7.f. All facilities which may obstruct flight patterns to instrument approach airports must follow Federal Aviation Administration guidelines in designing intermediate and final grades;

4.5.7.g. A permittee storing waste shall provide a sufficient number of containers to contain solid waste generated during periods between regularly scheduled collections;

4.5.7.h. An individual container or bulk container used for the storage of solid waste shall have the following characteristics:

4.5.7.h.A. The container shall be constructed to be easily handled for collection; and

4.5.7.h.B. The container shall be corrosion resistant and compatible with waste to be stored;

4.5.7.i. An individual container or bulk container used for the storage of putrescible solid waste shall also have the following characteristics:

4.5.7.i.A. The container shall be equipped with a tight fitting lid or cover, or otherwise sealed; and

4.5.7.i.B. The container shall be watertight, leak proof, insect proof, and rodent proof; and

4.5.7.j. A permittee that stores waste outside of containers shall tie the wastes securely in bundles of a size that can be readily handled for collection, and in a manner that minimizes litter, safety hazards, and fire hazards.

4.6. General Operational Requirements.

4.6.1. General Requirements.

4.6.1.a. No person may operate or maintain a solid waste facility after June 10, 1989 that does not conform to an approved plan of operation and the following:

4.6.1.a.A. Daily deposition of solid waste must be confined to as small an area as practical;

4.6.1.a.B. Provisions must be made to confine windblown material within the active disposal area;

4.6.1.a.C. At the conclusion of each day of operation, all windblown material must be collected and properly disposed of in the active area in accordance with the provisions of section 4.6.1 of these regulations unless the operator establishes, to the satisfaction of the chief, that:

4.6.1.a.C.(a) All windblown material cannot be collected using reasonable efforts because of conditions beyond the control of the operator;

4.6.1.a.C.(b) Windblown material which can be collected using a reasonable effort has been collected and disposed of properly;

4.6.1.a.D. Putrescible materials such as spoiled foods and animal carcasses must be immediately compacted and covered;

4.6.1.a.E. Access to the facility must be restricted through the use of fencing, natural barriers, or other methods approved in writing by the chief;

4.6.1.a.F. Procedures for excluding the receipt of hazardous waste. The application must contain an operator implemented program to detect and prevent attempts to dispose of hazardous wastes (regulated under Subtitle C of RCRA) and PCB wastes at the facility (regulated under the Toxic Substances Control Act). Measures that solid waste facility operators must incorporate in their programs to exclude receipt of hazardous waste, include at a minimum, random inspections of incoming loads, inspection of suspicious loads, recordkeeping of inspection results (including date, time, name of the hauling firm, driver, source of waste, vehicle identification numbers, and all observations made by the inspector), training of personnel to recognize hazardous waste, and procedures for notifying proper Department authorities if a regulated hazardous waste is found at the facility. All activities and information shall be reported on a form prescribed by the chief;

4.6.1.a.G. Effective means must be taken to limit access to the active disposal area to minimize exposure of the public to hazards;

4.6.1.a.H. Effective means must be taken to control flies, rodents, and other insects and vermin;

4.6.1.a.I. Equipment must be provided to control accidental fires and arrangements must be made with the local fire protection agency to acquire its services when needed;

4.6.1.a.J. An attendant must be on duty at the facility at all times while it is open for public use;

4.6.1.a.K. A gate must be provided at the entrance to the operation and it must be kept locked when an attendant is not on duty;

4.6.1.a.L. The gate area must be policed at the beginning of each day of operation to remove any solid waste which has been indiscriminately dumped during periods when the facility was closed;

4.6.1.a.M. A sign, acceptable to the chief, must be posted at the entrance of any facility operated for public use which indicates the facility name, permit number, the hours of operation, including hours for exempt disposal of solid waste, waste types accepted, penalty for unauthorized use, necessary safety precautions, and any other pertinent information. Such signs shall be posted and maintained for the duration of the permit, be clearly visible, readable, and uniform throughout the operation, be permanently fixed, and made of durable material;

4.6.1.a.N. The facility shall be surrounded with rapidly growing trees, shrubbery, fencing, berms, or other

appropriate means to screen it from the surrounding area and to provide a wind break;

4.6.1.a.O. Means acceptable to the chief must be taken to control dust resulting from facility operation;

4.6.1.a.P. Scavenging within the active disposal area is prohibited;

4.6.1.a.Q. All burning is prohibited in accordance with regulations of the West Virginia Air Pollution Control Commission;

4.6.1.a.R. Provisions must be made for back-up equipment in the event of operating equipment breakdown;

4.6.1.a.S. All topsoil within the facility construction limits shall be salvaged and stored within the property boundaries for use in facility closure. All stockpiled soil material which is not anticipated to be used within six (6) months must be seeded; and

4.6.1.a.T. All access roads to the active area of the operation shall be maintained in good condition so as to prevent sedimentation of drainage ways.

4.6.2. Solid Waste Placement.

4.6.2.a. Solid Waste Placement and Compaction.

4.6.2.a.A. Working Faces. Solid waste shall be placed for disposal only at designated working faces. Working face width shall be minimized and shall not exceed one hundred (100) feet unless otherwise approved by the chief. The slopes of working faces shall not exceed thirty-three and one-third percent (33 1/3%). To prevent lateral migration of leachate through the final cover, all daily and intermediate cover from each lift of solid waste within twenty-five (25) feet of the final cover shall be removed.

4.6.2.a.B. Daily Cell Height. Daily cell height shall not exceed eight (8) feet in the vertical dimension.

4.6.2.a.C. Layering and Compaction. Solid waste shall be placed in layers not exceeding two (2) feet in depth and compacted with a minimum of three (3) passes with an 815 Caterpillar compactor or other equipment of equivalent weight, or as otherwise approved by the chief.

4.6.2.b. Cover Material Application.

4.6.2.b.A. Daily Cover. A minimum thickness of six (6) inches of compacted cover material shall be applied to the entire exposed solid waste area at a minimum frequency of once each working day.

4.6.2.b.B. Intermediate Cover. Solid waste fill surfaces which will remain exposed to weather for periods of in excess of thirty (30) days shall have a minimum of twelve (12) inches of compacted cover material applied within thirty (30) days of completion of the fill surface.

4.6.2.b.C. Final Cover. Solid waste fill surfaces which will receive no further solid waste deposits shall place final cover in accordance with section 6.1.5.a.A of these regulations.

4.6.2.b.D. Availability. Cover material shall be available from the facility site or other designated sources in sufficient quantities to provide:

4.6.2.b.D.(a) Six (6) inches of compacted regular cover material.

4.6.2.b.D.(b) Twelve (12) inches of compacted intermediate cover material.

4.6.2.c. Waste Placement in Winter. For all landfills designed with liners, a layer of waste at least four (4) feet thick, or an adequate amount of other frost protection material, must be placed over the granular blanket in all portions of the lined area prior to December 31 of the year in which the liner was constructed. Waste may not be placed during the winter on any portion of the liner not having a four (4) foot thick layer of waste or other adequate frost protection material covering it after December 31 of each year. Those portions of the clay liner must be investigated for density and effects from freeze-thaw as specified by the chief and must be recompacted and recertified during the next construction season if required, prior to waste placement. These requirements may be waived by the chief upon the request of the permittee.

4.7. Acceptable Wastes.

4.7.1. Landfills may receive the following types of solid wastes:

4.7.1.a. Agricultural waste;

4.7.1.b. Commercial waste;

4.7.1.c. Compost;

4.7.1.d. Construction waste;

4.7.1.e. Debris;

4.7.1.f. Demolition waste;

4.7.1.g. Discarded material;

4.7.1.h. Garbage;

4.7.1.i. Household waste;

4.7.1.j. Industrial waste;

4.7.1.k. Inert waste;

4.7.1.l. Municipal solid waste;

4.7.1.m. Non-municipal incinerator ash;

4.7.1.n. Putrescible waste;

4.7.1.o. Refuse;

4.7.1.p. Residential waste;

4.7.1.q. Rubbish;

4.7.1.r. Scrap metal;

4.7.1.s. Sludge;

4.7.1.t. Trash;

4.7.1.u. Bulky goods; and

4.7.1.v. Other materials approved by the director.

4.7.2. Landfills may not receive the following wastes:

4.7.2.a. Free liquids;
4.7.2.b. Regulated hazardous wastes;

4.7.2.c. Unstabilized sewage sludge or sludges that have not been dewatered;

4.7.2.d. Pesticide containers that have not been triple rinsed and crushed;

4.7.2.e. Drums that are not empty and not crushed, except as provided under section 4.13.5.a of these regulations;

4.7.2.f. Waste which may be infectious waste, as defined in section 2.28 of these regulations, unless:

4.7.2.f.A. The waste was generated by a household or by an individual during self-care or self-treatment; or

4.7.2.f.B. The waste has not been compacted and is accompanied by a label, manifest, or shipping document which:

4.7.2.f.B.(a) Shall identify the generator of the waste by name and address;

4.7.2.f.B.(b) Shall identify the name and address of the facility at which the waste was rendered noninfectious;

4.7.2.f.B.(c) Shall identify the amount of waste rendered noninfectious by weight, volume, or number of containers;

4.7.2.f.B.(d) Shall include a signed and dated certification by the facility at which the waste was rendered noninfectious that states: "I hereby certify under penalty of law that this waste is not infectious waste, as defined in 47 C.S.R. 38 §2.28, or has been rendered noninfectious in accordance with commonly accepted health standards;" and

4.7.2.f.B.(e) Shall be maintained on file at the solid waste facility receiving that waste for disposal, with the exception that labels permanently attached to the waste are not required to be maintained on file.

4.7.2.g. Waste containing PCBs at concentrations of fifty parts per million (50 ppm) or greater;

4.7.2.h. Municipal incinerator ash, except as provided under section 4.13.10 of these regulations; or

4.7.2.i. Petroleum-contaminated soils, except a s provided under section 4.13.11 of these regulations.

4.8. Leachate Management.

4.8.1. General Requirements.

4.8.1.a. Leachate must be removed from all collection tanks, manholes, lift stations, sumps, or other structures used for leachate storage as often as necessary to allow for gravity drainage of leachate from the facility at all times.

4.8.1.b. Any liquid which comes in contact with waste or accumulates in a portion of the facility where active waste disposal operations are occurring must be handled as leachate and

properly treated as specified in section 4.8 of these regulations unless otherwise approved by the chief in writing.

4.8.1.c. All leachate collection and detection lines must be cleaned with a water jet cleanout device or equivalent immediately after construction, after the first layer of waste has been placed over an entire phase and annually thereafter.

4.8.1.d. Except as otherwise provided in sections 4.8.1.e through 4.8.1.f of these regulations, leachate must be collected, treated, and then directly discharged into a POTW or other treatment facility permitted by the Department. In addition, the operator must operate a leachate treatment facility as provided in section 4.8.1.g of these regulations within three (3) years following the detection of leachate in the collection or handling system. In the case of an industrial solid waste landfill, the leachate collection and treatment facility must be in place and operable prior to the commencement of landfill operations.

4.8.1.e. Leachate may be collected, treated on-site, and then discharged into a receiving stream under a permit issued by the Department under W. Va. Code §20-5A, and the regulations promulgated thereunder, if the chief approves this method in the solid waste facility permit issued under these regulations. Onsite treatment and discharge to a receiving stream will not be allowed unless direct discharge into a POTW or other permitted facility is not reasonably possible.

4.8.1.f. Except for industrial solid waste landfills, leachate may be collected, treated on-site, and then be applied to land via spray irrigation on a temporary basis if the chief approves this method in the solid waste facility permit issued under these regulations. On-site treatment and subsequent land application will not be allowed unless, at a minimum:

4.8.1.f.A. Discharge into a POTW or other permitted treatment facility is not possible;

4.8.1.f.B. Discharge of the treated leachate into a receiving stream in a manner consistent with W. Va. Code §20-5A, and the regulations promulgated thereunder, is not attainable; and

4.8.1.f.C. Temporary spray irrigation is approved in the solid waste facility permit issued under these regulations.

4.8.1.g. Except for industrial solid waste landfills, for the first three (3) years following initial discharge of leachate into the collection and handling system, but not thereafter unless otherwise approved by the chief, leachate may be handled by vehicular transportation to and leachate treatment at an off-site treatment facility. Vehicular transportation of leachate

to an off-site treatment facility will not be allowed unless, at a minimum, one of the following applies:

4.8.1.g.A. Direct discharge into a POTW or other permitted treatment facility is attainable within three (3) years at a reasonable cost; or

4.8.1.g.B. Discharge of treated leachate into a receiving stream in a manner consistent with W. Va. Code §20-5A, and the promulgated regulations thereunder, is attainable within three (3) years.

4.8.1.h. If a permittee using vehicular transportation to and treatment at an off-site treatment facility loses the ability to dispose of leachate at that facility and is unable to secure an alternate off-site treatment facility acceptable to the chief within fifteen (15) days from loss of its approved treatment facility, implementation of the treatment plan required by section 4.8.1.f of these regulations must begin immediately. This leachate treatment system must be completed and operational by the date on which off-site treatment becomes unavailable.

4.8.1.i. Except for industrial solid waste landfills, in conjunction with any of the treatment methods in section 4.8.1 of these regulations, the temporary recirculation of leachate may be utilized if the following conditions exist:

4.8.1.i.A. The area subject to leachate recirculation previously has been filled with solid waste;

4.8.1.i.B. There is sufficient waste capacity to absorb the leachate;

4.8.1.i.C. The area subject to leachate recirculation is underlain by a leachate collection system; and

4.8.1.i.D. Leachate recirculation is conducted with a piping system approved by the chief located under the intermediate cover and causes no odors, runoff, or ponding.

4.8.1.j. The permittee shall immediately notify the chief and describe remedial steps to be taken if:

4.8.1.j.A. Operation of the leachate treatment facility under these regulations cannot prevent the facility from:

4.8.1.j.A.(a) Violating the terms of its permit, these regulations, the Clean Water Act and the regulations promulgated thereunder, or W. Va. Code §20-5A and the regulations promulgated thereunder; or

4.8.1.j.A.(b) Causing surface water pollution or groundwater degradation, contamination, or pollution;

4.8.1.j.B. The facility is generating a quality or quantity of leachate that exceeds the design capacity of the treatment system;

4.8.1.j.C. For leachate treatment plans that include vehicular transportation of leachate to an off-site treatment plant, the total flow of leachate from the solid waste facility exceeds thirty thousand (30,000) gallons in a period of thirty (30) consecutive days;

4.8.1.j.D. The contractual agreement for leachate treatment by an off-site treatment system is breached or expired; or

4.8.1.j.E. The quality or quantity of solid waste being disposed at the facility changes from that set forth in the permit.

4.8.2. Leachate Treatment System, Design, and Construction.

4.8.2.a. Tanks, containers, and impoundments for storing leachate before or during treatment must be constructed and lined in accordance with sections 4.8.2 and 4.8.3 of these regulations.

4.8.2.b. A leachate treatment system must contain impoundments or tanks, for the storage of leachate prior to its treatment to effluent standards, that have a flow equalization and surge capacity equal to at least thirty (30) days of the leachate production estimated from the facility or two hundred and fifty thousand (250,000) gallons, whichever is greater.

4.8.2.c. Impoundments or tanks must be aerated as necessary to prevent and control odors.

4.8.2.d. The storage capacity of impoundments and tanks at a facility must be increased prior to each major phase of construction and as otherwise necessary.

4.8.2.e. Necessary collection and containment systems must be installed prior to the deposition of solid waste at the facility. A treatment or handling system approved by the chief must be installed prior to the storage or disposal of solid waste.

4.8.2.f. Construction of the leachate treatment facility and associated works must be supervised by a registered professional engineer. At the completion of construction of the facility, or at the completion of a modification to the capacity or treatment technique at the facility, the operator must submit to the chief a certification under the seal of a registered

professional engineer that the work was completed in accordance with the plans and designs in the operator,s permit.

4.8.2.g. A modification to a leachate treatment system must be completed within one (1) year after construction is initiated, unless the chief specifies a shorter period of time in the permit modification.

4.8.3. Liquid Storage.

4.8.3.a. Aboveground and Onground Tank Requirements.

4.8.3.a.A. Tanks may be constructed of concrete, steel, or other material approved by the chief. Tanks must be designed to prevent structural failure and be supported on a well drained stable foundation which prevents movement, rolling, or settling of the tank.

4.8.3.a.A.(a) Bottoms of steel tanks that rest on earthen material must be cathodically protected with either sacrificial anodes or an impressed current system which is designed, fabricated, and installed in accordance with the approved engineering report.

4.8.3.a.A.(b) The exterior surfaces of all aboveground and onground steel storage tanks must be protected by a primer coat, a bond coat, and two (2) or more final coats of paint or have at least an equivalent surface coating system designed to prevent corrosion and deterioration.

4.8.3.a.A.(c) The interior of all aboveground and onground tanks must consist of a material or must be lined with a material, compatible to the liquid being stored.

4.8.3.a.B. All aboveground and onground tanks must have a secondary containment system which may consist of dikes, liners, pads, ponds, impoundments, curbs, ditches, sumps, or other systems capable of containing the liquid stored.

4.8.3.a.B.(a) The design volume for the secondary containment system must be one hundred and ten percent (110%) of the volume of either the largest tank within the containment system or the total volume of all interconnected tanks, whichever is greater.

4.8.3.a.B.(b) The secondary containment system must be constructed of a material compatible with the liquid stored. The containment system must be constructed of either:

4.8.3.a.B.(b)(A) A minimum one (1) foot layer of compacted soil with a maximum permeability of 1×10^{-7} centimeters per second;

4.8.3.a.B.(b)(B) A concrete pad of a sufficient thickness to maintain integrity for the lifetime of the tank with a corrosion resistant coating; or

4.8.3.a.B.(b)(C) A geosynthetic liner of a minimum thickness equal to sixty (60) mils.

4.8.3.a.B.(c) A system must be designed to contain and remove storm water from the secondary containment area. Provisions must be included for the removal of any accumulated precipitation (rain, snow or ice) and be initiated within twenty-four (24) hours or when ten percent (10%) of the storage capacity is reached; whichever occurs first. Disposal must be in compliance with W. Va. Code §§20-5A and 20-5F and all applicable federal and State regulations.

4.8.3.a.C. All aboveground and onground tanks must be equipped with an overfill prevention system which may include, but not be limited to: level sensors and gauges, high level alarms or automatic shutoff controls. The overfill control equipment must be inspected weekly by the facility operator to ensure it is in good working order.

4.8.3.a.D. The exposed exterior of all aboveground and onground tanks must be inspected weekly by the facility operator for adequacy of the cathodic protection system, leaks, corrosion, and maintenance deficiencies. Interior inspection of tanks must be performed whenever the tank is drained. If the inspection reveals a tank or equipment deficiency, leak or any other deficiency which could result in failure of the tank to contain the liquid, remedial measures must be taken immediately to eliminate the leak or correct the deficiency. Inspection reports must be maintained and made available to the chief upon request for the lifetime of the liquid storage system.

4.8.3.a.E. All uncovered tanks must have a minimum two (2) feet freeboard. Odor and vector control must be practiced when necessary.

4.8.3.b. Underground Tank Requirements.

4.8.3.b.A. Underground tank systems including tanks and piping must be placed a minimum of two (2) feet above the seasonally high groundwater table and a minimum of two (2) feet vertical separation must be maintained between bedrock and the lowest point of the tank. The tank system must be installed in accordance with manufacturer installation instructions.

4.8.3.b.B. Tank systems may be constructed of fiberglass reinforced plastic, steel that is cathodically protected and coated with a suitable dielectric material, steel that is clad with fiberglass, or any other materials approved by the chief.

4.8.3.b.C. The secondary containment and a continuous leak detection system must be installed in the form of a double-walled tank, designed as an integral structure so that any release from the inner tank is completely contained by the outer shell.

4.8.3.b.C.(a) The interstitial space must be monitored at least once per week by the facility operator for tightness using pressure monitoring, vacuum monitoring, electronic monitoring or an approved equivalent method.

4.8.3.b.C.(b) Any tank system vulnerable to corrosion must be protected from both corrosion of the primary tank interior and the external surface of the outer shell.

4.8.3.b.C.(b)(A) All resistant coatings applied to the primary tank interior must be chemically compatible with the liquid to be stored.

4.8.3.b.C.(b)(B) All cathodic protection systems must be tested within six (6) months of installation and at least every three (3) years thereafter unless otherwise specified by the chief. A deficiency in the cathodic protection system must be corrected upon discovery.

4.8.3.b.D. All underground tanks must be equipped with an overfill prevention system which may include but not be limited to: level sensors and gauges, high level alarms, or automatic shutoff controls. The overfill control equipment must be inspected weekly by the facility operator to ensure it is in good working order.

4.8.3.b.E. Inspection and leak detection monitoring reports must be maintained and made available upon request for the lifetime of the liquid storage system.

4.8.3.c. Surface Impoundment Requirements.

4.8.3.c.A. Any surface impoundment must be constructed a minimum of five (5) feet above the seasonally high groundwater table. A minimum of four (4) feet vertical separation must be maintained between the base of the constructed liner and bedrock. Any surface impoundment that meets the definition of a "dam" found in 47 C.S.R. 32 §2.6 must first obtain a certificate of approval for a dam before a solid waste facility permit can be approved under these regulations.

4.8.3.c.B. Surface impoundments subject to these regulations must be constructed with a liner system consisting of a minimum of two (2) liners and a leak detection system. Surface impoundments currently in use that do not have liners and a leak detection system as prescribed in section 4.8.3.c.B of these

regulations shall either be closed or retrofitted to conform to these regulations by June 10, 1991. Liner construction must include the following:

4.8.3.c.B.(a) The top liner must be a synthetic liner with a minimum thickness equal to sixty (60) mils. A protective cover should be placed over this liner to prevent damage during clean-out operations.

4.8.3.c.B.(b) A leak detection and removal system must be installed between the two (2) synthetic liners.

4.8.3.c.B.(c) The lower composite liner must consist of a minimum of two (2) feet of compacted clay with a maximum permeability of 1×10^{-7} centimeters per second overlain by a synthetic liner that is at least sixty (60) mils thick.

4.8.3.c.B.(d) Quality assurance and quality control testing must be performed by the project engineer in conformance with the requirements identified in section 4.5.5 of these regulations.

4.8.3.c.C. A minimum of two (2) feet of freeboard must be maintained in all surface impoundments. Odor and vector control must be practiced when necessary.

4.8.3.c.D. A minimum of three (3) groundwater monitoring wells, one upgradient and two (2) downgradient of any surface impoundment may be required to be installed and sampled at the discretion of the chief in accordance with these regulations.

4.8.3.d. Closure of Liquid Storage Facilities.

4.8.3.d.A. The permittee or operator of the liquid storage facility must prepare a written closure plan for the liquid storage facility and submit the plan with the permit application for the solid waste management facility.

4.8.3.d.B. The permittee or operator must complete closure activities in accordance with the approved closure plan and within one hundred eighty (180) days after liquid collection has ceased.

4.8.3.d.C. At closure, all liquid and solid waste must be removed from the tank or surface impoundment, connecting lines, and any associated secondary containment systems. All solid waste removed must be properly handled and disposed of in conformance with the provisions of the Act and applicable federal and State requirements. All connecting lines must be disconnected and securely capped or plugged.

4.8.3.d.C.(a) Underground tanks must be removed or thoroughly cleaned to remove traces of waste and all accumulated sediments and then filled to capacity with a solid inert material, such as clean sand or concrete slurry. If groundwater is found to be contaminated from the tank, the tank and surrounding contaminated soil must be removed and appropriately disposed. Other corrective actions to remediate the contaminant plume may be required by the chief.

4.8.3.d.C.(b) Accessways to aboveground and onground tanks must be securely fastened in place to prevent unauthorized access. Tanks must either be stenciled with the date of permanent closure or removed. The secondary containment system must be perforated to provide for drainage.

4.8.3.d.C.(c) For surface impoundments, all waste residues, contaminated system components (e.g., liners) contaminated subsoils, structures, and equipment contaminated with waste must be removed and appropriately disposed. If the groundwater surrounding the impoundment is contaminated, other corrective actions to remediate a contaminant plume may be required by the chief. If the groundwater surrounding the impoundment is found not to be contaminated, the liner system may remain in place if drained, cleaned to remove all traces of waste, and both liners punctured so that drainage is allowed. The impoundment is to be backfilled and regraded to the surrounding topography.

4.8.4. Leachate Analysis. The permittee shall comply with the following sampling requirements at all monitoring points of the leachate collection and detection system as prescribed by the chief:

4.8.4.a. On a daily basis, the flow rate and volume of flowing liquids from the leachate collection and detection systems shall be determined; and

4.8.4.b. On a quarterly basis, the chemical composition of the leachate flowing into the leachate treatment system shall be determined through the analysis of the leachate for the following parameters: alkalinity, ammonia nitrogen, arsenic, barium, bicarbonate, biochemical oxygen demand (BOD-5day), cadmium, calcium, chemical oxygen demand (COD), chlorides, chromium, cyanide, iron, lead, dissolved manganese, magnesium, mercury, nickel, nitrate, pH, potassium, selenium, silver, sodium, sulfate, total dissolved solids (TDS), total organic compounds (TOC), total phenolic materials, zinc, and any other parameter specified by the chief in writing.

4.8.4.b.A. The monitoring parameters listed in section 4.8.4.b of these regulations shall be reported as total metals unless otherwise specified by the chief.

4.9. Water Quality Standards. All permittees are required under the provisions of W. Va. Code §20-5A and 46 C.S.R. 1 to comply with all applicable water quality standards.

4.10. Landfill Gas Management. Decomposition gases generated within a landfill must be controlled to avoid hazards to health, safety, or property. Measures to control decomposition gases must be undertaken in accordance with the following requirements:

4.10.1. Gas Control. Effective means must be utilized to prevent the migration of explosive gases generated by the waste fill. At no time may the concentration of explosive gases in any facility structure (excluding the leachate collection system or gas control or recovery system components) or in the soils or air at or beyond the facility property boundary exceed twenty-five percent (25%) of the lower explosive limit for such gases. The chief may require the concentration of explosive gases not to exceed the lower detection limit for that gas at the facility property boundary.

4.10.2. Gas Monitoring Program. An ongoing gas monitoring program must be initiated to ensure that the standards of section 4.10.1 of these regulations are met. The type and frequency of monitoring must be approved by the chief and be based on the following factors:

4.10.2.a. Soil conditions;

4.10.2.b. Hydrogeologic conditions surrounding the disposal area;

4.10.2.c. Hydraulic conditions surrounding the disposal site; and

4.10.2.d. The location of any man-made structures and property boundaries.

4.10.3. Notification. Upon detection of methane or other explosive gas levels exceeding the limits specified in section 4.10.1 of these regulations, the landfill owner and the appropriate officials identified in the contingency plan must immediately take all steps necessary to ensure safety and protection of health and shall immediately notify the chief.

4.11. Monitoring.

4.11.1. Groundwater Monitoring Program. The groundwater sampling and analysis requirements for the groundwater monitoring system are as follows:

4.11.1.a. The groundwater monitoring program shall include consistent sampling and analysis procedures that are

designed to ensure monitoring results that provide an accurate representation of the groundwater quality at the background and downgradient wells. At a minimum, the program must include procedures and techniques for:

4.11.1.a.A. Sample collection;

4.11.1.a.B. Sample preservation and shipment;

4.11.1.a.C. Analytical procedures; and

4.11.1.a.D. Chain of custody control.

4.11.1.b. The groundwater monitoring program must include sampling and analytical methods that are appropriate for groundwater sampling and that accurately measure constituents in groundwater samples. The sampling and analysis methods should follow the approved quality control plan, and the chief may require resampling if he believes the samples were not properly sampled or analyzed.

4.11.1.c. The permittee shall determine the groundwater flow rate and direction of groundwater in the uppermost significant aquifer at least annually.

4.11.1.d. The permittee shall establish background groundwater quality for each of the monitoring parameters of constituents required in the particular groundwater monitoring program that applies to the facility, as determined by the Phase I, Phase II, or Phase III monitoring program. The minimum number of samples used to establish background groundwater quality must be consistent with the appropriate statistical procedures as specified in section 4.11.1.g of these regulations.

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

4.11.1.e.A. Hydrogeologic conditions do not allow the permittee to determine what wells are upgradient; and

4.11.1.e.B. Sampling at other wells will provide an indication of background groundwater quality that is as representative or more representative than that provided by the upgradient wells.

4.11.1.f. The permittee shall determine whether there is a statistically significant increase over background values for each parameter or constituent required in the particular groundwater monitoring program that applies to the facility, as determined for Phase I, Phase II, and Phase III monitoring

programs. The permittee shall make these statistical determinations each time he assesses groundwater quality.

4.11.1.f.A. In determining whether a statistically significant increase has occurred, the permittee shall compare the groundwater quality at each monitoring well at the waste management boundary for each parameter or constituent to the background value for that parameter or constituent, according to the statistical procedures.

4.11.1.f.B. The permittee shall determine whether there has been a statistically significant increase at each monitoring well at the facility boundary immediately after completion of sampling.

4.11.1.g. The permittee must employ one of the following statistical procedures in combination with the designated sampling requirement to determine a statistically significant increase:

4.11.1.g.A. A parametric analysis of variance (ANOVA) followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The procedure must include estimation and testing of the contrasts between each downgradient well's mean and background mean level for each constituent;

4.11.1.g.B. An analysis of variance based on ranks followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The procedure must include estimation and testing of the contrasts between each downgradient well's mean and the background mean level for each constituent;

4.11.1.g.C. Tolerance or prediction interval procedure in which a tolerance interval for each constituent is established from the distribution of the background data, and the level of each constituent in each downgradient well is compared to the upper tolerance or prediction limit; or

4.11.1.g.D. A control chart approach that gives control limits for each constituent.

4.11.1.h. The chief may establish an alternative sampling procedure and statistical test for any of the constituents listed in Appendix B or C of these regulations, as required to protect human health and the environment. Factors to consider for establishing this alternative statistical procedure include:

4.11.1.h.A. If the distributions for different constituents differ, more than one procedure may be needed. The permittee must show that the normal distribution is not appropriate if using a nonparametric or other methodology not requiring an

assumption of normality. For any statistic not based on a normal distribution, a goodness of fit test shall be conducted to demonstrate that the normal distribution is not appropriate. Other tests shall be conducted to demonstrate that the assumptions of the statistic or distribution are not grossly isolated;

4.11.1.h.B. Each parameter or constituent is to be tested for separately. Each time that a test is done, the test for individual constituents shall be done at a type I error level no less than 0.01. A multiple comparison procedure may be used at a type I experiment-wide error rate no less than 0.05. The owner or operator must evaluate the ability of the method to detect contamination that is actually present and may be required to increase the sample size to achieve an acceptable error level;

4.11.1.h.C. The statistical procedure should be appropriate for the behavior of the parameters or constituents involved. It should include methods for handling data below the limit of detection. The permittee should evaluate different ways of dealing with values below the limit of detection and choose the one that is most protective of human health and the environment. In cases where there is a high proportion of values below limits of detection, the permittee may demonstrate that an alternative procedure is more appropriate; and

4.11.1.h.D. The statistical procedure used should account for seasonal and spatial variability and temporal correlation.

4.11.1.i. If contamination is detected by any of the statistical tests, and the chief or permittee suspects that detection is an artifact caused by some feature of the data other than contamination, the chief may specify that statistical tests of trend, seasonal variation, autocorrelation, or other interfering aspects of the data be done to establish whether the significant result is indicative of detection of contamination or resulted from natural variation.

4.11.1.i.A. The permittee shall determine whether or not there is a statistically significant increase (or decrease, in the case of Phase I) over background values for each parameter or constituent required in the particular groundwater monitoring program that applies to the landfill. The permittee must make these statistical determinations each time he assesses groundwater quality at the landfill.

4.11.1.i.B. In determining whether a statistically significant increase or decrease has occurred, the permittee shall compare the groundwater quality of each parameter or constituent at each monitoring well to the background value of that parameter or constituent, according to the statistical procedures specified under section 4.11 of these regulations.

4.11.1.i.C. Within a reasonable time period after completing sampling as determined by the chief, the permittee shall determine whether there has been a statistically significant increase or decrease over background at each monitoring well.

4.11.2. Phase I Monitoring Program.

4.11.2.a. Phase I monitoring is required at all landfills and solid waste disposal surface impoundments except as otherwise provided in these regulations and in sections 4.11.3 and 4.11.4 of these regulations.

4.11.2.b. At a minimum, a Phase I monitoring program for commercial solid waste facilities shall include the following monitoring parameters: alkalinity, aluminum, ammonia nitrogen, arsenic, barium, bicarbonate, biochemical oxygen demand (BOD-5day), boron, cadmium, calcium, chemical oxygen demand (COD), chlorides, chromium, copper, cyanide, iron, lead, dissolved manganese, magnesium, mercury, molybdenum, nickel, nitrate, pH, potassium, selenium, silver, sodium, sulfate, total dissolved solids (TDS), total organic carbon (TOC), total phenolic materials, vanadium, zinc, and any other parameter specified by the chief in writing. For Class F solid waste facilities, the chief shall specify in the permit those parameters to be included in a Phase I monitoring program as appropriate for the types of waste to be disposed in a particular solid waste facility or which are reasonably expected to be present. Such proposed monitoring parameters shall be submitted to the chief as part of the permit application process. For coal combustion by-product facilities, the monitoring parameters shall consist of some combination of the following: pH, temperature, alkalinity, hardness, total dissolved solids, total suspended solids, specific conductance, total organic carbon, calcium, magnesium, sodium, iron, manganese, aluminum, chloride, sulfate, arsenic, copper, nickel, selenium, zinc, barium, mercury, total and hexavalent chromium, lead, boron, molybdenum, cadmium, and vanadium.

4.11.2.b.A. The monitoring parameters listed in section 4.11.2.b of these regulations shall be reported as total metals unless otherwise specified by the chief.

4.11.2.c. The permittee shall monitor quarterly. The chief may require more frequent monitoring on a site-specific basis by considering aquifer flow rate and resource value of the groundwater.

4.11.2.d. Unless otherwise directed by the chief, if the permittee determines that there is a statistically significant increase over background for any Phase I parameter at any monitoring well, he must:

4.11.2.d.A. Notify the chief within fourteen (14) days of this finding. The notification must indicate which Phase I monitoring parameters have shown statistically significant increases over background levels;

4.11.2.d.B. Within a thirty-day period, repeat the sampling of the groundwater in all monitoring wells and determine the concentration of all constituents designated under section 4.11.2.b of these regulations that are present in the groundwater; and

4.11.2.d.C. If the repeat sampling indicates that no statistically significant increase over background levels has occurred, continue monitoring at the Phase I level; or

4.11.2.d.D. If the repeat sampling confirms that a statistically significant increase over background levels has occurred, establish a Phase II monitoring program meeting the requirements of section 4.11.3 of these regulations within thirty (30) days of confirmation.

4.11.3. Phase II Monitoring Program.

4.11.3.a. Phase II monitoring is required whenever statistically significant increases over background have been detected between background and downgradient monitoring wells for two (2) or more of the Phase I monitoring parameters.

4.11.3.b. A Phase II monitoring program must include quarterly monitoring of all constituents identified in Appendix B of these regulations in addition to specified Phase I parameters, or, in the case of Class F solid waste facilities, those specified by the chief unless waived by the chief upon request of the permittee.

4.11.3.b.A. For those Phase II constituents that are determined to be below the detectable limits of the standard analytical methods, the chief may reduce the required monitoring frequency. In no case may the monitoring frequency be less than once per year.

4.11.3.b.B. If the permittee finds no Phase II constituent in groundwater during the initial sampling made pursuant to a Phase II monitoring program, he may petition the chief for a reinstatement of the Phase I monitoring program. Within ninety (90) days of the receipt of such a petition, the chief shall either approve or deny the petition and notify the permittee of his decision in writing.

4.11.3.c. If the permittee determines that there is a statistically significant increase of any Phase II monitoring

parameter specified in section 4.11.3.b of these regulations at any monitoring well at the facility boundary, he must:

4.11.3.c.A. Notify the chief of this finding in writing within fourteen (14) days. The notification must indicate which parameters have shown statistically significant increases over background levels;

4.11.3.c.B. Within a thirty-day period, sample the groundwater in all monitoring wells and determine the concentration of all constituents identified in Appendix C of these regulations that are present in the groundwater; and

4.11.3.c.C. By using ambient values in upgradient wells, establish a background value for each Appendix C constituent that has been found.

4.11.3.d. Within ninety (90) days, submit to the chief an evaluation of the concentration of all Appendix C constituents found in the groundwater at each monitoring well.

4.11.3.e. Within one hundred and eighty (180) days submit to the chief:

4.11.3.e.A. An engineering feasibility plan for a corrective action program necessary to meet the requirements for corrective action under section 4.11.5 or 4.11.6 of these regulations; and

4.11.3.e.B. Implement a Phase III monitoring program.

4.11.3.f. If the permittee determines that there is a statistically significant increase of parameters or constituents specified at any monitoring well, he may demonstrate that a source other than the landfill unit caused the increase or that there is an error in sampling, analysis, or evaluation. In making this demonstration, the permittee must:

4.11.3.f.A. Notify the chief in writing within fourteen (14) days of determining a statistically significant increase that he intends to make such a demonstration;

4.11.3.f.B. Within ninety (90) days, or such additional time period as approved by the chief, submit a report to the chief which demonstrates that a source other than the facility caused the increase or that the increase resulted from error in sampling, analysis, or evaluation; and

4.11.3.f.C. Continue to monitor in accordance with the Phase III monitoring program.

4.11.4. Phase III Monitoring Program.

4.11.4.a. Phase III monitoring is required whenever any Appendix B monitoring parameter shows a statistically significant increase over background.

4.11.4.a.A. For Class F solid waste facilities, the chief shall specify in the permit those parameters to be included in a Phase III monitoring program as appropriate for the types of waste to be disposed in a particular solid waste facility or which are reasonably expected to be present.

4.11.4.b. The compliance period for Phase III monitoring programs is equal to the active life of the facility plus the required closure period unless the permittee can demonstrate that every Phase III constituent present in groundwater monitoring samples is at the concentration approved by the chief and can further demonstrate that the designated level has not been exceeded for a period of three (3) consecutive years. Upon completion of these demonstrations, the permittee may petition the chief for a reinstatement of the Phase II monitoring program. Within ninety (90) days of the receipt of such a petition, the chief shall either approve or deny the petition and notify the permittee of his decision in writing.

4.11.4.c. If the permittee is engaged in a corrective action program at the end of the minimum compliance period specified in section 4.11.4.b of these regulations, the compliance period is extended until the owner or operator can demonstrate that the designated groundwater concentration levels have not been exceeded for a period of three (3) consecutive years.

4.11.4.d. Phase III monitoring parameters and constituents must include:

4.11.4.d.A. All Phase I monitoring parameters;

4.11.4.d.B. All Appendix B parameters detected at levels above background; and

4.11.4.d.C. All Appendix C constituents that are determined to be present at levels above background concentrations.

4.11.4.e. The chief shall determine an appropriate monitoring frequency on a site-specific basis by considering aquifer flow rate. The following minimum frequencies apply:

4.11.4.e.A. Quarterly for those constituents identified in section 4.11.4.d of these regulations that exceed background concentrations; and

4.11.4.e.B. Annually for all Appendix C constituents.

4.11.4.f. If the permittee determines that there is a statistically significant increase over background for any Appendix C constituent at any monitoring well, he shall:

4.11.4.f.A. Notify the chief of this finding in writing within fourteen (14) days. The notification shall indicate which parameters or constituents have shown statistically significant increases over background levels;

4.11.4.f.B. Within a thirty (30) day time period, repeat the sampling of the groundwater in all monitoring wells and determine the concentrations of all constituents required in section 4.11.4.d. of these regulations; and

4.11.4.f.C. If the repeat sampling indicates that no statistically significant increase over background levels has occurred, return to monitoring at the Phase II level; or

4.11.4.f.D. If the repeat sampling confirms that a statistically significant increase over background levels has occurred:

4.11.4.f.D.(a) Within ninety (90) days of confirmation submit to the chief the following information:

4.11.4.f.D.(a)(A) An evaluation of the concentration of any Phase III constituent found in groundwater at each monitoring well;

4.11.4.f.D.(a)(B) Any proposed changes to the groundwater monitoring system necessary to meet the requirements of a corrective action program; and

4.11.4.f.D.(a)(C) Any proposed changes to the monitoring frequency, sampling and analysis procedures or methods, or statistical procedures used at the facility necessary to meet the requirements of the corrective action program; and

4.11.4.f.D.(b) Within one hundred and eighty (180) days, submit to the chief an engineering feasibility plan for any corrective action program necessary to meet the requirements specified in section 4.11.5 or 4.11.6 of these regulations.

4.11.4.g. If the permittee determines, pursuant to section 4.11.4.f of these regulations, that there is a statistically significant increase of any Phase III monitoring parameter at any monitoring well, he may demonstrate that a source other than the facility caused the increases or that the increases

resulted from sampling, analysis, or evaluation. In making this demonstration, the permittee must:

4.11.4.g.A. Notify the chief in writing within seven (7) days of determining a statistically significant increase that he intends to make such a demonstration;

4.11.4.g.B. Within ninety (90) days, submit a report to the chief which demonstrates that a source other than the facility caused the increase, or that the increase resulted from error in sampling, analysis, or evaluation; and

4.11.4.g.C. Continue to monitor in accordance with the Phase III monitoring program.

4.11.5. Whenever a statistically significant increase is found in a Phase II or Phase III monitoring parameter, or when groundwater contamination is otherwise identified by the chief at sites without monitoring programs, which is determined by the chief to have resulted in a significant adverse effect on an aquifer, and which is attributable to a solid waste facility, the chief may require appropriate corrective or remedial action pursuant to West Virginia Code Chapter 20, Article 5A, and Chapter 20, Article 5F to abate, remediate or correct such pollution. Any such corrective or remedial action order shall take into account any applicable groundwater quality protection standards, the existing use of such waters, the reasonably uses of such waters, background water quality, and the protection of human health and the environment.

4.12. Reporting.

4.12.1. Daily Logs. Daily logs must be kept by the operator describing the type, amount, and origin of all solid waste received at the solid waste facility. These daily logs must be kept on file at the facility and include:

4.12.1.a. A description of waste handling problems or emergency disposal activities;

4.12.1.b. A record of deviations from the approved design or operational plans; and

4.12.1.c. A record of actions taken to correct violations of the act, other state acts, and the Department's regulations.

4.12.2. Monthly Reports. Monthly solid waste reports describing the type, amount, and origin received at the solid waste facility for the month must be submitted to the chief before the fifteenth day of the following month. The ground and surface water sampling analysis monitoring reporting as required in section 4.11 of these regulations shall be submitted with the monthly solid

waste reports due before the fifteenth day of April, July, November, and January. The monthly report shall also include results of the hazardous waste exclusion efforts as required by section 4.6.1.a.F of these regulations. A copy of this report shall also be sent to the county or regional solid waste authority for the county or counties in which the solid waste originated from. Copies of these reports must be kept on file at the solid waste facility.

4.12.3. Annual Operational Report. An annual solid waste facility operational report is to be submitted for the previous calendar year to the chief before January 31.

4.12.3.a. The report should include:

4.12.3.a.A. Updated list of users of the facility;

4.12.3.a.B. Summary of the daily logs of solid waste received during the previous year;

4.12.3.a.C. Summary of the previous year's surface and groundwater monitoring activities; and

4.12.3.a.D. A brief narrative describing the status of development, construction, maintenance, expansion, and closure of all facilities as part of the approved solid waste facility.

4.12.3.b. The annual solid waste facility operational report for landfills shall also include:

4.12.3.b.A. A topographic map showing the permitted area, location of current working areas and completed areas in relationship to the grid system of the solid waste sequencing plan;

4.12.3.b.B. Cross-sections showing volume of area that has been filled; and

4.12.3.b.C. Computations estimating the remaining useful life of the facility, in months.

4.13. Other Solid Wastes.

4.13.1. General.

4.13.1.a. Except as expressly specified by these regulations, or in an order of the chief or the director, a solid waste facility may receive any solid waste allowed by its permit. Facilities may receive solid waste that requires special handling methods for processing or disposal only with express written approval of the chief or the director, or by specific provisions within the facility permit. If it is not clear that a particular waste is within the authorized wastes that a permitted facility may

receive, the permittee shall request and receive a letter of permission from the chief or the director before receiving the waste.

4.13.1.b. Nothing shall limit or affect the power of the chief or the director to prohibit or require special handling requirements he determines are necessary to protect the environment or the health, safety, and welfare of the public.

4.13.1.c. Special wastes such as discarded chemicals and pesticides not regulated as hazardous wastes, oil spill cleanup, underground storage site residues from cleanup, properly treated pesticide containers, and contaminated food products and fabrics requiring supervised disposal are examples of the type of special wastes for which approval by the chief or the director would be required before permitted solid waste management facilities could receive and dispose of the products.

4.13.2. Asbestos Wastes. The permittee shall ensure that every individual involved in the management of wastes is protected from exposure in conformance with the provisions of these regulations and other applicable State and federal statutes and regulations.

4.13.2.a. Packaging of Friable Asbestos Materials. All solid wastes that may contain friable asbestos shall be placed in double plastic bags and sealed or encased in two sealed layers of plastic wrap. Each bag or layer must be six (6) mils thick or greater and boldly marked "CAUTION: ASBESTOS FIBERS. AVOID CREATING DUST. BREATHING ASBESTOS DUST MAY CAUSE SERIOUS BODILY HARM" or "CAUTION: CONTAINS ASBESTOS FIBERS. AVOID OPENING OR BREAKING CONTAINER. BREATHING ASBESTOS IS HAZARDOUS TO YOUR HEALTH." Use of sealed cardboard containers or fiber drums may be required for dense waste or as extra protection against breaking of bags. Other special handling or packaging methods may be approved where equal environmental protection may be achieved. Such alternate methods shall only be considered where bagging, wrapping, or packaging is proven not to be possible.

4.13.2.b. Transportation of Friable Asbestos Materials for Disposal. Properly packaged asbestos wastes should be transported in a closed conveyance with the crew segregated from the load. Asbestos waste must be accompanied by appropriate shipping papers to identify the waste, its origin, and its destination.

4.13.2.c. Disposal of Friable Asbestos Materials. Asbestos waste may be disposed in a special purpose landfill or in a special area of a landfill, and shall meet the following conditions:

4.13.2.c.A. Asbestos waste shall be placed in a lined area designed and constructed to meet the minimum liner requirements set forth in section 5.4.2 of these regulations.

4.13.2.c.B. Asbestos waste shall be hand placed in the trench or cell or by other approved means which insure integrity of bags, wrappings, or containers.

4.13.2.c.C. Asbestos waste shall not be compacted until a sealing layer of soil has been placed over the waste and precautions are taken to prevent the breaking of bags or wrapping. All accidentally broken materials shall be covered with twelve (12) inches or more of soil immediately. A cell which has been completely covered with soil, at least one (1) foot thick, may be compacted.

4.13.2.c.D. Asbestos waste shall be covered with at least one (1) foot of soil at the end of each day of operation. A final cover of three (3) feet of soil shall be placed over all areas that have not been in use or will not be used for more than thirty (30) days. Areas that will not or have not been used for one (1) year, in addition to final soil cover, shall be graded for erosion prevention and revegetated.

4.13.2.c.E. Any active portion of the asbestos disposal area, or area which has not received final cover and revegetation, plus a fifty-foot wide buffer zone on all sides of the area, shall be fenced. The fence shall be of the six (6) feet high chain link type with three (3) strands of barbed wire on top. The fence shall completely encircle the disposal area and internal buffer zone and maintain access control through locked gates.

4.13.2.c.F. The fence shall bear permanent signs every three hundred (300) feet or closer that boldly state "ASBESTOS WASTE DISPOSAL SITE: BREATHING OF ASBESTOS DUST MAY CAUSE LUNG DISEASE AND CANCER" in two (2) inch high or larger letters.

4.13.2.c.G. A plat of the area, surveyed and clearly marked as containing asbestos waste shall be provided to the chief or the director upon request and shall be contained and specifically noted in the deed notation as required by section 6.2.6 of these regulations.

4.13.2.c.H. Asbestos waste shall be buried below the natural ground surface of the site, or at a depth below the final grade of the landfill approved by the chief, in such a manner as to maximize the prevention of wind and water erosion of the asbestos disposal area.

4.13.2.c.I. The fenced area of the asbestos disposal facility shall not be located closer than fifty (50) feet to the property boundary or building or structure.

4.13.2.c.J. The permittee is required to maintain records on nature and quantity of asbestos waste and the source.

4.13.3. Liquids. Free liquids cannot be disposed of in a landfill. Free liquids and poorly-contained liquids shall be absorbed on solid material before being placed in a landfill.

4.13.4. Tires. More than one thousand (1,000) used tires shall not be stored at a facility unless the permit for the facility expressly allows such storage. Tires disposed of in a landfill must be split, cut, or shredded before disposal and must 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.

4.13.5. Drums. Except as provided in section 4.13.5.a of these regulations, drums and other bulk containers shall not be disposed until emptied and crushed. Pesticide containers must be triple rinsed before disposal.

4.13.5.a. Fiber drums of asbestos which are to be disposed of in designated asbestos disposal areas in accordance with the provisions of section 4.13.2 of these regulations need not be either emptied or crushed.

4.13.6. Bulky Goods. Appliances and other bulky waste goods may be accumulated at a facility for not more than sixty (60) days prior to disposal. An alternate schedule may be approved.

4.13.7. Infectious Waste. Waste which has the appearance of infectious waste, as defined in section 2.28 of these regulations, shall not be disposed of in a landfill except in accordance with section 4.7.2.f of these regulations. Nonhazardous bottom ash from the incineration of infectious waste shall not be considered infectious waste.

4.13.8. Sewage Sludge.

4.13.8.a. Sewage sludge disposed at a landfill shall contain at least twenty percent (20%) solid by weight. This requirement may be met by adding or blending sand, sawdust, lime, leaves, soil, or other materials that have been approved by the chief prior to disposal. Alternative sludge disposal methods can be utilized upon obtaining written approval from the chief.

4.13.8.b. Sewage sludge may not represent more than twenty-five percent (25%) by weight of the total weight of waste disposed of at the landfill on any working day.

4.13.8.c. The Department may require the landfill operator to periodically sample and analyze incoming sewage sludge.

4.13.9. Shredder Fluff. Shredder fluff shall not be disposed of in any facility unless specifically approved in writing by the chief.

4.13.10. Municipal Incinerator Ash. Ash from municipal incinerators shall be disposed of on a liner system that conforms to the requirements of 47 C.S.R. 35.

4.13.11. Petroleum-Contaminated Soils. Soils contaminated with petroleum shall be disposed of in a manner prescribed by the director.

§47-38-5. Other Solid Waste Facility Performance Standards.

5.1. Requirements for Incinerators.

5.1.1. General Requirements.

5.1.1.a. The incinerator must be located, designed, and operated in accordance with section 5.1 of these regulations.

5.1.1.b. Waste characterization must be performed in accordance with section 5.1 of these regulations.

5.1.2. Location Criteria.

5.1.2.a. No person may establish, construct, operate, maintain, or permit the use of property for any facility:

5.1.2.a.A. Within a 100-year floodplain; or

5.1.2.a.B. Within an area where there is a reasonable probability that the facility will cause:

5.1.2.a.B.(a) A significant adverse impact upon wetlands;

5.1.2.a.B.(b) A significant adverse impact upon any endangered or threatened species of animal or plant;

5.1.2.a.B.(c) A statistically significant adverse impact upon any surface water;

5.1.2.a.B.(d) A statistically significant adverse impact upon groundwater quality; or

5.1.2.a.B.(e) The migration and concentration of explosive gases in any facility structures, excluding any leachate collection system or gas control or recovery system components or in the soils or air at or beyond the facility property boundary in excess of twenty-five percent (25%) of the lower explosive limit for such gases of any time.

5.1.3. Operational Requirements.

5.1.3.a. No person may operate or maintain an incinerator except in conformance with the following minimum requirements, unless an exemption is granted by the director in writing:

5.1.3.a.A. The facility must be situated, equipped, operated, and maintained as to minimize interference with other activities in the area;

5.1.3.a.B. Adequate shelter and sanitary facilities must be available for personnel;

5.1.3.a.C. A sign must be prominently posted at the entrance to the facility which indicates the name, license number, the hours of operation, necessary safety precautions, and any other pertinent information;

5.1.3.a.D. All incoming solid waste must be confined to the designated storage area and no putrescible waste may be stored for more than twenty-four (24) hours;

5.1.3.a.E. Solid waste must be stored in compliance with section 4.5.7.j. of these regulations;

5.1.3.a.F. Dust must be controlled in the unloading and charging areas;

5.1.3.a.G. Permanent records must be maintained including the weights of material treated, the quantity of resulting ash and residue, hours of plant operation, combustion temperatures, residence time, and other pertinent information;

5.1.3.a.H. Appropriate fire-fighting equipment must be available in the storage and charging areas and elsewhere as needed;

5.1.3.a.I. Arrangements must be made with local fire protection agency to provide adequate emergency fire-fighting forces;

5.1.3.a.J. Means of communication with emergency facilities must be provided;

5.1.3.a.K. Adequate equipment must be provided to allow cleaning after each day of operation or as may be required in order to maintain the plant in a sanitary condition;

5.1.3.a.L. The charging openings as well as all equipment throughout the plant must be provided with adequate safety equipment;

5.1.3.a.M. The facility must be designed and operated such that it will not cause a nuisance because of the emission of noxious odors, gases, contaminants, or particulate matter or exceed emission limitations established by state management rules;

5.1.3.a.N. Ash and residue must be disposed of at a solid waste facility permitted by the chief to accept the material or be handled by an alternate method approved in writing by the director. Approval will be issued on a case-by-case basis after review of the information contained in reports filed pursuant to section 5.1 of these regulations. Ash or residue from a facility with a design capacity of five hundred (500) pounds per hour shall be placed in a monofill which shall meet the design requirements of 47 C.S.R. 35;

5.1.3.a.O. All wastewater from the facility must be discharged into a sanitary sewer or other system approved in writing by the director;

5.1.3.a.P. Upon the completion of construction of a new facility, and at least ten (10) days prior to initial operation, the chief must be notified to allow inspection of the facility both prior to and during any performance tests and initial operation;

5.1.3.a.Q. Open burning of solid waste at the facility is prohibited;

5.1.3.a.R. No hazardous waste may be accepted for disposal;

5.1.3.a.S. An alternative disposal method, approved by the chief in writing, must be used during any time that the facility is inoperable; and

5.1.3.a.T. The incoming waste must be screened to eliminate unacceptable material from entering the facility such as hazardous waste, asbestos, explosive materials, or other materials which may endanger public health and safety.

5.1.4. Waste Characterization.

5.1.4.a. The owner or operator of an incinerator with a design capacity in excess of five hundred (500) pounds per hour must undertake a testing program as follows:

5.1.4.a.A. An ash testing program must be completed within sixty (60) days of construction and shake-down of the incinerator. Representative samples of both fly ash and bottom ash must be tested for physical characteristics, bulk chemical composition, analysis using the appropriate leaching test and analysis using the EP toxicity test or other test to determine the wastes' regulatory status under federal or State hazardous waste laws. Test methods, the number of tests, detection limits, and parameters to be tested for will be specified by the chief; and

5.1.4.a.B. A long-term ash testing program must be established. For the first year of operation, quarterly testing of at least one (1) sample of bottom ash and one (1) sample of fly ash must be performed using approved methods and procedures. Thereafter, annual sampling and testing must be performed. The chief may specify an alternate testing program.

5.1.4.b. The owner or operator of a facility with a design capacity of five hundred (500) pounds per hour or less may be required to undertake the testing program described in section 5.1.4.a of these regulations if the chief determines through an examination of information required in section 5.1.3.a.T of these regulations that such testing is warranted.

5.2. Requirements for Transfer Stations.

5.2.1. General.

5.2.1.a. No person may conduct transfer station activities unless the chief has first issued a permit for the activities in accordance with the requirements of these regulations.

5.2.1.b. No person conducting transfer station activities may allow ash, residue, or other waste specified in section 4.13 of these regulations to be received or handled at a transfer station unless the chief has specifically approved handling that waste in the permit.

5.2.1.c. No person conducting transfer station activities may:

5.2.1.c.A. Mix solid waste with, or store solid waste in such close proximity to other solid waste to create risk of fire or explosion, or a risk to the accumulation of poisonous or otherwise harmful vapors or gases; or

5.2.1.c.B. Allow explosive waste to be processed at the facility.

5.2.1.d. Regulated hazardous waste may not be disposed, processed, or stored where transfer station activities are conducted.

5.2.2. Location Criteria. Transfer stations must be sited in compliance with the location requirements of sections 3.1, 3.2.3, and 3.2.5 of these regulations and may not be sited within one hundred feet (100) of a perennial stream.

5.2.3. Signs. A person conducting transfer station activities shall identify the operation by posting and maintaining a sign in accordance with section 4.6.1.a.M of these regulations.

5.2.4. Access Control.

5.2.4.a. A gate or other barrier shall be maintained at potential vehicular access points to block unauthorized access to the site when an attendant is not on duty.

5.2.4.b. The operator shall construct and maintain a fence or other suitable barrier around the site sufficient to prevent unauthorized access.

5.2.4.c. Access to the site shall be limited to times when an attendant is on duty.

5.2.5. Access Roads. Access roads shall be designed, constructed, and maintained in accordance with section 4.5.3 of these regulations.

5.2.6. Measuring Waste. Solid waste delivered to a transfer station shall be accurately weighed or otherwise accurately measured prior to unloading in accordance with the provisions of 110 C.S.R. 6A §4.2 and 4.3.

5.2.7. Operations and Equipment.

5.2.7.a. Loading, unloading, storage, compaction and related activities shall be conducted in an enclosed building, unless otherwise approved by the chief.

5.2.7.b. The permittee shall maintain on the site equipment necessary for operation of the facility in accordance with the permit. The equipment shall be maintained in an operable condition.

5.2.7.c. Standby equipment shall be located on the site or at a place where it can be available within twenty-four (24) hours. If a breakdown of the operator's equipment occurs, the

operator shall utilize standby equipment as necessary to comply with these regulations.

5.2.7.d. Equipment shall be operated and maintained so as to prevent solid waste from being unintentionally removed from the storage area.

5.2.7.e. Equipment used to handle putrescible solid waste shall be cleaned at the end of each working day.

5.2.8. Unloading Area.

5.2.8.a. The approach and unloading area shall be adequate in size and design to facilitate the rapid unloading of solid waste from the collection vehicles and the unobstructed maneuvering of the vehicles and other equipment.

5.2.8.b. The loading areas and unloading areas shall be constructed of impervious material which is capable of being cleaned by high pressure water spray and shall be equipped with drains or sumps connected to a sanitary sewer system or treatment facility to facilitate the removal of water.

5.2.8.c. If the facility has an unloading pit, the facility shall have in place truck wheel curbs and tie downs that are sufficient to prevent trucks from backing into the pit or falling into the pit while unloading.

5.2.8.d. An attendant or clearly marked signs shall direct vehicles to the unloading area.

5.2.8.e. The permittee shall ensure that collection vehicles unload waste promptly in unloading areas.

5.2.8.f. Solid waste shall be confined to the unloading area and the approved storage areas.

5.2.9. Cleaning and Maintenance.

5.2.9.a. Areas within the building shall be kept clean.

5.2.9.b. The operator may not allow putrescible waste to remain at the transfer station at the end of the day or for more than twenty-four (24) hours.

5.2.9.c. Plumbing shall be properly maintained, and the floors shall be well drained.

5.2.9.d. Macerators, hammer mills, and grinders shall be cleanable and shall be equipped with drains that connect to a sanitary sewer system or treatment facility.

5.2.9.e. Provision shall be made for the routine operational maintenance of the facility.

5.2.10. Water Quality Protection. All permit holders must meet the requirements of 46 C.S.R. 1.

5.2.11. Other Requirements.

5.2.11.a. The operator shall also prevent and eliminate conditions not otherwise prohibited by these regulations that are harmful to the environment or public health, or which create safety hazards, odors, dust, noise, unsightliness, and other public nuisances.

5.2.11.b. No person may cause or allow open burning.

5.2.11.c. The operator shall prevent the attraction, harborage or breeding of vectors.

5.2.11.d. Salvaging of materials may not be conducted unless salvaging is controlled by the operator to prevent interference with prompt and sanitary operations and is conducted to prevent a health hazard or nuisance.

5.2.11.e. Salvaged materials shall be promptly removed from the unloading area and either stored in an approved area or transported off site.

5.2.11.f. The operator may not allow litter to be blown or otherwise deposited off site.

5.2.11.g. Fences or other barriers sufficient to control blowing litter shall be located in the area immediately downwind from the unloading area, unless transfer activities are conducted within an enclosed building or the solid waste being transferred cannot create blowing litter.

5.2.11.h. Litter shall be collected at least weekly from fences, roadways, tree line barriers, and other barriers and disposed or stored in accordance with the act and the regulations thereunder, unless a greater frequency is set forth in the permit.

5.2.11.i. A facility subject to these regulations shall be designed, constructed, maintained, and operated to prevent and minimize the potential for fire, explosion, or release of solid waste constituents to the air, water, or soil of this state that could threaten public health or safety, public welfare, or the environment.

5.2.11.j. The operator of a transfer station shall meet all of the reporting requirements as specified in section 4.12 of these regulations.

5.2.11.k. The facility shall be surrounded with rapidly growing trees, shrubbery, fencing, berms, or other appropriate means to screen it from the surrounding area.

5.2.11.l. Only household waste and commercial waste shall be accepted at the facility. No industrial waste, infectious waste, construction and demolition debris, or hazardous waste regulated under 47 C.S.R. 35 shall be accepted unless specifically approved by the chief.

5.2.11.m. All solid waste passing through the transfer station must be ultimately treated or disposed of at a facility authorized by the Department if in this State, or by the appropriate governmental agency or agencies if in other states, territories, or nations.

5.2.11.n. A transfer station with operating mechanical equipment must have an attendant on duty at all times the facility is open. Suitable fencing, gates, or signs must be provided.

5.2.11.o. All floors must be drained and free from standing water. All drainage from cleaning areas must be discharged to sanitary sewers or the equivalent.

5.2.11.p. Adequate storage space for incoming solid waste must be available at the transfer station.

5.2.11.q. All solid waste must be removed from the transfer station facility whenever transfer containers are full, or weekly, whichever comes first.

5.3. Requirements for Recycling Facilities. (Reserved).

5.4. Requirements for Construction/Demolition "Class D" Solid Waste Facilities.

5.4.1. General Requirements. Only the construction/demolition wastes approved in the facility permit are allowed to be accepted. Putrescible, household, automobile shredder fluff, industrial and sludge wastes are prohibited.

5.4.2. Class D-1 Facility Requirements. Class D-1 solid waste facilities shall meet all of the requirements in section 4 of these regulations unless an alternative standard from section 5.4.2 of these regulations is met or the chief has granted, upon written request, an exemption from a specific requirement of section 4 of these regulations.

5.4.2.a. A liner system for a Class D-1 solid waste facility shall consist of the following elements:

5.4.2.a.A. Subbase;

5.4.2.a.B. Compacted soil liner; and

5.4.2.a.C. Leachate collection and protective cover zone.

5.4.2.b. The subbase portion of the liner system shall consist of a cleared and grubbed natural ground surface capable of supporting the entire liner system.

5.4.2.c. The compacted soil liner shall:

5.4.2.c.A. Be a minimum compacted thickness of two (2) feet;

5.4.2.c.B. Be compacted in six (6) inch lifts;

5.4.2.c.C. Be no more permeable than 1 x 10^{-6} cm/sec based on laboratory and field testing;

5.4.2.c.D. Be free of particles greater than three (3) inches in any dimension;

5.4.2.c.E. Be placed without damaging the subgrade;

5.4.2.c.F. Be placed during a period of time when both the air temperature and the soil temperature are above freezing so that neither the compacted soil nor the subbase are frozen;

5.4.2.c.G. Have a slope of at least two percent (2%) to facilitate the drainage of leachate across the liner surface; and

5.4.2.c.H. Be designed, operated, and maintained so that the physical and chemical characteristics of the liner and liner's ability to restrict the flow of solid waste, solid waste constituents, or leachate is not adversely affected by the leachate.

5.4.2.c.I. The compacted soil construction liner certification and a Q.A./Q.C. report shall be submitted to the chief prior to the placement of the leachate collection and protective cover zone.

5.4.2.d. The leachate collection and protective cover zone shall:

5.4.2.d.A. Create a flow zone between the compacted soil liner and solid waste more permeable than 1 x 10^{-3} cm/sec based on laboratory and field testing. The leachate collection zone including the piping system must be designed and placed on a

minimum slope of two percent (2%) to facilitate efficient leachate drainage and prevent ponding on the composite liner;

5.4.2.d.B. Be at least eighteen (18) inches thick;

5.4.2.d.C. Be constructed of soil or earthen materials to ensure that the hydraulic leachate head on the composite liner does not exceed one (1) foot at the expected flow capacity from the drainage area except during storm events;

5.4.2.d.D. Be comprised of clean soil or earthen materials that contain no debris, plant material, rocks, or other solid material larger than one-quarter (1/4) inch in diameter and no material with sharp edges;

5.4.2.d.E. Be graded, uniformly compacted, and smoothed;

5.4.2.d.F. Be installed in a manner that prevents damage to the compacted soil liner; and

5.4.2.d.G. Contain a perforated piping system capable of intercepting liquid within the leachate collection zone and conveying the liquid to control collection points. The piping system shall also meet the following:

5.4.2.d.G.(a) The slope sizing and spacing of the piping system shall assure that liquids drain efficiently from the leachate collection zone;

5.4.2.d.G.(b) The distance between pipes in the piping system may not exceed one (100) hundred feet on center;

5.4.2.d.G.(c) The pipes shall be installed perpendicular to the flow;

5.4.2.d.G.(d) The minimum diameter of the perforated pipe shall be four (4) inches with a wall thickness of Schedule 40 or greater;

5.4.2.d.G.(e) The pipe shall be capable of supporting anticipated loads without failure based on facility design;

5.4.2.d.G.(f) Rounded stones or aggregates shall be placed around the pipes of the piping system. The stones or aggregates shall be sized to prevent clogging of the pipes and damage to the composite liner;

5.4.2.d.G.(g) The piping system shall be installed in a fashion that facilitates cleanout, maintenance, and monitoring. Manholes or cleanout risers shall be located along the

perimeter of the leachate detection piping system. The number and spacing of the manholes or cleanout risers shall be sufficient to insure proper maintenance of the piping system by water jet flushing or an equivalent method; and

5.4.2.d.G.(h) The leachate collection system shall be cleaned and maintained as necessary.

5.4.2.d.H. The leachate collection zone construction certification and a Q.A./Q.C. report shall be submitted to the chief prior to the placement of solid waste.

~~5.4.2.e. Asbestos may be disposed at a Class D-1 solid waste facility if all the requirements of section 4.13.2 of these regulations are met.~~

5.4.3. Class D-2 Facility Requirements. Except as herein specified Class. D-2 solid waste facilities are exempt from the requirements of section 4 of these regulations unless otherwise required by the director, but must comply with the requirements in sections 5.4.3.a through 5.4.3.g of these regulations.

5.4.3.a. Access shall be controlled in such a manner as to discourage unauthorized entry and shall be limited to those authorized to deposit waste material and only during scheduled hours.

5.4.3.b. Construction/demolition and cover material must not be placed into a stream channel and must be placed in such a way to prevent erosion and sedimentation.

5.4.3.c. Cover material shall be graded and maintained to prevent ponding and minimize erosion.

5.4.3.d. Erosion and sediment controls must be installed as necessary to prevent sedimentation.

5.4.3.e. The disturbed area shall be revegetated to prevent erosion and sedimentation in accordance with section 4.5.6 of these regulations.

5.4.3.f. Except when extended by the ~~chief~~ director, ~~within one hundred and eighty (180) days from issuance of a Class D-2 solid waste facility permit~~ all operations for a Class D solid waste facility shall have been completed including covering with a minimum of twenty four (24) inches of soil, regrading, dressing up, seeding, mulching and fertilizing prior to the expiration date of the permit.

5.4.3.g. The permittee shall notify the chief ~~within sixty (60) days prior to the expiration date of the permit~~ to arrange for a final inspection prior to removing equipment from the

site. All site reclamation must be completed before equipment removal.

5.4.3.h. The chief may require a Class D-2 solid waste facility to meet any specific requirement in section 4 of these regulations.

~~5.4.4. Class D-3 Facility Requirements. Except as herein specified Class D-3 solid waste facilities are exempt from the requirements of section 4 of these regulations but must comply with the requirements in sections 5.4.4.a through 5.4.4.e of these regulations.~~

~~5.4.4.a. Construction/demolition and cover material must not be placed into a stream channel.~~

~~5.4.4.b. The entire site must be constructed to prevent ponding and minimize erosion.~~

~~5.4.4.c. Erosion and sediment control structures must be installed as necessary to prevent sedimentation.~~

~~5.4.4.d, The disturbed area must be revegetated in accordance with section 4.5.6 of these regulations.~~

~~5.4.4.e. Within one hundred and eighty (180) days from issuance of a certificate of approval for disposal all operations on a Class D-3 solid waste facility shall have been completed including final disposal, covering with a minimum of twenty four (24) inches of soil, regarding, dressing up, seeding, mulching and fertilizing.~~

~~5.4.4.f. The chief may require a Class D-3 solid waste facility to meet any specific requirement in section 4 of these regulations.~~

5.5. Requirements for Class F Solid Waste Facilities. Except as provided in sections 5.5 of these regulations, all requirements of these regulations shall be applicable to Class F solid waste facilities.

5.5.1. Waivers and Modifications. During the permit issuance process or upon written request or appropriate notation on the application by the permittee, the chief may waive or modify the requirements of the subsections of section 3 of these regulations that are listed in section 5.5.1.a of these regulations and the requirements of the subsections of section 4 of these regulations that are listed in section 5.5.1.b of these regulations. Failure of the applicant to supply documentation requested by the chief, which is necessary to justify the requested waiver or modification, shall be grounds for wavier or modification denial. Each request for waiver or modification of a requirement of section 3 or 4 of

these regulations shall be based upon sound engineering judgement taking into consideration the type of waste to be disposed, the type facility, and site characteristics.

5.5.1.a. The following requirements of section 3 of these regulations which may be waived or modified by the chief: sections 3.4, 3.7.6.g, 3.7.10, 3.7.11, 3.7.13, 3.8.3.a.C.(d), 3.8.4.d.A, 3.10.1.f, 3.10.3, 3.13, 3.14, and 3.16.4 of these regulations.

5.5.1.a.A. The requirements of sections 3.8.4.e, 3.8.9.a.B, 3.9, 3.10.1.a and 3.11.3 of these regulations and the gas monitoring and control provisions of sections 3.10.1.b, 3.10.1.d, and 3.10.2.c of these regulations may also be waived or modified by the chief for coal combustion by-product facilities.

5.5.1.b. The following requirements of section 4 of these regulations which may be waived or modified by the chief for coal combustion by-product facilities: sections 4.4, 4.5.2.c.A.(c), 4.5.3, 4.5.4, 4.5.7.g, 4.5.7.h, 4.5.7.i, 4.5.7.j, 4.6.2.a.B, 4.6.2.a.C, 4.6.2.b.A, 4.6.2.b.B, 4.6.2.b.D, 4.8.3.c.B, 4.10, 4.12, and 4.13.2.c of these regulations.

5.5.2. Requirements for Coal Combustion By-Product Facilities.

5.5.2.a. Liner System Requirements. Liner system requirements for coal combustion by-product landfills, solid waste disposal surface impoundments and surface impoundments, or portions thereof, placed in operation after the effective date of these regulations shall be as follows:

5.5.2.a.A. The liner system for landfills shall consists of eighteen (18) inches of clay, having a permeability no greater than 1×10^{-7} centimeters per second and compacted in six (6) inch lifts to a standard Proctor density of at least ninety--five percent (95%) as determined by ASTM D-698. A sixty (60) mil synthetic liner shall be installed on top of the compacted clay liner. A leachate collection system consisting of a perforated piping system embedded within an eighteen (18) inch drainage layer, which can consist of bottom ash, having a minimum permeability of 1×10^{-3} centimeters per second shall be installed on top of the synthetic liner. The eighteen (18) inch leachate collection system layer shall serve as the protective cover for the synthetic liner.

5.5.2.a.B. The permittee may elect and construct an alternate liner system for landfills consisting of at least two (2) feet of clay having a permeability no greater than 1×10^{-7} centimeters per second and compacted in six (6) inch lifts to a standard Proctor density of at least ninety-five percent (95%) as determined by ASTM D-698. Taking into account site-specific conditions, an appropriate groundwater interceptor drainage system,

which shall also serve as a leachate detection system, shall be installed under the clay liner in such a manner as to avoid groundwater penetration of the liner system and to facilitate detection of leachate penetrating the liner. An appropriate leachate collection system, which can consist of bottom ash, having a minimum permeability of 1×10^{-3} centimeters per second shall be installed on top of the compacted clay liner provided that this liner system is prohibited for use in major domestic use aquifer areas, major alluvial aquifers, or karst regions.

5.5.2.a.C. Other alternate liner systems for landfills may be approved by the chief on a case-by-case basis. Such alternate liner system may be more or less stringent than the liner system described in section 5.5.2.a.A of these regulations as determined by sound engineering judgement taking into consideration the type of waste to be disposed, type of facility, site characteristics, operating experience of similar landfills, and protection of the groundwater.

5.5.2.a.D. Failure of an alternate liner design at the applicant's facility may result in the chief disallowing the use of identical technology in new landfills proposed by the applicant unless the applicant can demonstrate a remedy for the technology's past failure.

5.5.2.a.E. The liner system for solid waste disposal surface impoundments shall be designed and constructed with a leachate detection system imbedded in a filter media having a minimum permeability of 1×10^{-3} centimeters per second topped by eighteen (18) inches of clay having a permeability no greater than 1×10^{-7} centimeters per second and compacted in six (6) inch lifts to a standard Proctor density of at least ninety-five percent (95%) as determined by ASTM D-698, with a sixty (60) mil synthetic liner installed over the compacted clay.

5.5.2.a.F. Other alternative liner systems for solid waste disposal surface impoundments may be considered by the chief on a case-by-case basis. Such determination shall be based upon sound engineering judgement taking into consideration the type of waste to be disposed, type of facility, site characteristics, and groundwater monitoring results at similar existing solid waste disposal surface impoundments.

5.5.2.a.G. For surface impoundments receiving leachate, a permittee may elect use of a liner system consisting of either eighteen (18) inches of clay having a permeability no greater than 1×10^{-7} centimeters per second and compacted to a standard Proctor density of at least ninety-five percent (95%) as determined by ASTM D-698, with a sixty (60) mil synthetic liner installed on top of the clay; two (2) feet of clay with the aforementioned permeability rate and compaction density; or any other alternative liner system approved by the chief on a case-by--

case basis. Taking into account site-specific conditions, an appropriate groundwater interceptor drainage system, which shall also serve as a leachate detection system, shall be installed under all liner systems in such a manner as to avoid groundwater penetration of the liner system and to facilitate detection of leachate penetrating the liner.

5.5.2.a.H. The provisions of section 4.8.3.c.B of these regulations do not apply to coal combustion by-product surface impoundments. Surface impoundments associated with a coal combustion by-product facility shall not be subject to any of the groundwater monitoring requirements of these regulations if such impoundments are covered by the overall groundwater monitoring plan for the coal combustion by-product facility.

5.5.2.b. Operating Requirements. Operating requirements for coal combustion by-product landfills and solid waste disposal surface impoundments in operation on or closed prior to the effective date of these regulations shall be as follows:

5.5.2.b.A. Operating landfills in existence on the effective date of these regulations may remain in operation and without liner retrofit unless there is a statistically significant increase in groundwater monitoring parameters as determined by the monitoring provisions of section 4.11 of these regulations. Groundwater remediation may be determined on a case-by-case basis by the chief based upon an evaluation of the information from groundwater monitoring and assessment programs, as provided for in section 4.11 of these regulations. Upon evidence of such contamination, a corrective action program may be required as described in section 4.11.5 of these regulations. Such corrective action programs may include closure in accordance with section 6 of these regulations, retrofit in accordance with section 5.5.2.a of these regulations, or other appropriate remediation measures.

5.5.2.b.B. For coal combustion by-product landfills in existence on the effective date of these regulations, the liner provisions of sections 5.5.2.a.A, 5.5.2.a.B, and 5.5.2.a.C of these regulations and the provisions of section 4.11 of these regulations do not apply to closed or closed portions of such landfills. Monitoring shall not be required for such facilities that are closed prior to the effective date of these regulations except for currently-permitted closed facilities or in connection with any remedial or corrective action program ordered by the chief.

5.5.2.b.C. The requirements of these regulations are not applicable to coal combustion by-product disposal surface impoundments in existence on or before the effective date of these regulations and which are operating under a permit issued under W. Va. Code §20-5A, except that all such impoundments shall be required to have an adequate groundwater monitoring system in place. Groundwater remediation may be determined on a case-by-case

basis by the chief based upon an evaluation of the information from groundwater monitoring and assessment programs. Evidence of groundwater contamination, as determined by section 4.11 of these regulations, may require a corrective action program as described in section ~~4.11.6~~ 4.11.5 of these regulations.

~~Editor's Note: The amendment of section 4.11.5 and 4.11.6 by Senate Bill 243 (passed March 10, 1990) replaced 4.11.5 and 4.11.6 with a new 4.11.5.~~

5.5.2.c. Leachate Analysis. The requirements of section 4.8.4 of these regulations apply to coal combustion by-product landfills and surface impoundments with the exception that the requirements in section 4.8.4.B of these regulations shall be replaced by the following:

5.5.2.c.A. On a semi-annual basis, the chemical composition of the leachate flowing into a leachate treatment system from a coal combustion by-product facility shall, unless waived by the chief, be determined through the analysis of the leachate for the following parameters: alkalinity, arsenic, barium, bicarbonate, hardness, boron, cadmium, calcium, chloride, total and hexavalent chromium, iron, lead, manganese, magnesium, sulfate, total dissolved solids, total organic carbon (TOC), specific conductance, zinc, and any other parameter which is specifically known to be associated with the wastes in question and specified by the chief in writing.

5.5.2.c.A.(a) The monitoring parameters listed in section 5.5.2.c.A of these regulations shall be reported as total metals unless otherwise specified by the chief.

5.5.2.d. Beneficial Use of Coal Combustion By-Products. The following uses of coal combustion by-products are deemed to be beneficial and do not require a permit under these regulations so long as such uses are consistent with the requirements of section 5.5.2.d of these regulations:

5.5.2.d.A. Coal combustion by-products used as a material in manufacturing another product (e.g., concrete, flowable fill, lightweight aggregate, concrete block, roofing materials, plastics, paint) or as a substitute for a product or natural resource (e.g., blasting grit, filter cloth precoat for sludge dewatering);

5.5.2.d.B. Coal combustion by-products used for the extraction or recovery of materials and compounds contained within the coal combustion by-products;

5.5.2.d.C. Coal combustion by-products used as a stabilization/solidification agent for other wastes. This use of coal combustion by-products shall be considered a beneficial use

for the purposes of section 5.5.2.d of these regulations if the coal combustion by-product is used singly or in combination with other additives or agents to stabilize or solidify another waste product and if:

5.5.2.d.C.(a) The person or entity proposing the use has first given advance written notice to the chief; and

5.5.2.d.C.(b) The use results in altered physical or chemical characteristics of the other waste and a reduction of the potential for the resulting stabilized mixture to leach constituents into the environment;

5.5.2.d.D. Coal combustion by-products used under the authority of the West Virginia Department of Energy;

5.5.2.d.E. Coal combustion by-products used as pipe bedding or as a composite liner drainage layer;

5.5.2.d.F. Coal combustion by-products used as a daily or intermediate cover for Class A, Class B, or Class C solid waste facilities if the specific permit allows for such use;

5.5.2.d.G. Coal combustion bottom ash or boiler slag used as a anti-skid material if such use is consistent with Department of Highways specifications. The use of fly ash as an anti-skid material is not deemed to be a beneficial use; and

5.5.2.d.H. Coal combustion by-products used as a construction material (e.g., subbases, bases) for roads or parking lots that have asphalt or concrete wearing surfaces if approved by the West Virginia Department of Highways or the project owner.

Note: section 5.5.2.d of these regulations does not specifically address the beneficial use of coal combustion by-products for structural fills and as soil amendment. These beneficial use applications will be considered in future rule-making. Until such time, the established prior practices will be continued.

5.5.3. Requirements for Industrial Solid Waste Facilities Other Than Coal Combustion By-Product Facilities.

5.5.3.a. Liner System Requirements. Liner system requirements for industrial solid waste landfills and solid waste disposal surface impoundments shall be as follows:

5.5.3.a.A. Except as otherwise provided in section 5.5.3 of these regulations, all provisions of section 4 of these regulations shall be applicable to industrial solid waste landfills and industrial solid waste disposal surface impoundments constructed after the effective date of these regulations.

5.5.3.a.A.(a) Any provision of section 4 of these regulations may be waived or modified by the chief upon written request of the permittee if such provision, in the discretion of the chief, clearly does not apply to the industrial solid waste facility or where the waiver or modification is shown to be appropriate for the facility type, type of waste disposed, or site characteristics. Any alternative approved by the chief shall be based upon good engineering judgement.

5.5.3.a.B. For industrial solid waste landfills in existence on the effective date of these regulations, the liner provisions in section 4 and 5.5 of these regulations shall not apply to closed or closed portions of such landfills. However, the liner provisions shall apply to any expansion of such facilities. In order to continue to use an active portion of an existing landfill which is unlined after November 5, 1991, the permittee must enter into a compliance schedule requiring such active unlined portions to be closed or retrofitted where appropriate in accordance with these regulations by an agreed date by which all waste must thereafter be placed on an approved liner system, which date shall be no later than thirty (30) months following the effective date of these regulations.

5.5.3.a.C. Solid waste disposal surface impoundments in operation on the effective date of these regulations may continue operation throughout the design life of the impoundment, provided the impoundment shall not be expanded to a size greater than the design approved by the chief in the permit last issued for the facility. Groundwater remediation may be determined on a case-by-case basis by the chief based upon an evaluation of the information developed under the assessment provisions of section 4.11.5 of these regulations.

5.5.3.b. Appropriate monitoring provisions of section 4.11 of these regulations shall be incorporated into the permits for industrial solid waste landfills and industrial solid waste disposal surface impoundments in operation on the effective date of these regulations. No monitoring shall be required for such facilities closed prior to the effective date of these regulations except for closed facilities under permit as of the effective date of these regulations or in connection with any remedial or corrective action program ordered by the chief.

5.6. Requirements for Uncommon or Miscellaneous Facilities.

5.6.1. Green Boxes, Bins, and Dumpsters.

5.6.1.a. Each person who causes to be placed a dumpster at places other than approved solid waste facilities, shall notify the director of the location, number of containers, size of containers, and any other information as requested by the director.

5.6.1.b. Each person who causes to be placed a dumpster at places other than approved solid waste facilities shall be responsible for maintenance, litter, and open dump control at the site of the dumpster.

5.6.2. Composting. (Reserved).

§47-38-6. Closure and Bond Release.

6.1. Permanent Closure.

6.1.1. Applicability. Any person who maintains or operates a solid waste facility must, when the fill area or portion thereof reaches final grade or when the chief determines that closure is required, cease to accept waste and close the facility or portion thereof in accordance with the plan approval issued by the chief and the provisions of section 6.1 of these regulations unless otherwise approved by the chief in writing.

6.1.1.a. Upon request of the permittee, or upon his own initiative, the chief may waive or modify any of the closure requirements of section 6 of these regulations or allow alternative permit conditions or practices as appropriate for a specific coal combustion by-product facility or industrial solid waste facility based upon the type of wastes disposed, type of facility, site characteristics, and sound engineering judgement.

6.1.2. Notification Procedures.

6.1.2.a. At least one hundred and twenty (120) days prior to closing the facility, the permittee shall notify the chief in writing of the intent to close the facility and the expected date of closure. Prior to this date, the permittee shall notify all users of the facility of the intent to close the facility so that alternative disposal options can be arranged.

6.1.2.b. Signs shall be posted at all points of access to the facility at least thirty (30) days prior to closure indicating the date of closure and alternative disposal facilities.

6.1.2.c. Notice of the upcoming closure shall be a Class II legal advertisement which must be published in a local newspaper at least thirty (30) days prior to closure and a copy of the notice must be provided to the chief within ten (10) days of the date of publication.

6.1.3. Restricted Access. Within ten (10) days after ceasing to accept waste, the permittee shall restrict access by the use of gates, fencing, or other appropriate means to insure against further use of the facility. If the final use allows access, such access must be restricted until closure has been completed and approved by the chief.

6.1.4. Deed Notation.

6.1.4.a. Upon closure of a landfill, the owner or operator must record a deed notation with the county clerk's office that shall be available with the deed of the property that will notify any potential purchaser that:

6.1.4.a.A. The land has been used as a landfill; and

6.1.4.a.B. Its use is restricted to ensure post-closure care including any use that would interfere with maintaining the integrity and effectiveness of the final cover and maintaining the system to control the formation and release of leachate and explosive gases into the environment.

6.1.4.b.The deed shall include at a minimum:

6.1.4.b.A. Survey plot indicating the location and dimension of the landfill;

6.1.4.b.B. A record of waste, including type, location, and quantity of waste disposed of at the site; and

6.1.4.b.C. Disposal location of asbestos and any other waste specified by the chief.

6.1.4.c. A certification of deed notation must be filed with the chief within ninety (90) days of closure.

6.1.5. Closure.

6.1.5.a. Unless otherwise approved by the chief in writing, the closure plan shall include the following:

6.1.5.a.A. The permittee shall provide final cover and grading in the following manner:

6.1.5.a.A.(a) A one (1) foot layer of a material with a high hydraulic conductivity shall be placed directly on the refuse mass to facilitate landfill gas control;

6.1.5.a.A.(b) A cap consisting of a uniform and compacted one (1) foot layer of clay that is no more permeable than 1×10^{-7} cm/s shall be placed and graded over the entire surface of each final lift in six (6) inch lifts. The chief may, in the issued permit, approve the use of a synthetic material in lieu of the layer of clay;

6.1.5.a.A.(c) A one (1) foot drainage layer that is more permeable than 1×10^{-3} cm/s and capable of transmitting flow and preventing erosion shall be placed over the cap; and

6.1.5.a.A.(d) A uniform and compacted layer of soil that is at least two (2) feet in thickness and capable of supporting vegetation shall be placed over the drainage layer.

6.1.5.a.B. The operator shall place final cover within one (1) year after disposal in the final lift ceases or as soon thereafter as weather permits, unless he obtains written approval from the chief allowing a later period based on a demonstration that a later period is necessary to protect the cap and drainage layer from differential settlement of waste at the facility. The chief will not allow a later period unless, at a minimum, delayed installation will not cause or allow any violations of any provision of these regulations.

6.1.5.a.C. Surface water run-on must be diverted around all areas used for waste disposal to limit the potential for erosion of the cover soils and increased infiltration. Drainage swales conveying surface water runoff over previous waste disposal areas must be lined with a minimum thickness of two (2) feet of material acceptable to the chief.

6.1.5.a.D. The grade of the final surface of the facility shall not be less than three percent (3%) nor more than twenty-five percent (25%) unless otherwise approved by the chief as a part of the issued permit. Long slopes shall incorporate runoff control measures and terracing in order to minimize erosion. For sites having a natural slope greater than twenty-five percent (25%), a slope up to thirty-three percent (33%) may be considered acceptable if terracing is incorporated at least every twenty (20) feet of vertical distance with runoff control.

6.1.5.a.E. Within ninety (90) days after the placement of final cover, the permittee shall complete seeding, fertilizing, and mulching of the finished surface. The seed type and amount of fertilizer applied shall be selected depending on the type and quality of topsoil and compatibility with both native vegetation and the final use. Unless otherwise approved by the chief in writing, seed mixture and application rates must be in accordance with section 4.5.6 of these regulations.

6.1.5.a.F. Additional information may be required at the discretion of the chief.

6.1.5.b. Closure plan for solid waste facilities other than landfills shall include the requirements of sections 6.1.4.a.D and 6.1.4.a.E of these regulations and any other requirement specified by the chief.

6.1.6. Final Use at Landfills. The following activities are prohibited at closed landfills unless specifically approved by the director in writing:

6.1.6.a. Use of the facility for agricultural purposes;

6.1.6.b. Establishment or construction of any buildings; or

6.1.6.c. Excavation of the final cover or any waste materials.

6.1.7. Certification by Registered Professional Engineer. All closure activities must be inspected and approved by a registered professional engineer prior to application to the chief.

6.1.8. Closure Approval. Upon completion of requirements related to closure, the director will issue a final closure approval. The date of the director's final closure approval shall be the date of commencement of the post-closure bond liability period.

6.2. Inactive Status. Upon application to the director, a permittee may request inactive status for a period not to exceed six (6) months. To qualify for inactive status, the permittee shall:

6.2.1. Intermediate Cover. Demonstrate that all solid wastes are covered by at least one (1) foot of intermediate cover.

6.2.2. Final Cover. Demonstrate that all areas where solid waste disposal is complete have been covered with final cover as described in section 6.4.1.a.A of these regulations.

6.2.3. Revegetation. Demonstrate that all disturbed areas have been seeded in accordance with the revegetation plans specified by section 4.5.6 of these regulations.

6.2.4. Restricted Access. Restrict access to the area.

6.2.5. Maintenance of Leachate Control. Demonstrate that leachate collection and treatment will be maintained.

6.2.6. Deed Notation. Demonstrate that notations have been made in permanent deed records in the County Clerk,s Office that the site has been used as a solid waste landfill.

6.2.7. Other Assurances. Provide any other assurance specified by the director.

6.3. Post-Closure Care. Post-closure care shall continue for up to ten (10) years after final closure of areas unless otherwise extended by the director and shall consist of the following:

6.3.1. Monitoring. Monitoring shall continue as specified in the monitoring plan required by the permit.

6.3.2. Repair of Settlement. Any settling of solid waste which occurs up to ten (10) years of the date of final closure, causing ponding of waters in areas of solid waste deposits, shall be repaired promptly. Such repairs shall include any necessary regrading, additions of fill material, and revegetation of settled areas.

6.3.3. Repair of Cover Material. Any cracking or erosion of cover material which occurs and may cause waters to enter solid waste deposits shall be repaired immediately. Such repairs shall include any necessary regrading, additions of cover material, and revegetation to eliminate such cracks or eroded areas.

6.3.4. Site Monitoring. Further disposal of solid waste at a closed solid waste facility is prohibited. The closed solid waste facility shall be monitored by the permittee, at a minimum frequency of once each month during the post-closure period, to assure that solid waste deposits and vandalism do not occur at the closed solid waste facility. Any solid waste deposited at the closed solid waste facility during the post-closure period shall be promptly removed and disposed at an approved solid waste facility. Evidence of disease vectors shall be treated promptly.

6.4. Final Post-Closure Inspection.

6.4.1. If the permittee of a solid waste facility believes that post-closure requirements have been met, the permittee may file a request for a final post-closure inspection with the director.

6.4.2. Upon a request for a final post-closure inspection, the director will inspect the facility to verify that final post-closure has been completed as follows:

6.4.2.a. The applicable operating requirements of the Solid Waste Management Act and all other environmental laws of the State of West Virginia, the regulations of the West Virginia Department of Natural Resources, terms and conditions of the permit, the approved closure plan, and orders issued by the chief or the director have been complied with.

6.4.2.b. No further remedial action, maintenance, or other activity by the permittee is necessary to continue compliance with the Solid Waste Management Act, the regulations promulgated thereunder, orders issued by the chief or the director, and the terms and conditions of the permit and the approved closure plan.

6.4.2.c. The facility is not causing adverse effects on the environment, and is not causing a nuisance.

6.4.3. Upon a finding by the director that the facility is in compliance with all factors listed in section 6.4 of these

regulations, the permittee will be eligible for bond release pursuant to section 6.6 of these regulations.

6.4.4. Upon a finding by the director that the facility is not in compliance with all the factors listed in section 6.4 of these regulations, the director shall initiate proceedings for bond forfeiture pursuant to section 6.5 of these regulations.

6.5. Bond Forfeiture.

6.5.1. Procedure. If the director declares a bond forfeit, he shall:

6.5.1.a. Send written notification -- to the principal, to the bond surety, and to every county or regional solid waste authority in the area that utilizes the facility -- of his determination to declare the bond forfeit and the reasons for the forfeiture;

6.5.1.b. Advise the principal and surety of the right to appeal to circuit court; and

6.5.1.c. Proceed to collect on the bond as provided by applicable laws for the collection of defaulted bonds or other debts.

6.5.2. Collateral Bond. If the director declares a collateral bond forfeited, he shall pay, or direct the State treasurer to pay, the collateral funds into an appropriate Solid Waste Fund. If upon proper demand and presentation, the banking institution or other person or municipality which issued the collateral refuses to pay the Department the proceeds of a collateral undertaking such as a certificate of deposit, letter of credit or government negotiable bond, the director shall take appropriate steps to collect the proceeds.

6.5.3. Surety Bond. If the director declares a surety bond forfeited, he shall certify the same to the Office of Attorney General which will proceed to enforce and collect the amount forfeited, which will, upon collection, be paid into an appropriate Solid Waste Fund.

6.5.4. Use of Funds. Monies received from the forfeiture of bonds, and interest accrued, will be used first to accomplish final closure of, and to take steps necessary and proper to remedy and prevent adverse environmental effects from, the solid waste facilities upon which liability was charged on the bonds. Any monies remaining after such final closure and all necessary remedial actions have been accomplished shall be deposited in the Solid Waste Enforcement Fund that was established pursuant to W. Va. Code §20-5F-5a(h)(1).

6.6. Release of Bonds.

6.6.1. Request. An operator seeking a release of a bond previously submitted to the director must file a written request with the director for release of the bond amount after inspection or after posting a replacement bond in accordance with the provisions of section 3.13 of these regulations.

6.6.2. Application. The application for bond release must contain the following:

6.6.2.a. The name of the permittee and identification of the facility for which bond release is sought;

6.6.2.b. The total amount of bond in effect for the facility; and

6.6.2.c. Other information that may be required by the director.

6.6.2.d. The release or forfeiture of a bond by the director does not constitute a waiver or release of other liability provided in law, nor does it abridge or alter rights of action or remedies of a person or municipality now or hereafter existing in equity or under common law or statutory law, both criminal and civil.

6.6.2.e. The director may grant bond releases immediately upon final closure, for facilities other than landfills, if it is clearly demonstrated that further monitoring, restoration, or maintenance is not necessary to protect the public health, safety and welfare, and the environment.

6.7. Preservation of Remedies. Remedies provided or authorized by law for a violation of applicable federal or State statutes, the regulations promulgated thereunder, orders issued by the chief or the director, or the terms and conditions of permits are expressly preserved. Nothing in these regulations is an exclusive penalty or remedy for such a violation. No action taken under these regulations waives or impairs another remedy or penalty provided in law or equity.

§47-38-7. Open Dumps.

7.1. Prohibitions.

7.1.1. No person may create or operate an open dump.

7.1.2. No person may contribute additional solid waste to an open dump after April 1, 1988.

7.1.3. Except as provided in sections 7.1.4 and 7.1.5 of these regulations, no landowner may allow an open dump to exist on his property unless such open dump is under a compliance schedule approved by the chief.

7.1.4. An open dump operated prior to April 1, 1988 by a landowner or tenant for the disposal of solid waste generated by the landowner or tenant at his residence or farm is not deemed to constitute a violation of section 7.1.3 of these regulations if such open dump did not constitute a violation of law on January 1, 1988.

7.1.4.a. After April 1, 1988, no additional solid waste may be contributed to an open dump operated by a landowner or tenant for the disposal of solid waste generated by the landowner or tenant at his residence or farm.

7.1.4.b. The landowner or tenant who operated an open dump for the disposal of solid waste generated at his residence or farm must, at a minimum, cover the accumulated waste with two (2) feet of topsoil.

7.1.5. An unauthorized dump created by unknown persons is not deemed to constitute a violation of section 7.1.3 of these regulations and the owner of the land on which such dump is located is not liable for unauthorized dumping unless he refuses to cooperate with the Department in stopping the dumping. Cooperation with Department may include, but is not limited to, the following:

7.1.5.a. The posting of signs stating that dumping is illegal;

7.1.5.b. The erection of fencing to surround the accumulated waste;

7.1.5.c. Surveillance of the open dumping areas to determine the identity of contributors to such open dumps;

7.1.5.d. The removal and keeping of certain indications of ownership as contemplated by W. Va. Code §20-7-26(b); or

7.1.5.e. Testimony before a judicial officer regarding the identity of contributors to the dump.

7.2. Protection of the Environment and the Public.

7.2.1. Any site at which the following protective measures have not been instituted shall be classified as an open dump:

7.2.1.a. Measures must be taken to prevent the discharge of pollutants from the accumulated waste into the waters of the

State (e.g., measures to prevent runoff into surface water bodies or the infiltration of leachates to local aquifers);

7.2.1.b. Measures must be taken to impede the access of disease vectors to the accumulated waste (e.g., the application of cover material at appropriate frequencies or other techniques approved in writing by the chief);

7.2.1.c. Measures must be taken to prevent the introduction of hazardous or infectious materials to the accumulated waste;

7.2.1.d. Measures must be taken to reduce the risk of fire in the accumulated waste (e.g., venting measures to reduce the concentration of explosive gases generated by the waste);

7.2.1.e. Measures must be taken to limit public access to the accumulated waste (e.g., the erection of fencing to surround the accumulated waste);

7.2.1.f. Measures must be taken to prevent adverse impacts to area wildlife, particularly with regard to the destruction or adverse modification of habitat critical to any endangered or threatened species of animal or plant; and

7.2.1.g. Any other similar measures specified by the director in Department policy or regulation.

7.3. Schedules of Compliance for Open Dumps.

7.3.1. Schedules of compliance for open dumps will contain a sequence of enforceable actions.

7.3.2. Schedules of compliance for open dumps may not exceed a total time period for all compliance actions of two (2) years from the date of issuance.

7.4. Enforcement.

7.4.1. If the chief or the director has reasonable cause to believe that a potential for environmental or aesthetic degradation or for harm to the health, safety, or welfare of the public exists at any open dump, he may require any person responsible for that open dump to conduct such tests or furnish such information as may be reasonably required to determine whether that dump is or may be causing said degradation or harm.

7.4.2. The Department may conduct any test deemed necessary by the chief or the director in making an investigation or determination of a potential for environmental or aesthetic degradation or for harm to the health, safety, or welfare of the public exists at any open dump.

7.4.3. The chief or the director may perform, or require a person by order to perform, any and all acts necessary to carry out the provisions of the Act and these regulations with regard to an open dump.

7.4.3.a. Any person having an interest which is or may be affected or who is aggrieved by any order of the chief or the director with regard to an open dump may appeal such order to the Water Resources Board pursuant to the provisions of the W. Va. Code §20-5F-7.

7.5. Cooperation with the State Department of Highways.

7.5.1. Roadway Specifications. Standards and design specifications for roadways which provide access to solid waste facilities, as promulgated by the commissioner of the West Virginia Department of Highways, are hereby incorporated by reference. A solid waste facility permit may be suspended or revoked if the owner or operator fails to comply with such roadway specifications.

7.5.2. Waste-In-Transit Inspections. The chief may designate authorized representatives to coordinate with authorized representatives of the commissioner of the West Virginia Department of Highways in conducting inspections of solid waste in transit. Such waste-in-transit inspections will be conducted at weigh stations or other designated sites throughout the State pursuant to regulations promulgated by the Department of Highways.

7.6. Cooperation with the State Tax Department.

7.6.1. The Department will cooperate with the State Tax Commissioner in the handling of proceeds received by the State Tax Department from fees collected pursuant to the Act.

7.7. Cooperation with the State Health Department.

7.7.1. The Department will cooperate with the West Virginia Department of Health in assessing the potential for contamination of public water supplies from any proposed or approved solid waste facility, open dump, or other property where solid waste is present.

7.8. Cooperation with County and Regional Solid Waste Authorities.

7.8.1. The Department will provide such technical assistance concerning the handling and disposal of solid waste to each county and regional solid waste authority as is reasonable and practicable with existing Department resources and appropriations available for such purposes.

APPENDIX A

Schedule of Solid Waste Facility Permit Application Fees

Type of Solid Waste Facility	Application Fee
Class A Solid Waste Facility	$7,500.00
Class B Solid Waste Facility	$5,000.00
Class C Solid Waste Facility	$3,000.00
Class D1 Solid Waste Facility	$3,000.00
~~Class D2 Solid Waste Facility~~	~~$250.00~~
~~Class D3 Solid Waste Facility~~	~~$0.00~~
Class D General Permit	$100 per acre
Class E Solid Waste Facility	(Reserved)
Class F Solid Waste Facility	$5,000.00
Renewal of Permit	$1,000.00
Solid Waste Facility Closure	$2,500.00
Modification to Approved Solid Waste Facility	$500.00
Non-Disposal Solid Waste Facility (Recycling, materials recovery, processing, resource recovery, transfer station, and any other non-disposal facility not herein mentioned)	$2,500.00
Background Investigation of Prospective Permittees	$1,000.00*

* Fee for each person listed in the disclosure statement required pursuant to section 3.14.5.a of these regulations.

APPENDIX B
Phase II Monitoring Parameters

Common Name	CAS RN
Inorganic constituents:	
Antimony	(Total)
Arsenic	(Total)
Barium	(Total)
Beryllium	(Total)
Cadmium	(Total)
Chromium	(Total)
Cobalt	(Total)
Copper	(Total)
Lead	(Total)
Nickel	(Total)
Selenium	(Total)
Silver	(Total)
Thallium	(Total)
Vanadium	(Total)
Zinc	(Total)
Organic constituents:	
Acetone	67-64-1
Acrylonitrile	107-13-1
Benzene	71-43-2
Bromochloromethane	74-97-5
Bromodichloromethane	75-27-4
Bromoform; Tribromomethane	75-25-2
Carbon disulfide	75-15-0
Carbon tetrachloride	56-23-5
Chlorobenzene	108-90-7
Chloroethane; Ethyl chloride	75-00-3
Chloroform; Trichloromethane	67-66-3
Dibromochloromethane; Chloro-dibromomethane	124-48-1
1,2-Dibromo-3-chloropropane; DBCP	96-12-8
1,2-Dibromomethane; Ethylene dibromide; EDB	106-93-4
o-Dichlorobenzene; 1,2-Dichloro-benzene	95-50-1
p-Dichlorobenzene; 1,4-Dichloro-benzene	106-46-7
trans-1,4-Dichloro-2-butene	110-57-6
1,1-Dichloroethane; Ethylidene chloride	75-34-3
1,2-Dichloroethane; Ethylene dichloride	107-06-2
1,1-Dichloroethylene; 1,1-Dichloro-ethane; Vinylidene chloride	75-35-4

APPENDIX B
Phase II Monitoring Parameters

Common Name	CAS RN
cis-1,2-Dichloroethylene; cis-Dichroethene	156-59-2
trans-1,2-Dichlroethylene; trans-1,2-Dichloroethene	156-60-5
1,2-Dichloropropane; Propylene dichloride	78-87-5
cis-1,3-Dichloropropene	10061-01-5
trans-1,3-Dichloropropene	10061-02-6
Ethylbenzene	100-41-4
2-Hexanone; Methyl butyl ketone	591-78-6
Methyl bromide; Bromomethane	74-83-9
Methyl chloride; Chloromethane	74-87-3
Methylene bromide; Dibromomethane	74-95-3
Methylene chloride; Dichloromethane	75-09-2
Methyl ethyl ketone; MEK; 2-Butanone	78-93-3
Methyl iodide; iodomethane	74-88-4
4-Methyl-2-pentanone; Methyl isobutyl ketone	108-10-1
Styrene	100-42-5
1,1,1,2-Tetrachloroethane	630-20-6
1,1,2,2-Tetrachloroethane	79-34-5
Tetrachloroethylene; Tetrachloroethene; Perchloroethylene	127-18-4
Toluene	108-88-3
1,1,1-Trichloroethane; Methylchloroform	71-55-6
1,1,2-Trichloroethane	79-00-5
Trichloroethylene; Trichloroethene	79-01-6
Trichlorofluoromethane; CFC-11	75-69-4
1,2,3-Trichloropropane	96-18-4
Vinyl acetate	108-05-4
Vinyl chloride	75-01-4
Xylenes	1330-20-7

APPENDIX C

Groundwater Monitoring Constituents

Common Name	CAS No.	Chemical Abstracts Service Index Name
Acenaphthalene	83-32-9	Acenaphthylene, 1,2 dihydro-
Acenaphthylene	208-96-8	Acenaphthylene
Acetone	67-64-1	2-Propanone
Acetophenone	98-86-2	Ethanone, 1-phenyl-
Acetonitrile; Methyl cyanide	75-05-8	Acetonitrile
2-Acetylamino fluorene; 2-AAF	53-96-3	Acetamide, N-9H-fluorene-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-1,4,4α,5,8,8α-hexahydro-(1α,4α,4α,4αβ,5α,8α,8αβ)-
Allyl chloride	107-05-1	1-Propene, 3-chloro-
4-Aminobiphenyl	92-67-1	(1,1-Biphenyl)-4-amine
Aniline	62-53-3	Benzenamine
Anthracene	120-12-7	Anthracene
Antimony	(Total)	Antimony
Aramite	140-57-8	Sulfurous acid, 2-chloroethyl 2-(4-(1,1-dimethylethyl)-. phenoxy)-1-methylethyl ester
Arsenic	(Total)	Arsenic
Barium	(Total)	Barium
Benzene	71-43-2	Benzene

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Common Name	CAS No.	Chemical Abstracts Service Index Name
Benzo(a)anthracene; Benzanthracene	56-55-3	Benz(a)anthracene
Benzo(b)fluoranthene	205-99-2	Benz(e)acephenanthrylene
Benzo(k)fluoranthene	207-08-9	Benzo(k)fluoranthene
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-hexa chloro-, (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	111-44-4	Ethane, 1,1,-oxybis(2-chloro-
Bis(2-chloro-1-methylethyl) ether; 2,2,-Dichlorodiisopropyl ether	108-60-1	Propane, 2,2,-oxybis(1-chloro-
Bis(2-ethylhexyl) phthalate	117-81-7	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester
Bromochloromethane;	74-97-5	Methane, bromochloro-

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Common Name	CAS No.	Chemical Abstracts Service Index Name
Chlorobromomethane		
Bromodichloro-methane; Dibromo-chloromethane	75-27-4	Methane, bromodichloro-
Bromoform; Tri-bromomethane	75-25-2	Methane, tribromo-
4-Bromophenyl phenyl ether	101-55-3	Benzene, 1-bromo-4-phenoxy-
Butyl benzyl phthlate; Benzyl butyl phthlate	85-68-7	1,2-Benzenedicarboxylic acid, butyl phenylmethyl ester
Cadmium	(Total)	Cadmium
Carbon disulfide	75-15-0	Carbon disulfide
Carbon tetrachloride	56-23-5	Methane, tetrachloro-
Chlordane	57-74-9	4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8,-octachloro-2,3,3α,4,7,7α-hexahydro-
p-Chloroaniline	106-47-8	Benzenamine, 4-chloro-
Chlorobenzene	108-90-7	Benzene, chloro-
Chlorobenzilate	510-15-6	Benzeneacetic acid, 4-chloro-a-(4-chlorophenyl)-a-hydroxy-, ethyl ester
p-Chloro-m-cresol; 4-Chloro-3-methyl-phenol	159-50-7	Phenol, 4-chloro-3-methyl-
Cloroethane; Ethyl chloride	175-00-3	Ethane, chloro-
Chloroform	67-66-3	Methane, trichloro-

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Groundwater Monitoring Constituents

Common Name	CAS No.	Chemical Abstracts Service Index Name
2-Chloroanaphthalene	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, 1-chloro-
Chromium	(Total)	Chromium
Chrysene	218-01-9	Chrysene
Cobalt	(Total)	Cobalt
Copper	(Total)	Copper
m-Cresol; 3-Methylphenol	108-39-4	Phenol, 3-methyl-
o-Cresol; 2-Methylphenol	95-48-7	Phenol, 2-methyl-
p-Cresol; 4-Methylphenol	106-44-5	Phenol, 4-methyl-
Cyanide	57-12-5	Cyanide
2,4-Dichlorophenoxy-acetic acid; 2,4-D	94-75-7	Acetic acid, (2,4-dichloro-phenoxy)-
4,4-DDD	75-54-8	Benzene, 1,1-(2,2-dichloro-ethylidene) bis(4-chloro-
4,4-DDE	72-55-9	Benzene, 1,1-(dichloro-ethylidene) bis(4-chloro-
4,4-DDT	50-29-3	Benzene 1,1-(2,2,2-trichloro-ethylidene) bis(4-chloro-
Diallate	2303-16-4	Carbamothioic acid, bis(1-methylethyl)-S-(2,3-dichloro-

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Groundwater Monitoring Constituents

Common Name	CAS No.	Chemical Abstracts Service Index Name
		2-propenyl) ester
Dibenz(a,h) anthracene	53-70-3	Dibenz(a,h)anthracene
Dibenzofuran	132-64-9	Dibenzofuran
Dibromochloro-methane; Chloro-dibromomethane	124-48-1	Methane, dibromochloro-
1,2-Dibromo-3-chloropropane; DBCP	96-12-8	Propene,1,2,-dibromo-3-chloro-
1,2-Dibromoethane; Ethylene dibromide	106-93-4	Ethane, 1,2-dibromo-
Di-n-butyl phthalate dibutyl ester	84-74-2	1,2-Benzenedicarboxylic acid,
o-Dichlorobenzene	95-50-1	Benzene, 1,2-dichloro-
m-Dichlorobenzene	541-73-1	Benzene, 1,3-dichloro-
p-Dichlorobenzene	106-46-7	Benzene, 1,4-dichloro-
3,3-Dichlorobenzidine	91-94-1	(1,1-Bipheny1)-4,4-diamine, 3,3-dichloro-
trans-1,4-Dichloro-2-butene	110-57-6	2-Butene, 1.4-dichloro-, (E)-
Dichlorodifluoro-methane; CFC 12	75-71-8	Methane, dichloro-
1,1-Dichloroethane; Ethyldidene chloride	75-34-3	Ethane, 1,1-dichloro-
1,2-Dichloroethane; Ethylele dichloride	107-06-2	Ethane, 1,2-dichloro-
1,1-Dichloroethylene;	75-35-4	Ethene, 1,1-dichloro-

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Common Name	CAS No.	Chemical Abstracts Service Index Name
1,1-Dichloroethene; Vinylidene chloride		
trans-1,2-Dichloroethylene; trans 1,2-Dichloroethene	156-60-5	Ethene, 1,2-dichloro-, (E)-
2,4-Dichlorophenol	120-83-2	Phenol, 2,4-dichloro-
2,6-Dichlorophenol	187-65-0	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-b)-oxirene, 3,4,5,6,9,9-hexachloro-1α,2,2α,3,6,6α,7,7α-octahydro-(1αα,2β,2αα,3β,6β,6αα,7β,7αα)-
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

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Common Name	CAS No.	Chemical Abstracts Service Index Name
Dimethoate	60-51-5	Phosporodithioic acid, O-O-dimethyl-S-(2-(methyl-amino)-2-oxoethyl) ester
p-(Dimethylamino) azobenzene	60-11-7	Benzenamine, N,N-dimethyl-4-(phenylazo)-
7,12-Dimethylbenz-dimethyl-(a)anthracene	57-97-6	Benz(a)anthracene, 7,12-
3,3-Dimethyl-benzidine	119-93-7	(1,1-Biphenyl)-4,4'-diamine, 3,3-dimethyl-
alpha,alpha-Dimethylphenethylamine	122-09-8	Benzeneethanamine, a,a-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; 2-sec-Butyl-4,6-dinitro-phenol; DNBP	88-85-7	Phenol, 2-(1-methyl-propyl)-4,6-dintro-
Di-n-octyl phthalate	117-84-0	1,2-Benzenedicarboxylic acid, dioctyl ester

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Common Name	CAS No.	Chemical Abstracts Service Index Name
1,4-Dioxane	123-91-1	1,4-Dioxane
Diphenylamine	122-39-4	Benzenamine, N-phenyl-
Disulfoton	298-04-4	Phosphorodithioic acid, O,O-dimethyl s-(2-ethylthio)-S-(2-ethyl) ester
Endosulfan I	959-98-8	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5α,6,9,9α-hexahydro-, 3-oxide, (3α,5αβ,6α,9α,9αβ)-
Endosulfan II	33213-65-9	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5α,6,9,9α-hexahydro-, 3-oxide, (3α,5αα,6β,9β,9αα)-
Endosulfan sulfate	1031-07-8	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5α,6,9,9α-hexahydro-, 3,3'-dioxide
Endrin	72-20-8	2,7:3,6-Dimethanonaphth(2,3-b)-oxirene, 3,4,5,6,9,9-hexachloro-1α,2,2α,3,6,6α,7,7α-octahydro-(1αα,2β,2αβ,3α,6α,6αβ,7β,7αα)-
Endrin aldehyde	7421-93-4	1,2,4,-Methanocyclopenta(cd)-pentalene-5-carboxaldehyde, 2,2α,3,3,4,7-hexachlorodecahydro-, (1α,2β,2αβ,4β,4αβ,5β,6αβ,6βB,7R*)-
Ethylbenzene	100-41-4	Benzene, ethyl-
Ethyl methacrylate	97-63-2	2-Propenoic acid, 2-methyl-, ethyl ester

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Common Name	CAS No.	Chemical Abstracts Service Index Name
Ethyl methane-sufonate	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-heptachloro-3α,4,7,7α-tetrahydro-
Heptachlor epoxide	1024-57-3	2,5-Methano-2H-indeno(1,2-b)oxirene, 2,3,4,5,6,7,7-heptachloro-1α,1β,5,5α,6,6α-hexahydro-, (1αα,1βB,2α,5α,5αβ,6β,6αα)
Hexachlorobenzene	118-74-1	Benzene, hexachloro-
Hexachlorobutadiene	87-68-3	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-
Hexachlorocyclo-pentadiene	77-47-4	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexchloro-
Hexachloroethane	67-72-1	Ethane, hexachloro-
Hexachlorophene	70-30-4	Phenol, 2,2,-methylenebis-3,4,6-trichloro-
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

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Common Name	CAS No.	Chemical Abstracts Service Index Name
Isobutyl alcohol	78-63-1	1-Propanol, 2-methyl-
Isodrin	465-73-6	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4α,5,8,8α-hexahydro-, (1α,4α,4αβ,5β,8β,8αβ)-
Isophorone	78-59-1	1-Cyclohexen-1-one, 3,5,5-trimethyl-
Isosafrole	120-58-1	1,3-Benzodioxole, 5-(1-propenyl)-
Kepone	143-50-0	1,3,4-Methano-2H-cyclo-buta(cd)pentalen-2-one, 1,1α,3,3α,4,5,5,5α,5β,6-decachlorooctahydro-
Lead	(Total)	Lead
Mercury	(Total)	Mercury
Methacrylonitrile	126-98-7	2-Propenenitrile, 2-methyl-
Methapyrilene	91-80-5	1,2-Ethanediamine, N,N-dimethyl-N'-2-pyridinyl-N'-(2-thienyl-methyl)-
Methoxychlor	72-43-5	Benzene, 1,1,-(2,2,2-trichloro-ethylidene 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-

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Common Name	CAS No.	Chemical Abstracts Service Index Name
Methylene bromide; Dibromomethane	74-95-3	Methane, dibromo-
Methylen chloride; Dichloromethane	75-09-2	Methane, dichloro-
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 methane-sulfonate	66-27-3	Methanesulfonic acid, methyl ester
2-Methylnaphthalene	91-57-6	Naphthalene, 2-methyl-
Methyl parathion; Parathion 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-Naphthalamine	134-32-7	1-Naphthalenamine
2-Naphthylamine	91-59-8	2-Naphthalenamine

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Common Name	CAS No.	Chemical Abstracts Service Index Name
Nickel	(Total)	Nickel
o-Nitroaniline; 2-Nitroaniline	88-74-4	Benzenamine, 2-nitro-
m-Nitroaniline; 3-Nitroanile	99-09-2	Benzenamine, 3-nitro-
p-Nitroaniline; 4-Nitrophenol	100-01-6	Benzenamine, 4-nitro-
Nitrobenzene	98-95-3	Benzene, nitro-
o-Nitrophenol	88-75-5	Phenol, 2-nitro-
p-Nitrophenol	100-02-7	Phenol, 4-nitro-
4-Nitroquinoline	56-57-5	Quinoline, 4-nitro-1-oxide 1-oxide
N-Nitrosodi-n-butyl-amine	924-16-3	1-Butanamine, N-butyl-N-nitroso-
N-Nitrosodiethylamine	55-18-5	Ethanamine, N-ethyl-
N-Nitrosodimethyl-amine	62-75-9	Methanamine, N-methyl-
N-Nitrosodiphenyl-amine	86-30-6	Benzenamine, N-nitroso-N-phenyl-
N-Nitrosodipropyl-amine; Di-n-propyl-nitrosamine	621-64-7	1-Propanamine, N-nitroso-N-propyl-
N-Nitrosomethylethyl amine	10595-95-6	Ethanamine, N-methyl-N-nitroso-
N-Nitrosomorpholine	59-89-2	Morpholine, 4-nitroso-
N-Nitrosopiperidine	100-75-4	Piperidine, 1-nitroso-

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Groundwater Monitoring Constituents

Common Name	CAS No.	Chemical Abstracts Service Index Name
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
Polychlorinated biphenyls; PCBs		1,1,-Biphenyl, chloro derivatives
Polychlorinated dibenzo-p-dioxins; PCDDs		Dibenzo(b,e)(1,4)dioxin, chloro derivatives
Polychlorinated dibenzofurans; PCDFs		Dibenzofuran, chloro derivatives
Pentachlorobenzene	608-93-5	Benzene, pentachloro-
Pentachloroethane	76-01-7	Ethane, pentachloro-
Pentachloronitro-benzene	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
2-Picoline	109-06-8	Pyridine, 2-methyl-
Pronamide	23950-58-5	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-

APPENDIX C

Groundwater Monitoring Constituents

Common Name	CAS No.	Chemical Abstracts Service Index Name
Propionitrile; Ethyl cyanide	107-12-0	Propanenitrile
Pyrene	129-00-0	Pyrene
Pyridine	110-86-1	Pyridine
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-Trichloro-phenoxyacetic acid; 2,4,5-T	93-76-5	Acetic acid, (2,4,5-trichlorophenoxy)-
2,3,7,8-Tetrachloro-dibenzo-p-doxin; 2,3,7,8-tetrachloro-2,3,7,8-TCDD	1746-01-6	Dibenzo(b,e) (1,4)dioxin,
1,2,4,5-Tetrachloro-benzene	95-94-3	Benzene, 1,2,4,5-tetrachloro-
1,1,1,2-Tetrachloro-ethane	630-20-6	Ethane, 1,1,1,2-tetrachloro-
1,1,2,2-Tetrachloro-ethane	79-34-5	Ethane, 1,1,2,2-tetrachloro-
Tetrachloroethylene; Perchloroethylene; Tetrachloroethene	127-18-4	Ethene, tetrachloro-

APPENDIX C

Groundwater Monitoring Constituents

Common Name	CAS No.	Chemical Abstracts Service Index Name
2,3,4,6-Tetrachlorophenol	58-90-2	Phenol, 2,3,4,6-tetrachloro-
Tetraethyl dithiopyrophoshate; Sulfotepp	3689-24-5	Thiodiphosphoric acid, ((H0)(2)P(s)(2)0), tetraethyl ester
Thallium	(Total)	Thallium
Tin	(Total)	Tin
Toluene	108-88-3	Benzene, methyl-
o-Toluidine	95-53-4	Benzenamine, 2-methyl-
Toxaphene	8001-35-2	Toxaphene
1,2,4-Trichlorobenzene	120-82-1	Benzene, 1,2,4-trichloro-
1,1,1-Trichloroethane; Methylchloroform	71-55-6	Ethane, 1,1,1-trichloro-
1,1,2-Trichloroethane	79-00-5	Ethane, 1,1,2-trichloro-
Trichloroethylene; Trichloroethene	79-01-6	Ethene, 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-triethyl ester
sym-Trinitrobenzene	99-35-4	Benzene, 1,3,5-trinitro-

APPENDIX C

Groundwater Monitoring Constituents

Common Name	CAS No.	Chemical Abstracts Service Index Name
Vanadium	(Total)	Vanadium
Vinyl acetate	108-05-4	Acetic acid, ethenyl ester
Vinyl chloride; Chloroethene	75-01-4	Ethene, chloro-
Xylene (total)	1330-20-7	Benzene, dimethyl-
Zinc	(Total)	Zinc