

WEST VIRGINIA
SECRETARY OF STATE

KEN HECHLER

ADMINISTRATIVE LAW DIVISION

Form #3

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STATE OF WEST VIRGINIA
SECRETARY OF STATE

**NOTICE OF AGENCY APPROVAL OF A PROPOSED RULE
AND
FILING WITH THE LEGISLATIVE RULE-MAKING REVIEW COMMITTEE**

Division of Environmental Protection
Waste Management/Water Resources
AGENCY: _____ TITLE NUMBER: 47

CITE AUTHORITY WV Code 22-1-3, 22-1-3a., 22-15-5.(a)

AMENDMENT TO AN EXISTING RULE: YES X 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: _____

THE ABOVE PROPOSED LEGISLATIVE RULE HAVING GONE TO A PUBLIC HEARING OR A PUBLIC COMMENT PERIOD IS HEREBY APPROVED BY THE PROMULGATING AGENCY FOR FILING WITH THE SECRETARY OF STATE AND THE LEGISLATIVE RULE MAKING REVIEW COMMITTEE FOR THEIR REVIEW.

B7 Jm.L
Authorized Signature

~~42.92~~ 29.70 (w/o Comments)



BUREAU OF ENVIRONMENT
10 McJunkin Road
Nitro, WV 25143-2506

GASTON CAPERTON
GOVERNOR

LAIDLEY ELI MCCOY, PH.D.
COMMISSIONER

July 28, 1995

Ms. Judy Cooper
Director, Administrative Law Division
Secretary of State's Office
Building 1, Suite 157K
Charleston, West Virginia 25305

RE: 47CSR38 - "Solid Waste Management Rules"

Dear Ms. Cooper:

This is to advise you that I am giving approval for the filing of the above-captioned agency-approved rule with the Secretary of State's Office and Legislative Rule-Making.

Your cooperation in this regard is very much appreciated. If you have any questions or require additional information, please feel free to contact Roger T. Hall at 759-0515.

Sincerely yours,

A handwritten signature in black ink, reading "Laidley Eli McCoy".

Laidley Eli McCoy, Ph.D.
Commissioner

LEM;RTH:cc

Attachment

John B. Brown



DIVISION OF ENVIRONMENTAL PROTECTION

GASTON CAPERTON
GOVERNOR

1356 Hansford Street
Charleston, WV 25301-1401

Laidley Eli McCoy, Ph.D.
DIRECTOR

July 31, 1995

STATEMENT OF CIRCUMSTANCES

This proposed rule is necessary by the EPA implementation of 40 CFR Part 258 under RCRA Subtitle D, effective upon all WV solid waste landfill owner and operators on October 13, 1993. West Virginia must reflect the federal requirements to become an "approved state." Without incorporating the requirements of 40 CFR Part 258 into our Solid Waste Management Regulations, WV owners and operators would be subject to possible paralleled EPA inspections.

The amended rule would also allow for changes that have occurred in the Code of West Virginia, especially in the reorganization of state government and §22-15.

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

Agency: Division of Environmental Protection
Office of Waste Management

1. Effect of Proposed Rule	Increase	ANNUAL		FISCAL YEAR	
		Decrease	Current	Next	Thereafter
-Personal Services					
-Current Expense					
-Repairs and Alterations	- -		<u>N O C H A N G E</u>		
-Equipment					
-Other					

Roger Moll
Laidley Eli McCoy, Ph.D.
Director

Date: June 23, 1995

DATE:

TO: LEGISLATIVE RULE-MAKING REVIEW COMMITTEE

FROM: *Division of Environmental Protection*

LEGISLATIVE RULE TITLE: Title 47, Series 38 "Solid Waste Management Regulations"

1. Authorizing statute(s) citation 22-1-3, 22-1-3a., 22-15-5.(a)

2. a. Date filed in State Register with Notice of Hearing
June 23, 1995

b. What other notice, including advertising, did you give
of the hearing?
Statewide news release

c. Date of Hearing(s) July 24, 1995

d. Attach list of persons who appeared at hearing,
comments received, amendments, reasons for amendments.
Attached XX No comments received

e. Date you filed in State Register the agency approved
proposed Legislative Rule following public hearing:
(be exact)
July 31, 1995

f. Name and phone number(s) of agency person(s) to
contact for additional information:
Richard P. Cooke - 558-6350

3. If the statute under which you promulgated the submitted rules requires certain findings and determinations to be made as a condition precedent to their promulgation:

a. Give the date upon which you filed in the State Register a notice of the time and place of a hearing for the taking of evidence and a general description of the issues to be decided.

N/A

b. Date of hearing: _____

c. On what date did you file in the State Register the findings and determinations required together with the reasons therefor?

d. Attach findings and determinations and reasons:

Attached _____



DIVISION OF ENVIRONMENTAL PROTECTION

GASTON CAPERTON
GOVERNOR

1356 Hansford Street
Charleston, WV 25301-1401

Laidley Eli McCoy, Ph.D.
DIRECTOR

July 31, 1995

BRIEF SUMMARY OF PROPOSED RULE AMENDMENTS

This proposed rule is necessary to update the Solid Waste Management Regulations; Title 47, Series 38, to allow the state to become an "approved state" under EPA/RCRA 40 CFR Part 258, Subtitle D. This rule amends the requirements for landfill facilities in the areas of financial assurance (bonding), groundwater monitoring, siting, operating criteria, design, and closure/post-closure care which were not as stringent as federal requirements.

TITLE 47
LEGISLATIVE RULES
DEPARTMENT OF NATURAL RESOURCES
BUREAU OF ENVIRONMENT
DIVISION OF ENVIRONMENTAL PROTECTION

SERIES 38
SOLID WASTE MANAGEMENT REGULATIONS RULE

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OFFICE OF WEST VIRGINIA
SECRETARY OF STATE

§47-38-1. General.

1.1. Scope and Purpose. -- This legislative rule establishes requirements for the siting, (including location standards), bonding, financial assurance, installation, establishment, construction, design, groundwater monitoring, modification, operation, permitting, and abandonment, closure and post-closure care of any solid waste facility that processes, recycles, composts, transfers or disposes of solid waste pursuant to W. Va. WV Code §20-5F 22-15. This rule applies to any person who owns or operates a solid waste facility or who is responsible for the processing, composting, recycling, transfer or disposal of solid waste, except for those recycling facilities exempted from permitting requirements as authorized by WV Code §20-11-12.

1.1.1. Purpose of Solid Waste Management Rule Amendments of 1996:

The purpose of these amendments are as follows:

1.1.1.a. To enable the State of West Virginia to amend Title 47 Series 38 Solid Waste Management Regulations which became effective on May 1, 1990, in order to incorporate the requirements of Federal Resource Conservation and Recovery Act (RCRA), 40 CFR Part 258 and to become a federally "Approved State"; and

1.1.1.b. To enable the State of West Virginia to further amend this rule to reflect legislative changes that have occurred in §22-15-1 et seq.

1.1.2. Applicability

40 CFR 258.1(d)

1.1.2.a. Permittees or applicants of existing solid waste landfills (SWLFs), or portions thereof, that stopped receiving waste before the effective date of this rule must close their SWLF in accordance with the terms and conditions of their solid waste permit, order, and/or the laws, rules and regulations in place on the effective date of this rule, unless permit requirements are otherwise required by the director.

1.1.2.b. Permittees of existing SWLFs, or portions thereof, that initiate, or continue receiving waste after the effective date of this rule must comply with the terms and conditions of their existing solid waste permit, order, and/or the laws, rules and regulations in place on the effective date of this rule, unless said permit is modified by the director

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to include the requirements of this rule, or unless permit requirements are otherwise modified by the director.

1.1.2.c. Applicants for new SWLFs, and lateral expansions of existing SWLFs that are issued permits after the effective date of this rule must comply with the terms and conditions of that new solid waste permit, and/or the laws, rules and regulations, or order, in place on the effective date of this rule, unless otherwise required by the director.

1.1.2.d. The applicability requirements of this section do not apply to existing solid waste non-disposal solid waste facilities. These facilities must continue to comply with their existing permit and this rule, §§22-15, 22-12 and 22-11 as applicable, until such time as the permit is subject to renewal, modification or other similar permitting function. New "non-disposal" facility applicants must apply for permits as required by, and in compliance with, this rule.

1.2. Authority. -- W. Va. WV Code §§20-5F-4 22-15-5, 20-5F-5 22-15-10, 20-5F-5b 22-15-12, 20-5F-5c 22-15-13, and 20-5F-5d 22-15-14.

1.3. Filing Date. --

1.4. Effective Date. --

1.5. Repeal of Former Rule. -- This legislative rule repeals and replaces 47 S.S.R. CSR 38; the "Solid Waste Management Regulations" as filed and became effective on April 17, 1988 May 1, 1990.

40 CFR 258.1(g) & (h)

1.6. Lawful Disposal of Solid Waste Required. -- Solid waste shall must be disposed, processed, stored, transferred, or recycled only at permitted solid waste facilities as described in section 3 of these this regulations rule. Solid waste landfill facilities failing to satisfy this rule are considered open dumps, as defined in section 2 of this rule, and will be subject to the actions and penalties outlined in Chapter 22, Article 15, Section 15.

1.7. Incorporation by Reference. -- Whenever federal or state statutes, or rules or regulations are incorporated into these regulations this rule by reference, the reference is to the statute, or rule or regulation in effect on November 47, 1988 the date stipulated by section 1.4 of this rule.

§47-38-2. Definitions.

40 CFR 258.2

Unless the context clearly requires a different meaning, all terms contained in this section are defined by their plain meaning. This section contains definitions for terms that appear throughout this rule.

2.1. "Access Road" means all roads providing any road used for facility access, or for the hauling of solid waste to a solid waste facility, including internal or infrequently used access roads to all monitoring and treatment appurtenances or from a road that is under federal, state, or local authority.

2.2. "Act" means the "Solid Waste Management Act", as amended, WV W. Va. Code §22-15-1, 20-5F et seq.

258.2

2.3. "Active Life" means the period of operation beginning with the initial receipt of solid waste and ending at completion of closure activities performed in accordance with section 6 of this rule.

258.2

2.4. "Active Portion" means that part of a solid waste facility that has received or is receiving wastes and/or has not been closed in accordance with section 6 of this rule.

258.10(d)(1)

2.5. "Airport" means any public-use airport open to the public without prior permission and without restrictions within the physical capacities of available facilities.

2.6. "Applicant" means the person applying for a commercial solid waste facility permit or similar renewal permit and any person related to such person by virtue of common ownership, common management or family relationships as the director specifies, including the following: Spouses, parents and children and siblings.

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

258.2

2.8. "Aquifer" means a geological formation, group of formations, or portion of a formation capable of yielding significant quantities of groundwater to wells or springs.

258.15(b)(4)

2.9. "Areas Susceptible to Mass Movement" means those areas of influence (i.e., areas characterized as having an active or substantial possibility of mass movement) where the movement of earth material at, beneath, or adjacent to the SWLF, or a portion thereof, because of natural or man-induced events, results in the downslope transport of soil and rock material by means of gravitational influence. Areas of mass movement include, but are not limited to, landslides, avalanches, debris slides and flows, soil fluctuation, block sliding, and rock fall.

2.10. "Asbestos" means the asbestiform varieties of chrysotile (serpentine) crocidolite (riebeckite) (erocidolite), amosite (cumingtonite-grunerite), anthophyllite, tremolite and actinolite.

2.11. "Background Investigation Disclosure Statement" means a required statement, on a form prescribed by the director, filed by any person or persons who is an applicant, permittee, operator, owner or other person of a solid waste facility, containing all required information for the conductance of a background investigation.

2.12. "Backhauling" means the practice of using the same container to transport solid waste and to transport any substance or material used as food by humans, animals raised for human consumption or reusable item which may be refilled with any substance or material used as food by humans.

258.10(d)(2)

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

2-4- 2.15. "Bond" means any performance bond or other form of financial assurance contemplated by pursuant to W- Va- WV Code §22-15-12. 20-5F-5b

2.16. "Bulking Agent" means any material mixed and composted with sewage sludge.

2-5- 2.17. "Bulky Goods" means any large items of solid waste such as stoves, washers, furniture, large automobile parts, water heaters, or other large, discarded appliances or metal products which are introduced on to a solid waste landfill for disposal and whose large size precludes, or complicates their handling.

2.18. "Category I Nonfriable Material" means asbestos-containing materials such as packing, gaskets, asphalt roofing, and vinyl floor covering, containing one or more percent asbestos, which is not in poor condition and is not friable.

2.19. "Category II Nonfriable Material" means asbestos-containing materials such as transite siding, transite roofing, and brittle vinyl floor covering, containing one or more percent asbestos, which is not friable but likely to become crumbled, pulverized, or reduced to powder during demolition or disposal.

2-6- 2.20. "Chief" means the chief of the Office of Waste Management of the West Virginia Division of Water Resources Environmental Protection Department of Natural Resources or his the chief's authorized representative.

2-7- 2.21. "Class A Solid Waste Facility" means a commercial solid waste facility which is authorized handles to handle an aggregate of between ten thousand (10,000) tons or more and thirty thousand (30,000) tons of solid waste per month at one or more commercial solid waste disposal facilities in the county. Class A facility includes two or more Class B solid waste landfills owned or operated by the same person in the same county, for 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 if the aggregate tons of solid waste handled per month by such landfills exceeds nine thousand nine hundred ninety-nine tons of solid waste per month.

2-8- 2.22. "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: Provided; That the definition

of Class B facility may include such reasonable subdivisions or subclassifications as the director may establish by legislative rule proposed in accordance with the provisions of WV Code §29A-1-1 et seq.

2-9- 2.23. "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 facilities does not include construction/demolition facilities.

2-10- 2.24. "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- 2.24.1. "Class D-1 Solid Waste Facility" means a commercial or noncommercial facility other than a Class D these 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 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- 2.25. "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- 2.26. "Class F Solid Waste Facility" means any industrial solid waste disposal facility.

2-13- 2.27. "Clean Water Act" or "CWA" means the "Federal Water Pollution Control Act", as amended; 33 U.S.C. §1251 et seq.

2-15- 2.28. "Coal Combustion By-Products" means the residuals, including fly ash, bottom ash, bed ash, and boiler slag flue gas emission control waste 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 must be calculated on a dry gas basis corrected to seven percent (7%) oxygen.

2-14- 2.29. "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 does not include the legitimate beneficial use of coal combustion by-products.

2.30. "Commercial Recycler" means any person, corporation or business entity whose operation involves the mechanical separation of materials for the purpose of reselling or recycling at least seventy percent (70%) by weight of the materials coming into the commercial recycling facility.

2.31. "Commercial Solid Waste" means all types of solid waste generated by stores, offices, restaurants, warehouses, and other nonmanufacturing activities, excluding residential wastes.

~~2-16-~~ 2.32. "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 does 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 does not include land upon which reused or recycled materials are the legitimate beneficial use of coal combustion by-products or the reuse or recycling of materials legitimately applied for structural fill, road base, mine reclamation, and similar applications.

258.40(b)

2.33. "Composite Liner" means a system consisting of two components; the upper component must consist of a minimum 60-mil high density polyethylene (HDPE) and the lower component must consist of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} cm/sec. The HDPE component must be installed in direct and uniform contact with the compacted soil component.

~~2-17-~~ 2.34. "Composting" means the process by which organic solid waste is biologically decomposed under controlled anaerobic or aerobic, thermophilic decomposition of natural constituents of solid waste to produce a stable, conditions to yield a humus-like material, product.

2.35 "Composting Facility" means any solid waste facility processing solid waste by composting, including sludge composting, organic waste or yard waste composting, but does not include a facility for composting solid waste that is located at the site where the waste was generated.

~~2-18-~~ 2.36. "Construction/Demolition Waste" means waste building materials, packaging, and grubbing waste, and rubble resulting from construction, remodeling, repair and demolition operations on houses, commercial and industrial buildings, and other structures and pavements, and other structures 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 does not include asbestos waste.

~~2-19-~~ 2.37. "Cover Material" means soil or other material, approved by the chief director 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

258.2

2-21- 2.38. "Director" means the director of the West Virginia Department of Natural Resources Division of Environmental Protection or such other person to whom the director has delegated authority or duties pursuant to Article one, Chapter twenty-two of the Code of West Virginia, or his the director's authorized representative. For the purpose of this rule, the term "director" also means the director of the West Virginia's solid waste permit program in the administration of sections 2002 and 4005 of RCRA.

258.22(b)

2.39. "Disease Vectors" or "Vector" means any rodents, flies, mosquitoes, or other animals, including insects, capable of transmitting disease to humans.

258.13(b)(1)

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

257.2

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

2-22- 2.42. "Division" means the West Virginia Division of Water Resources of the West Virginia Department of Natural Resources Environmental Protection or its designee.

2-23- 2.43. "Endangered or Threatened Species" means any that endangered or threatened species, as defined in 50 CFR Part 17, of animal or plant and includes those species that is listed by the federal government as endangered or threatened in 50 CFR Part 17.

2.44. "Energy Recovery Incinerator" means any solid waste facility at which solid wastes are incinerated with the intention of using the resulting energy for the generation of steam, electricity or any other use not specified herein.

258.2

2.45. "Existing SWLF" means any solid waste landfill that deposits solid waste after the effective date established in section 1.4 of this rule.

258.13(b)(1)

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

258.11(b)(1)

2.48. "Floodplain" means the lowland and relatively flat areas adjoining waters of the state that may be inundated by the 100-year flood.

2-24- 2.49. "Friable Asbestos" means any friable solid waste material containing more than one percent (1%) asbestos by weight that hand pressure can crumble, pulverize, or reduced to powder when dry.

258.28(c)(2)

2.50. "Gas Condensate" means the liquid generated as a result of gas recovery process(es) at the SWLF.

258.2

2.51. "Groundwater" means any water occurring in the zone of saturation beneath the seasonal high water table, or any perched water zones, or water below the land surface in a zone of saturation.

258.13(b)(3)

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

258.2

2.53. "Household Waste" means any solid waste (including garbage, trash, and sanitary waste in septic tanks) derived from households (including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas).

2.54. "Incineration Technologies" means any technology that uses controlled flame combustion to thermally break down solid waste, including refuse-derived fuel, to an ash residue that contains little or no combustible materials, regardless of whether the purpose is processing, disposal, electric or steam generation or any other method by which solid waste is incinerated.

2-25- 2.55. "Incinerator" means any enclosed device used using to accomplish incineration, including incinerators associated with resource recovery, controlled flame combustion to thermally break down solid waste, including refuse-derived fuel, to an ash residue that contains little or no combustible materials.

258.2

2-26- 2.56. "Industrial Solid Waste" means any solid waste generated by resulting from mining, manufacturing, or industrial processes, that is not a hazardous waste regulated under subtitle "C" of RCRA. Manufacturing or industrial processes. Such wastes may include, but are not limited to, waste resulting from these processes and activities carried on in factories, processing plants, refineries, fertilizer/agricultural chemicals; food and related products/by-products; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing/foundries; organic chemicals; slaughter houses, mills, tanneries, electric power generating plants, mines, or mineral processing operations; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay and concrete products; textile manufacturing; transportation equipment; and water treatment. This term does not include mining waste or oil and gas waste.

2-27- 2.57. "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.

HEALTH DEPT

2-28- 2.58. "Infectious Medical Waste" means infectious medical waste which is capable of producing an infectious disease. Medical waste is considered capable of producing an infectious disease if it has been, or is likely to have been, contaminated by an organism likely to be pathogenic to healthy humans, if such organism is not routinely and freely available in the community, and such organism has a significant probability of being present in sufficient quantities and with sufficient virulence to transmit disease. For the purposes of this rule, infectious medical waste includes the following materials: with infectious characteristics including animal waste, bulk human blood and blood products, laboratory waste, pathological waste, and sharps.

2-28-1- 2.58.1. "Animal Carcasses, Body Parts, Bedding and Related Waste" means contaminated animal carcasses, body parts, and the bedding of animals that are known to 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, or for any other reason.

2-28-2- 2.58.2. "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- 2.58.3. "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;

-----2-58-4- "Cultures and Stocks of Microorganisms and Biologicals means discarded cultures, stocks, specimens, vaccines and associated items likely to have been contaminated by an infectious agent, discarded etiologic agents, and wastes from the production of biologicals and antibiotics likely to have been contaminated by an infectious agent.

-----2-28-4- 2.58.5. "Pathological Wastes" means human pathological wastes, including tissues, organs, and body parts, and containers of free-flowing or unabsorbed body fluids exclusive of those fixed in formaldehyde or another fixative.

2-28-5- 2.58.6. "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 pharmacies or medical, research, or industrial laboratories, including, but not limited to, and of having been exposed to infectious agents. The term "sharps" includes hypodermic needles, syringes with attached needles, and scalpel blades, lancets and broken glassware.

2.58.7. "Isolation Wastes" means wastes generated from the care of a patient who has or is suspected of having any disease listed as Class IV in "Classification of Etiologic Agents on the Basis of Hazard" published by the United States Centers for Disease Control.

2.58.8. "Other Infectious Wastes" includes, but is not limited to any residue or contaminated soil, water, or other debris resulting from the cleanup of a spill of any infectious medical waste, and waste contaminated by or mixed with infectious medical waste.

~~2-29-~~ 2.59. "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.

258.16(b)(5)

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

~~2-30-~~ 2.61. "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-~~ 2.62. "Landfill" means a any solid waste facility or part of one at which solid waste, or its residue after treatment, is intentionally used for placed disposal in or on land, and at which solid waste will remain after closure. Such facility is situated, for the purposes of this rule, in the county where the majority of the spatial area of the facility is located. The term "landfill" does not include a land application unit surface impoundment, solid waste disposal surface impoundment, or injection well.

258.2

2.63. "Lateral Expansion" means a horizontal expansion of the waste boundaries of an existing SWLF.

258.2

~~2-32-~~ 2.64. "Leachate" means any liquid that has come into contact with, passed through or emerged from solid waste and contains soluble, suspended, or miscible materials removed from such waste.

~~2-33-~~ 2.65. "Lift" means the vertical thickness of compacted solid waste and the cover material immediately above it.

~~2-34-~~ 2.66. "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 this rule these regulations.

258.28(c)(1)

2.67. "Liquid Waste" means any waste material that is determined to contain "free liquids" as defined by Method 9095 (Paint Filter Liquids Test), as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" (EPA Pub. No. SW-846).

258.14(b)(3)

2.68. "Lithified Earth Material" means all rock, including all naturally occurring and naturally formed aggregates or masses of minerals or small

particles of older rock that formed by crystallization of magma or by induration of loose sediments. This term does not include man-made materials, such as fill, concrete, and asphalt, or unconsolidated earth materials, soil, or regolith lying at or near the earth surface.

258.23(d)

2-35- 2.69. "Lower Explosive Limit" ("LEL") means the lowest percent by volume of a mixture of explosive gases in air that which will propagate a flame in air at twenty-five degrees centigrade (25 degrees C) and atmospheric pressure.

2-36- 2.70. "Major Alluvial Aquifer" means an aquifer composed of alluvial materials located adjacent to West Virginia rivers, such as the Kanawha River, Little Kanawha River, and Ohio River as depicted on Groundwater Hydrology of the Minor Tributary Basins of those rivers. 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- 2.71. "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- 2.72. "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 this rule.

2.73. "Materials Recovery Facility" means any solid waste facility at which source-separated materials or materials recovered through a mixed waste processing facility are manually or mechanically shredded or separated for purposes of reuse and recycling, but does not include a composting facility.

258.14(b)(2)

2.74. "Maximum Horizontal Acceleration in Lithified Earth Material" means the maximum expected horizontal acceleration depicted on a seismic hazard map, with a 90 percent or greater probability that the acceleration will not be exceeded in 250 years, or the maximum expected horizontal acceleration based on a site-specific seismic risk assessment.

2.75 "Mixed Solid Waste" means solid waste from which materials sought to be reused or recycled have not been source-separated from general solid waste.

2.76 "Mixed Waste Processing Facility" means any solid waste facility at which materials are recovered from mixed solid waste through manual or mechanical means for purposes of reuse, recycling or composting.

2.77. "Municipal Solid Waste" means any household or commercial solid wastes as defined in this rule and any sludge from a waste treatment plant or a water supply treatment plant.

2.78. "Municipal Solid Waste Incineration" means the burning of any solid waste collected by any municipal or residential solid waste disposal company.

258.2

2.80. "New SWLF" means any solid waste landfill facility that has not received waste prior to the effective date established in section 1.4 of this rule.

2.81. "Noncommercial Solid Waste Facility" means any 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.

2.82. "Office" means the Office of Waste Management of the West Virginia Division of Environmental Protection or its designee.

258.2

2.83. "Open Burning" means the combustion of solid waste without:

258.2(1)

2.83.1 Control of combustion air to maintain adequate temperature for efficient combustion;

258.2(2)

2.83.2 Containment of the combustion reaction in an enclosed device to provide sufficient residence time and mixing for complete combustion, and;

258.2(3)

2.83.3 Control of the emission of the combustion products.

2.84. "Open Dump" means any solid waste disposal which does not have a permit under W-Va Code §22-15, 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 or is in violation of state law; or where solid waste is disposed in a manner that does not protect the environment.

258.2

2.85. "Operator" means the person(s) responsible for the overall operation of a solid waste facility or part thereof.

2.86. "Operating Hours" means the predetermined period of time specified by the facility permit or other such approval by the director during which activities may be conducted at a solid waste facility. These activities are not limited to the actual process of disposal.

2.87. "Origin" means, for the purpose of section 4.12 of this rule, the actual point or location of waste generation, and not the point or location of transfer or the transfer station.

258.2

2.88. "Owner" means the person(s) who owns a solid waste facility or part thereof.

2.89. "Perennial Stream" means a stream or a portion of a stream that flows continuously or that under normal conditions supports aquatic life whose life history require residence in flowing water for a continuous period of at least six (6) months.

2-40- 2.90. "Permittee" or "operator" shall means any person holding or executing a permit or who is otherwise authorized to conduct solid waste activities under the Act.

2-41- 2.91. "Persistent Violation" means any violation of the Act, these regulations this rule, any permit term or condition, or any order of the chief or the director issued pursuant to the Act or these regulations this rule which is identified during two or more consecutive inspections performed by the chief or the director.

2-42- 2.92. "Person," or "Persons," or "Applicant" means:

2-42-1- 2.92.1. 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- 2.92.2. The State of West Virginia;

2-42-3- 2.92.3. Any governmental agency, including federal facilities;

2-42-4- 2.92.4. Any political subdivision of this State, including county commission, municipal corporation, industry, sanitary district, public service district, drainage district, soil conservation district, or watershed improvement district;

2-42-5- 2.92.5. Any partnership, trust, or estate;

2-42-6- 2.92.6. Any person or individual;

2-42-7- 2.92.7. Any group of persons or individuals acting individually or as a group; or

2-42-8- 2.92.8. Any legal entity whatever.

2.93. "Petroleum" means petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 lbs. per square inch absolute) and pipeline liquids. The term includes any refined petroleum products.

2.94. "Petroleum-Contaminated Soil" means any soil, dirt, rock or other earthen material which contains more than a de minimis (100 ppm of total petroleum hydrocarbons or less) amount of petroleum and which is not a hazardous waste.

2-43- 2.95. "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, or vessel, or floating craft, or system, or landfill leachate collection system from which pollutants are or may be discharged to the waters of the State.

258.15(b)(3).

2.96. "Poor Foundation Conditions" means those areas where features exist which indicate that a natural or man-induced event may result in inadequate foundation support for the structural components of a SWLF.

2-44- 2.97. "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 any rules 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- 2.98. "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- 2.99. "Q.A./Q.C." means "quality assurance and quality control".

258.50(f)

2.100. "Qualified Groundwater Scientist" is a scientist or engineer who has received a baccalaureate or post-graduate degree in the natural sciences or engineering and has sufficient training and experience in groundwater hydrology and related fields as may be demonstrated by state registration, professional certification(s), or completion of accredited university programs that enable that individual to make sound professional judgments regarding groundwater monitoring, contaminant fate and transport, and corrective action.

2.101. "Receiving Hours" means the period of time designated by the facility solid waste permit, or otherwise approved by the director within the operating hours that the solid waste facility accepts solid waste for disposal.

2-47- 2.102. "Recycle" means the process by which recovered products are transformed into new products and includes the collection, separation, recovery and sale, or reuse of metals, glass, paper, and other materials.

2-48- 2.103. "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: Provided, That mixed waste recovery facilities, sludge processing facilities and composting facilities are not considered recycling facilities nor considered to be reusing or recycling solid waste within the meaning of Chapter 22, Article 15, Chapter 22C, Article 4, and Chapter 20 Article 11, of the Code.

258.20(b)

2.104. "Regulated Hazardous Waste" means a solid waste that is a hazardous waste, as defined in 40 CFR 261.3, that is not excluded from regulation as a hazardous waste under 40 CFR 261.4(b) or was not generated by a conditionally exempt small quantity generator as defined in 40 CFR 261.5.

2-49- 2.105. "Resource Recovery Facility" means any solid waste facility at which solid wastes are physically, 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, but does not include sewage sludge processing facilities.

258.2

2.106. "Run-off" means any rainwater, leachate, or other liquid that

drains over land from any part of a facility.

258.2

2.107. "Run-on" means any rainwater, leachate, or other liquid that drains over land onto any part of a facility.

2.108. "Salvage" means, but is not limited to, scrap copper, brass, rope, rags, paper, rubber, junked, dismantled, or wrecked machinery, machine or motor vehicles or any parts thereof; or iron, steel and other scrap ferrous or nonferrous materials.

2.109. "Salvage Yard" means any facility which is maintained, operated or used for the storing, buying, selling or processing of salvage materials or for the operation and maintenance of a motor vehicle graveyard, at which only mechanical processing of solid waste takes place and where no solid waste is disposed of on site.

258.2

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

2.111. "Scale" or Scale House" means the area of the facility where waste initially enters the premises and the total and tare weight are determined and a receipt of deposit is generated.

2-50- 2.112. "Schedule of Compliance" or "Compliance Schedule" 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 this rule, or permit terms and conditions.

258.14(b)(1)

2.113. "Seismic Impact Zone" means an area with a ten percent (10%) or greater probability that the maximum horizontal acceleration in lithified earth material, expressed as a percentage of the earth's gravitational pull will exceed 0.10g in a 250 year period.

2-51- 2.114. "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.

2.115. "Sewage Sludge" means any solid, semi-solid or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to, domestic septage, scum or solids removed in primary, secondary or advanced wastewater treatment processes and a material derived from sewage sludge. "Sewage sludge" does not include ash generated during the firing of sewage sludge in a sewage sludge incinerator.

2.116. "Sewage Sludge Processing Facility" it is a solid waste facility that processes sewage sludge for land application, incineration or disposal at an approved landfill. Such processes include, but are not limited to, composting, lime stabilization, thermophilic digestion and anaerobic digestion.

258.2

2-52+ 2.117. "Sludge" means any solid, semi-solid, or liquid waste, or residue, or precipitate, generated from, or separated from or created by a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility, or any other such waste having similar origin, exclusive of the treated effluent from a wastewater treatment plant.

258.2

2-53+ 2.118. "Solid Waste" means any garbage; paper; litter; refuse; cans; bottles; waste processed for the express purpose of incineration; sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility; and other discarded materials, including carcasses of any dead animal or any other offensive or unsightly matter; solid, liquid, semisolid, or contained liquid or gaseous material resulting from industrial, commercial, mining, agricultural operations, and of community activities. The term "solid waste" does not include:

2-53+1 2.118.1. Solid or dissolved materials in domestic sewage; or

2-53+2 2.118.2. Solid or dissolved materials in irrigation return flows;

2-53+3 2.118.3. Industrial discharges which that are point sources and have permits under W- Va- WV Code §22-11; 20-5A; or subject to permit under 33 U.S.C. 1342;

2-53+4 2.118.4. Source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended, (68 Stat 923) including any nuclear or by-product material considered by federal standards to be below regulatory concern; or

2-53+5 2.118.5. A hazardous waste either identified or listed under W- Va- WV Code §22-18 20-5B;

2-53+6 2.118.6. Refuse, slurry, overburden, or other wastes or material -- resulting either from coal-fired electric power or steam generation, or from the exploration, development, production, storage, and/or recovery of coal, oil and gas and/or other mineral resources -- that is are placed or disposed of at a facility which is regulated under W- Va- WV Code §§22-2-1 et seq., 22-3-1 et seq., 22-4-1 et seq., 22-6-1 et seq., 22-7-1 et seq., 22-8-1 et seq., 22-9-1 et seq., 22-10-1 et seq., 22A-1-1 et seq., 22C-2-1 et seq., 22C-7-1 et seq., 22C-8-1 et seq., or 22C-9-1 et seq., 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 2.118.7. 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 of solid waste including placing, depositing, dumping, or throwing or causing to be placed, deposited, dumped, or thrown any solid waste.

2.119. "Solid Waste Disposal Shed" means the geographical area which the solid waste management board designates and files in the State Register pursuant to W. Va. WV Code §22C-3-9.

2-55- 2.120. "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 this rule.

2-56- 2.121. "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, solid waste disposal surface impoundments, transfer stations, incinerators, resource recovery facilities, recycling facilities, materials recovery facilities, mixed waste processing facilities, sewage sludge processing facilities, composting facilities and other such facilities not herein specified, but not including land upon which sewage sludge is applied in accordance with WV Code §22-15-20(b). Such facility is deemed to be situated, for purposes of this rule, in the county where the majority of the spatial area of such facility is located: Provided, That a salvage yard, licensed and regulated pursuant to the terms of WV Code §17-23-1 et seq., is not a solid waste facility.

258.2

2.122 "Solid Waste Landfill Facility (SWLF)" means a discrete area of land, or portion thereof, or an excavation that receives household waste, and that is not a land application facility, surface impoundment, injection well, or waste pile. A SWLF may also receive other types of RCRA subtitle D solid wastes, such as commercial solid wastes, nonhazardous sludge, small quantity generator wastes, and industrial solid wastes. Such a landfill may be a new SWLF, an existing SWLF, or a lateral expansion publicly or privately owned.

2.123. "Solid Waste Facility Operator" means any person or persons possessing or exercising operational, managerial or financial control over a commercial solid waste facility, whether or not such person holds a certificate of convenience and necessity or a permit for such facility.

2-57- 2.124. "State Water Pollution Control Act" means W. Va. WV Code §22-11-1 20-5A, et seq.

2.125. "Source-Separated Materials" means materials separated from general solid waste at the point of origin for the purpose of reuse and recycling but does not mean sewage sludge.

2.126. "Storage" or "Storage Area" means the interim storage of solid waste, at a permitted solid waste facility on a temporary basis. Any storage that exceeds one hundred eighty (180) days, without the prior written

approval of the director, in such a manner, constitutes illegal disposal of such solid waste (i.e., staging areas).

258.15(b)(3)

2.127. "Structural Components" means liners, leachate collection systems, final covers, run-on/run-off systems, and any other component used in the construction and operation of the SWLF that is necessary for protection of human health and the environment.

2.128. "Structural Fill" means an engineered/designed and controlled homogeneous fill with a projected spread in lifts not exceeding twelve (12) inches and compacted with proper power equipment. The material must be compacted in horizontal lifts to achieve the required design dry density and in-situ strength.

2-58- 2.129. "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- 2.130. "Transfer Station" means a combination of permanent structures, machinery, or devices at a place or facility where solid waste is taken from collection vehicles, often compacted, and prepared for shipment placed in other transportation units for movement to another solid waste management facility. Provided that, when solid waste is collected in a container including rollofs, greenboxes or bins which are temporarily positioned (not more than five days) at a specific location for transport by a transportation unit, such shall not be considered a transfer station. Leachate must be properly managed under either described activity.

258.15(b)(1)

2.131. "Unstable Area" means a location that is susceptible to natural or human-induced events or forces capable of impairing the integrity of some or all of the landfill structural components responsible for preventing releases from a landfill. Unstable areas can include poor foundation conditions, areas susceptible to mass movements and karst terranes.

258.2

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

2-60- 2.133. "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- 2.134. "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.

258.11(b)(3)

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

258.2

2.136. "Waste Management Facility Boundary" means a vertical surface located at the hydraulically downgradient limit of the facility. This vertical surface extends down into the uppermost aquifer.

~~2-63+~~ 2.137. "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, forks, brooks, ponds (except farm ponds, industrial settling basins and ponds and water treatment facilities), impounding reservoirs, springs, wells, watercourses, and natural wetlands.

258.12(a)(1)

~~2-64+~~ 2.138. "Wetlands" means those naturally occurring areas, as defined under 40 CFR 232.2(r) 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.

2.139. "7Q10" means the seven (7) consecutive day drought flow with a ten (10) year return frequency.

258.11(b)(2)

~~2-65+~~ 2.140. "100-Year Flood" means a flood that has a 1-percent or greater chance of recurring in any given year or a flood of a magnitude equalled or exceeded once in 100 years on the average, over a significantly long period of time.

§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 any of the following:

258.12

3.1.1. Natural Wetlands. A significant adverse impact upon natural natural wetlands, as defined in section 2 of this rule;

258.12(a)(iii), and (iv)

3.1.2. Endangered or Threatened Species. A significant adverse impact upon, or jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of a critical habitat of any animal or plant protected under the Endangered

Species Act of 1973, and violates any requirement under the Marine Protection, Research and Sanctuaries Act of 1972 for the protection of a marine sanctuary, unless specifically approved by the United States Fish and Wildlife Service;

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

3.1.4. Groundwater. A statistically significant adverse impact upon groundwater quality;

258.3

3.1.5. Compliance with other agency requirements.

3.1.5.a. A permittee must comply with any and all applicable federal and state laws, rules, regulations or other requirements.

258.27(a)

3.1.5.a.A. Permittees of SWLFs must not: Cause a discharge of pollutants into waters of the state, including natural wetlands, that violates any requirement of the Clean Water Act, as amended or applicable portions of Chapter 22, Article 11, of the Code of West Virginia, including, but not limited to, the National Pollutant Discharge Elimination System (NPDES) requirements, pursuant to Section 402; of the Clean Water Act, or as reflected in Chapter 22, Article 11, of the Code of West Virginia, as amended.

258.27(b)

3.1.5.a.B. Cause the discharge of a non-point source of pollution to waters of the state, including natural wetlands, that violates any requirements of an area-wide or state-wide water quality management plan that has been approved under Section 208 or 319 of the Clean Water Act, or as reflected in Chapter 22, Article 11, of the Code of West Virginia, as amended.

3.1.5.a.C. Cause the discharge of a point source of pollution to waters of the state, in a violation of surface water quality standards found in §22-11 or any rules or regulations promulgated thereunder 46 C.S.R. 4; or

3.1.5.a.D. A violation of the Groundwater Protection Act, WV Code 22-12-1 et seq.

258.23

3.1.6. Explosive Gases. Cause the generation by any facility and subsequent migration and concentration of methane or other 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

258.24(a)

3.1.7. Air Pollution The emission of any air contaminant exceeding the limitations for those substances as set by the West Virginia Division of Environmental Protection, Office of Air Quality Pollution Control Commission.

3.2. Location Standards.

Unless otherwise approved by the director in writing, a person may must not establish, construct, operate, maintain, or allow the use of property for a landfill in the following areas: (Note: All distance measurements prescribed in section 3.2. of this rule refer to distances as measured from the edge of the waste management unit boundary of a facility.)

3.2.1. Location Standards for Surface Water.

No SWLF may be located within three hundred (300) feet of any surface water (facility drainage or sedimentation control structures are exempt from this distance calculation);

258.12(a)

3.2.2. Location Standards for Natural Wetlands.

No SWLF may be located within three hundred (300) feet of any natural wetlands, unless the permittee can make the following demonstrations to the director (facility drainage or sedimentation control structures are exempt from this distance calculation):

258.12(a)(1)

3.2.2.a. Where applicable under section 404 of the Clean Water Act or applicable wetland laws under Chapter 22, Article 11, or any rules promulgated thereunder, the presumption that a practicable alternative to the proposed landfill is available which does not involve natural wetlands is clearly rebutted;

258.12(a)(2)

3.2.2.b. The construction and operation of the SWLF must not:

258.12(a)(2)(i)

3.2.2.b.A. Cause or contribute to violations of any applicable state water quality standard;

258.12(a)(2)(ii)

3.2.2.b.B. Violate any applicable Chapter 22, Article 11, and/or other toxic effluent standard or prohibition under section 307 of the Clean Water Act or as reflected in Chapter 22, Article 11, of the Code of West Virginia, as amended;

258.12(a)(2)(iii)

3.2.2.b.C. Jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of a critical habitat, protected under the Endangered Species Act of 1973; and

258.12(a)(2)(iv)

3.2.2.b.D. Violate any requirement under the Marine Protection, Research, and Sanctuaries Act of 1972 for the protection of a marine sanctuary.

258.12(a)(3)

3.2.2.c. The SWLF must not cause or contribute to significant degradation of natural wetlands, and the permittee must also demonstrate the

integrity of the SWLF and its ability to protect ecological resources by addressing the following factors:

258.12(a)(3)(i)

3.2.2.c.A. Erosion, stability, and migration potential of native wetland soils, muds, and deposits used to support the SWLF;

258.12(a)(3)(ii)

3.2.2.c.B. Erosion, stability, and migration potential of dredged and fill materials used to support the SWLF;

258.12(a)(3)(iii)

3.2.2.c.C. The volume and chemical nature of the waste managed in the SWLF;

258.12(a)(3)(iv)

3.2.2.c.D. Impacts upon fish, wildlife, and other aquatic resources and their habitat from any release of the solid waste, or the leachate thereof;

258.12(a)(3)(v)

3.2.2.c.E. The potential effects of catastrophic releases of waste or the leachate thereof, to the natural wetlands and the resulting impacts on the environment; and

258.12(a)(3)(vi)

3.2.2.c.F. Any additional factors, as necessary, to demonstrate that ecological resources in the wetland are sufficiently protected.

258.12(a)(4)

3.2.2.c.G. To the extent required under section 404 of the Clean Water Act or applicable state natural wetlands laws as reflected in Chapter 22, Article 11, of the Code of West Virginia, as amended, steps must have been taken to attempt to achieve no net loss of natural wetlands (as defined by acreage and function) by first avoiding impacts to natural wetlands to the maximum extent practicable as required by section 3.2.2.a of this rule, then minimizing unavoidable impacts to the maximum extent practicable, and finally offsetting remaining unavoidable wetland impacts through all appropriate and practicable compensatory mitigation actions (e.g., restoration of existing degraded natural wetlands or creation of man-made natural wetlands).

3.2.3. Perennial Stream Location Standards;

No SWLF may be located within the watercourse of a perennial stream;

258.11

3.2.4. Location Standards for Floodplains.

258.11(a)(Part 1)

3.2.4.a. Permittees of new SWLFs, existing SWLFs and lateral expansions located within 100-year floodplains must demonstrate that the SWLF does not, and will not:

258.11(a)(Part 2)

3.2.4.a.A. Restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or

258.11(a)(Part 3)

3.2.4.a.B. Result in washout of solid waste so as to pose a hazard to human health and/or the environment.

3.2.5. Location Standards for Highways and Public Parks.

New SWLFs and lateral expansions must not be located 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 or federal aid secondary, or county 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;

258.13)

3.2.6. Location Standards for Fault Areas.

258.13(a)(Part 1)

3.2.6.a. New SWLFs and lateral expansions must not be located within 200 feet (60 meters) of a known faults that have had displacement in Holocene time (i.e., during the last eleven thousand years);

258.13(a)(Part 2)

3.2.6.b. Unless the permittee demonstrates to the director in a permit application that an alternative setback distance of less than 200 feet (60 meters) will prevent damage to the structural integrity of the SWLF and will be protective of human health and the environment.

258.10

3.2.7. Location Standards for Airport Safety.

258.10(a)

3.2.7.a. Permittees of new SWLFs, existing SWLFs, and lateral expansions must not be located within ten thousand (10,000) feet (3,048 meters) of any portion of the airport runway used or planned to be used by turbojet aircraft or within five thousand (5,000) feet (1,524 meters) of any portion of the airport runway used or planned to be used only by piston-type aircraft or within other areas where a substantial bird hazard to aircraft would be created; unless such applicants demonstrate that the SWLFs are designed and operated so that the SWLF does not and will not pose a bird hazard to aircraft.

258.10(b)

3.2.7.b. Permittees proposing to site new SWLFs and lateral expansions located within a five-mile radius of any portion of a airport runway used by turbojet or piston-type aircraft must provide written notification to both the affected airport and the Federal Aviation Administration (FAA), and provide copies of same to the director.

3.2.8. Location Standards for Dwellings.

3.2.8.a. Permittees of new SWLFs, and lateral expansions must not be located within five hundred (500) feet of a dwelling that is, or will be occupied, at the time of initial facility siting, unless written permission is received from the owner of the dwelling;

3.2.9. Location Standards for Wells.

3.2.9.a. Permittees of new SWLFs, existing SWLFs, and lateral expansions cannot be located within twelve hundred (1,200) feet of any public or private water supply well in existence at the time of initial facility siting;

258.15)

3.2.10. Location Standards for Unstable Areas.

258.15)(a)(Part 1)

3.2.10.a. Permittees of new SWLFs, existing SWLFs, and lateral expansions cannot be located within one thousand (1,000) feet of any area considered by the director to be unstable unmonitored due to extreme geologic and hydrologic conditions (e.g., immature to maturely developed karst terrain, solution cavities), unless the permittee can demonstrate that engineering measures have been incorporated into the SWLF's design to ensure that the integrity of the structural components of the SWLF will not be disrupted, and

258.15)(a)(Part 2)

3.2.10.b. The Permittee must consider the following factors, at a minimum, when determining whether an area is unstable:

258.15)(a)(1)

3.2.10.b.A. On-site or local soil conditions that may result in significant differential settling;

258.15)(a)(2)

3.2.10.b.B. On-site or local geologic or geomorphologic features; and

258.15)(a)(3)

3.2.10.b.C. On-site or local human-made features or events (both surface and subsurface).

3.2.11. Location Standards for Underground Mines.

3.2.11.a. Permittees of new SWLFs, and lateral expansions cannot be located above deep- underground mine workings or within the critical angle of draw of such workings, unless otherwise approved by the director in writing.

3.2.12. Location Standards for Surface Mines.

3.2.12.a. Permittees of new SWLFs, and lateral expansions cannot be located within previously surface mined areas, unless otherwise approved by the director in writing.

258.14)

3.2.13. Location Standards for Seismic Impact Zones.

258.14)(a)

New SWLFs and lateral expansions must not be located in seismic impact zones, unless the permittee demonstrates to the Director that all containment structures, including liners, leachate collection systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site.

258.24)(a)

3.2.14. Location Standards for Air Criteria.

3.2.14.a. All permittees must ensure that violations of the applicable requirements developed under a State Implementation Plan (SIP) promulgated pursuant to section 110 of the Clean Air Act, as amended or as reflected in the rules promulgated by the Office of Air Quality, do not occur.

258.24)(b)

3.2.14.b. Open burning of solid waste, except for the infrequent burning of agricultural wastes, silvicultural wastes, landclearing debris, diseased trees, or debris from emergency clean-up operations, except as approved by the Office of Air Quality, is prohibited at all SWLFs.

258.10(c), 258.11(a), 258.14(a), 258.15(a)

3.2.15. Recordkeeping.

The permittee must retain a copy of all such demonstrations for location standards that have previously received the written approval of the director pursuant to this section in the facility operating record, as required by section 4.4 of this rule.

Note: All distance measurements prescribed in Section 3-2- of this rule refers 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. Sewage Sludge Processing Facility;

3.3.1.h. Yard Waste Composting Facility;

3.3.1.i. Mixed Waste Processing Facility; and/or

3.3.1.j. 3-3-i.g. Other solid waste facilities approved in writing by the director.

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

Except those recycling facilities specifically exempted by section 20-11-12 of the Code, any person wishing to apply for a permit under Article 22-15 must comply with the following:

3.4.1. Any person investigating an area for the purpose of siting a commercial solid waste facility where no current solid waste facility exists, in order to determine a feasible, approximate location, and # 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 must have complied with the pre-siting requirements of section 22-15-13 of the Code of West Virginia, including, but not limited to the following:

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

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. A 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 this rule. The pre-siting notice shall must be made in writing on forms obtained from the director, which must be signed and verified by the applicant, and must include:

3.4.1.b.A. A certification of publication of the legal advertisement required under section 3.4.1.a of these regulations this rule from the a qualified newspaper, as defined in WV Code §59-3-1 in which such advertisement was published;

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

3.4.1.b.C. A United States Geological Survey (USGS) topographic map or portion thereof, and a map showing the location and anticipated property, site, and other 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;

3.4.1.b.E. The period of time over which the investigative review of the site will be undertaken; and

3.4.1.b.F. 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, ~~ex~~ county commission and/or other entities established pursuant to Chapter 22C, Article 4, Section 1 et sec. of the Code of West Virginia, as amended, according to the county or region in which the proposed facility is to be located, as required within five (5) days of the publication of the legal advertisement required under section 3.4.1.a of these regulations this rule.

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

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

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~~ this rule.

3.4.3. Based on comments received at the public hearing or received in writing within ten (10) days following the public hearing, or upon recommendations received from the county, ~~ex~~ regional ~~ex~~ other 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 upon 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 director prior to the installation, establishment, construction, modification, operation, or closure of any solid waste facility.

3.5.2. Single Document Permit. Permits issued pursuant to these regulations this rule shall must meet the requirements of W. Va. WV Code §§20-5A and 20-5F 22-15 and 22-11, and all associated regulations rules as applicable so that and only one permit document for any solid waste facility will be issued by the chief director. The §22-11 portion of that single permit must also meet the requirements of the "Groundwater Protection Act" promulgated under §22-12-1 et seq., and any rules promulgated thereunder, as amended.

3.5.3. Term of Permit. All permits issued pursuant to WV Code §22-15 and these regulations this rule shall must have a fixed term not to exceed five (5) years from the date of issuance. The chief director may administratively extend any permit expiration date for a period of up to one (1) year.

3.5.4. Existing Permits. Any person who, on or after the effective date of these regulations this rule, holds a valid Department Division permit, or modifies or renews such permit to conduct a commercial solid waste activity must, upon notification by the director in writing, submit a request to the chief director for a minor modification of that permit, in accordance with the provisions of section 3.18 of these regulations this rule, so that the applicable provisions of these regulations this rule can be incorporated into the terms and conditions of the existing permit. The permit modification request shall must be completed no later than June 10, 1990 submitted within ninety (90) days of the date of receipt of the notification of the director that they are required to comply with all requirements of §22-15-1 et seq., and this rule, as applicable.

3.5.5. Application Completeness. A complete permit application, including the background investigation disclosure statement, must consist of all applicable information as required for final permit approval by this rule that renders the application for a permit, renewal, modification, transfer or other permitting function to be both administratively and technically complete.

3.6. Permit Application Fees.

3.6.1. Each application for a solid waste facility permit, renewal, modification, transfer or other permitting functions must be accompanied by a nonrefundable application fee in accordance with the schedule of fees in Appendix III of IV to this rule, these regulations as amended.

3.6.2. A fee equal to ten percent (10%) of the application fee listed in Appendix III of these regulations IV to this rule must accompany an permit application for any renewal, modification, transfer or other permitting

functions refiled or that requires additional information due to substantial administrative or technical incompleteness.

3.7. Permit Application Requirements. A permit ~~shall~~ must be obtained from the ~~chief director~~ prior to the installation, establishment, construction, modification, operation, or closure of any solid waste facility. Unless otherwise specified in these ~~regulations~~ this rule 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~~ must be made on the forms prescribed by, and obtained from the chief director. Four (4) copies of the application, including all supporting documents, ~~shall~~ must be submitted to the director ~~chief~~; a fifth copy ~~shall~~ must be submitted to the applicable county, ~~or~~ regional solid waste authority for the area in which the proposed facility is, or will be located.

3.7.2. Property Rights. The application ~~shall~~ must provide ~~copies~~ a copy and a narrative description of the legal documents upon which the applicant's legal right to enter and conduct solid waste operations is based ~~on within~~ the solid waste facility proposed permit area and whether that right is the subject of pending or current court litigation.

3.7.3. Certification. All application documents related to engineering and design plans and specifications ~~shall~~ must 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~~ must include a cover letter detailing the desired Department division action and/or response.

3.7.5. Table of Contents. The application ~~shall~~ must include a table of contents listing all sections, visuals and attachments of the submittal.

3.7.6. Visuals. The application ~~shall~~ must 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 and other attachments must ~~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~~ must 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 table of contents and 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 horizontal and vertical 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 a 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~~ must be included on the sheets with the cross-section.

3.7.7. Quality Assurance and Quality Control Plans. The application ~~shall~~ must include quality assurance and quality control (Q.A./Q.C.) plans to be implemented to assure conformity of the solid waste facility construction, environmental monitoring, and monitoring well development, and provisions for monitoring within applicable standards.

3.7.7.a. The Q.A./Q.C. plans ~~shall~~ must 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~~ must include a description of the required level of experience and training for the contractor, ~~his~~ the contractor's 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 this rule will be properly implemented; and

3.7.7.c. The Q.A./Q.C. plans ~~shall~~ must 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~~ must include:

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

3.7.7.c.B. The sampling and field testing procedures and any associated 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~~ must include a description of the quality assurance and quality control sampling and analysis procedures. At a minimum, these Q.A./Q.C. procedures ~~shall~~ must encompass the sampling procedures and analyses of groundwater, surface water, soil, leachate, and gas required under these regulations this rule.

3.7.8. Technical Procedures. All technical procedures used to investigate a solid waste facility ~~shall~~ must 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~~ director.

3.7.8.a. All technical data submitted in the application ~~shall~~ must be accompanied by the names of person(s) and/or organization(s) that collected and/or analyzed the data, the dates of the collection, dates of analyses, and an analysis of the data, and a description of the methodology used to collect and analyze the data, and the chain of custody of any sample taken for analyses.

3.7.9. Endangered Species and Historic Sites. The application ~~shall~~ must include a letter from the Department's Division of Natural Resources/ Section of Wildlife Resources addressing the known presence of any endangered or threatened species of animals or plants in the vicinity of the proposed facility. The application ~~shall~~ must also include a letter from the West Virginia Department Division 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 or other type of financial assurance ~~shall~~ must be submitted to the Department Division in compliance with the provisions of section 3.13 of these regulations this rule.

258.71(a)(4), 258.72(a), and 258.73(a)

3.7.10.a. The permittee must maintain copies of any required closure, post-closure and corrective action cost estimates in the operating record. A copy of the estimate, or the estimate as amended, must be approved by the director prior to the placement of the estimate in the operating record.

3.7.11. Background Investigation Disclosure Statement. The background investigation disclosure statement application for a solid waste facility permit ~~shall~~ must 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 facility and must be submitted to the director in compliance with section 3.14 of these regulations this rule.

3.7.12. Facility Expansion. In an application for an expansion of an existing facility, the effectiveness of the existing design and operation ~~shall~~ must be discussed. An evaluation of relevant monitoring data and a discussion of all plan modifications and remedial actions ~~shall~~ must 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~~ must also be noted and discussed.

3.7.13. Waste Reduction and Recovery Information. The application ~~shall~~ must 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 this rule.

3.7.13.a. Waste Types, Origins, and Quantities. The application ~~shall~~ must 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 existing or 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~~ must 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~~ must 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 types of waste anticipated to be accepted at the existing or proposed facility, including a description of their potential for expansion.

3.7.13.d. Recommendations. The application ~~shall~~ must 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~~ must 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~~ must 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 must 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 must 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 must 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 this rule.

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

3.7.16. Proposed Design and Operation. The application shall must 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 this rule. A general discussion of the proposed operating procedures must also be included.

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

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

3.8. General Geologic and Hydrologic Submission Requirements.

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

3.8.1.a. Total acres of site area permitted, or to be permitted;

3.8.1.b. Total acres of disposal area;

3.8.1.c. Planned life of facility;

3.8.1.d. Previous existence or present activities of a mines or quarries 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 USGS quadrangle;

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

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

3.8.1.e.F. The location of the items listed in section 3.8.1.1 of these regulations this rule, 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, or counties in which the site is, or will be located;

3.8.1.k. A large-scale 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 this rule, unless such items are instead shown on the 7.5 minute topographic map;

3.8.1.1. Map Inclusions All of the following which occur either within the site boundaries or within fifteen hundred (1,500) feet of the site boundaries or within the distances specified in sections 3.1 and 3.2 of this rule 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. Natural 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 and ~~or~~ surface mines (for underground mines, also indicate the subsidence angle of draw, as applicable);

3.8.1.1.H. Mine pool(s) and point(s) of discharges;

3.8.1.1.I. Mine refuse spoil piles, and any impoundment capabilities;

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. Surface and groundwater quality monitoring points;

3.8.1.1.M. Occupied or habitable dwellings;

3.8.1.1.N. Roads;

3.8.1.1.O. Power lines, and pipelines and other utilities;

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 floodplain boundary.

3.8.1.1.V. All areas prohibited by section 3.1 of this rule, or for which location standards have been established by section 3.2 of this rule.

3.8.2. Soils Information. Backhoe test pits or drilled test borings shall must 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 each proposed disposal area and each proposed borrow source. Test pits or borings for ~~Class F~~ all S solid W waste F facilities shall must be located so as to identify all soil types distributed over the site. The applicant shall must 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 soil maps must show 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 Unified 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 must 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 must require one (1) additional test coring per ten (10) or less acres. Such test corings shall must 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 must terminate shall must be determined by the following: the first coring shall must be placed in the lowest point of the proposed disturbed area and cored to the uppermost significant aquifer that is to be monitored or corings

shall must 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 must be submitted to the chief director.

3.8.3.a. The site geological analysis should must 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), must be plotted on the large-scale map;

3.8.3.a.B.(c) An indication of all areas where bedrock outcrops within the site and also within 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. Applicants must 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~~ must be five (5) feet; for angles of five to thirty degrees, contour intervals ~~shall~~ must be ten (10) feet; and for angles of greater than thirty (30) degrees, contour intervals ~~shall~~ must be twenty-five (25) feet. The 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, ~~ex~~ 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 abandoned, reclaimed, active or inactive deep underground 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~~ and related information for mined areas under the site or within fifteen hundred (1,500) feet of the site boundaries.

258.51(a)

3.8.4. Hydrologic Information. The permittee must install a groundwater monitoring system that consists of a sufficient number of wells (minimum of four {4}) monitoring wells must shall be drilled to intersect be installed at appropriate locations and depths, to yield groundwater samples from the uppermost significant aquifer or the uppermost aquifer at all landfill sites. Monitoring wells -- one (1) upgradient and three (3) downgradient -- shall must 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 must 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~~ must meet the following specifications:

3.8.4.a.A. All monitoring well casings and screens ~~shall~~ must be constructed of a minimum of two (2) inch (inner diameter) Schedule 40 polyvinyl chloride (PVC) plastic pipe, or other casing satisfactory to the ~~chief~~ director. Lengths of pipe ~~shall~~ must be joined using threaded couplings. Solvent cement must not be used for PVC couplings. Borehole diameter ~~shall~~ must 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~~ must consist of a minimum 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 director. The screen is to have a slot size to enable retainment of eighty-five to one hundred percent (85%-100%) of the filter pack material. The bottom of the screen ~~shall~~ must 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~~ director.

3.8.4.a.C. All wells ~~shall~~ must 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~~ must be installed on top of the gravel packing.

3.8.4.a.D. All wells ~~shall~~ must be continuously grouted from the top of the impervious seal to above the groundwater table. Wells ~~shall~~ must 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 must 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 must 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 must be two (2) to three (3) feet above the elevation of the ground surface.

3.8.4.a.H. All wells shall must 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. A survey mark must be placed on the top of the casing at the point utilized for determining elevation.

3.8.4.a.I. All wells shall must be provided with a means of protection from tampering, vandalism, or damage. At a minimum, protection must be provided by a lockable outer well cap.

258.51(a)

3.8.4.a.J. In addition to the requirements of section 3.8.4. of this rule, the monitoring system must be installed at appropriate locations and depths, to yield ground-water samples from the uppermost aquifer that:

258.51(a)(1)(Part 1)

3.8.4.a.J.(a) Represent the quality of background groundwater that has not been affected by leakage from a SWLF.

258.51(a)(1)(Part 2)

3.8.4.a.J.(b) A determination of the background quality may include sampling of wells that are not hydraulically upgradient of the waste management area where:

258.51(a)(1)(i)

3.8.4.a.J.(b)(A) Hydrogeologic conditions do not allow the permittee to determine what wells are hydraulically upgradient; or

258.51(a)(1)(ii)

3.8.4.a.J.(b)(B) Sampling of other wells will provide an indication of the background groundwater quality that is as representative or more representative than that provided by the upgradient wells; and

258.51(a)(2)(Part 1)

3.8.4.a.J.(b)(C) Represent a quality of groundwater passing the relevant point of compliance specified by the director under section 4.5.4.a.G of this rule.

258.51(a)(2)(Part 2)

3.8.4.a.J.(b)(D) The downgradient monitoring system must be installed at the relevant point of compliance specified by the director under section 4.5.4.a.G of this rule that ensures detection of groundwater contamination in the uppermost aquifer.

258.51(a)(2)(Part 3)

3.8.4.a.J.(b)(E) When physical obstacles preclude installation of groundwater monitoring wells at the relevant point of compliance at existing SWLFs, the downgradient monitoring system may be installed at the closest practicable distance hydraulically downgradient from the relevant point of compliance specified by the director that ensure detection of groundwater contamination in the uppermost aquifer.

258.51(b)

3.8.4.a.K. The permittee may request the director to approve a multi-unit groundwater monitoring system instead of separate groundwater monitoring systems for each SWLF when the facility has several SWLFs, provided the multi-unit groundwater system meets the requirements of section 3.8.4 of this rule and will be as protective of human health and the environment as individual monitoring systems for each SWLF, based on the permittees' compliance with the following factors:

258.51(b)(1)

3.8.4.a.K.(a) Number, spacing, and orientation of the SWLFs;

258.51(b)(2)

3.8.4.a.K.(b) Hydrogeologic setting;

258.51(b)(3)

3.8.4.a.K.(c) Site history;

258.51(b)(4)

3.8.4.a.K.(d) Engineering design of the SWLFs, and

258.51(b)(5)

3.8.4.a.K.(e) Type of waste accepted at the SWLFs.

258.51(c)

3.8.4.a.L. Monitoring Well Casing Requirements. Monitoring wells must be cased in a manner that maintains the integrity of the monitoring well bore hole. This casing must be screened or perforated and packed with gravel or sand, where necessary, to enable collection of groundwater samples. The annular space (i.e., the space between the bore hole and well casing) above the sampling depth must be sealed to prevent contamination of samples and the groundwater.

258.51(c)(1)

3.8.4.a.L.(a) The permittee must notify the director that the design, installation, development, and decommission of any monitoring wells, piezometers and other measurement, sampling, and analytical devices documentation has been placed in the operating record; and

258.51(c)(2)

3.8.4.a.L.(b) The monitoring wells, piezometers, and other measurement, sampling, and analytical devices must be operated and maintained so that they perform to design specifications throughout the life of the monitoring program.

258.51(d)

3.8.4.a.M. The number, spacing, and depths of monitoring systems must be:

258.51(d)(1)

3.8.4.a.M.(a) Determined based upon site-specific technical information that must include thorough characterization of:

258.51(d)(1)(i)

3.8.4.a.M.(a)(A) Aquifer thickness, groundwater flow rate, groundwater flow direction including seasonal and temporal fluctuations in groundwater flow; and

258.51(d)(1)(ii)

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

258.51(d)(2)(Part 1)

3.8.4.a.M.(b) Certified by a qualified groundwater scientist and approved in writing by the director.

258.51(d)(2)(Part 2)

3.8.4.a.M.(b)(A) Within fourteen (14) days of this certification, the permittee must notify the director that the certification has been placed in the operating record.

3.8.4.b. Well Drilling.

The method used to drill the groundwater monitoring wells shall must 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 must be included in the application.

3.8.4.c. Water Table.

The maximum and minimum depth to the zone of saturation shall must be included in the application, along with the following:

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

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

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

3.8.4.c.D. The occurrence of groundwater drainage to deep underground mines shall must 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 these regulations this rule.

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 must be constructed and included in the application. The water table/potentiometric surface shall must 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 rate of flow shall must be provided in the application.

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

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

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

258.54(a)

3.8.4.e. Groundwater Quality Analyses. The method of sampling; date and results of the analyses of the water sampled from each groundwater monitoring well at the site shall must be provided in the application. All sampling procedures must be included in the application and approved by the chief director. Analyses for the constituents listed in Appendix I, the facility permit, or an order by the director 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, free 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(s) specified by the chief director in writing must be conducted.

~~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 must be included in the application.

Note: "7Q10" means the seven (7) consecutive day drought flow with a ten (10) year return frequency, as defined in section 2 of this rule.

3.8.4.f.B. The surface drainage area of the tributary on which the site is located ~~shall~~ must 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 storm rainfall event ~~shall~~ must 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~~ must 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~~ must be included in the application. This analysis ~~shall~~ must be performed for the same parameters listed in section 3.8.4.e and 3.8.4.e-A of these regulations this rule with the addition of total suspended solids.

3.8.5. Water Budget. A water budget ~~shall~~ must 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~~ must 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 must 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 must be analyzed and described. When more than one waste is generated, testing shall be performed on each waste stream. All leaching tests shall must be done in accordance with published test procedures. Physical tests shall must be done in accordance with ASTM standards or published test procedures. All testing procedures shall must 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 must be discussed with the director 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, but only if approved in writing by the director 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 must 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 this rule.

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 must 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 must be included in the application. The application shall must 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 area for all other facilities. The presentation of land use information in the application shall must be supplemented with land use maps and, at a minimum, shall must specifically address the following:

3.9.1.a. Adjacent Landowners. The identity and location of the adjacent landowners must be determined discussed in narrative form. This information may be presented on a plat map but must check reflect current ownership conditions and note any changes. must be so noted;

3.9.1.b. Land Use Zoning. The application shall must provide a review of 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 natural wetlands are designated.

3.9.1.c. Documentation of Present Land Uses. The application shall must include a description of the present land use in the area. Particular emphasis shall must be placed on the discussion of known recreational, historical, archaeological, or environmentally unique areas. The application shall must include a letter from the Department's Division's Section 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 must include a letter from the West Virginia Department Division 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 must 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 must be delineated in the application.

3.9.2. Environmental Review.

The application shall must include an environmental assessment section which addresses the following items:

3.9.2.a. Project Summary. The application shall must 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 en of 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 must 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, existing 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. Buildings, 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 natural wetlands map, and a facility development plan.

3.9.2.c. Existing Environment. The application shall must 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, natural 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 natural 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;

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

3.9.2.c.F. Public and private drinking water supplies.

3.9.2.d. Environmental Consequences. The application ~~shall~~ must 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~~ must include a report describing the proposed landfill design. At a minimum, this report ~~shall~~ must 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. The 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. The proposed operating procedures including the method of facility development, filling sequence, access control for each phase, surface water control, waste 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 this rule;

3.10.1.e. The proposed closure plan and final use as specified in section 6.1 of these regulations this rule;

3.10.1.f. The proposed method of demonstrating financial responsibility for closure, post-closure and long-term care and corrective action requirements including preliminary itemized cost estimates for land acquisition, facility preparation, construction of each major phase, daily operation, closure, post-closure and long-term care and corrective action. 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 director 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~~ must 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 the drainage area (acres), and storage capacity (acre-feet);

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

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

3.10.2.g. A plan sheet for any blasting that must be conducted at the facility. All blasting operations must comply with the following:

3.10.2.g.A. The blasting must be done during clear weather and during times when there is minimal traffic;

3.10.2.g.B. The blasting contractor must follow current blasting laws, regulations, rules of the state, federal, and local authorities and all appropriate regulatory agencies must be notified.

3.10.2.g.C. Adjacent residents and property owners and the proper local authorities must be properly informed about and notified of the upcoming blast operations;

3.10.2.g.D. The blasting contractor must initiate or employ a smooth blasting technique by using explosives with low charge concentration. Drilling patterns must be closely spaced with an appropriate blast hole diameter in a square or staggered drilling pattern. Blast hole design must depend on current field conditions;

3.10.2.g.E. To reduce ground vibration and excessive air blast, the contractor must employ a proper delay timing; use appropriate decking of charges and explosive powder factors applicable to the rock types being blasted;

3.10.2.g.F. The contractor must not blast below maximum approved elevations. The under-drilled few feet of the blast holes must not be loaded with explosives; and

3.10.2.g.G. Blasting must not be conducted on Sunday.

3.10.3. Sequencing of Solid Waste Disposal.

3.10.3.a. Solid Waste Placement Schedule. The sequence of solid waste disposal shall must be specified in a schedule of solid waste placement which shall must be approved by the chief director. The solid waste placement schedule shall must 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 must 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 must 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 must be coordinated with the construction of on-site access roads, surface water drainage systems, leachate collection systems and other facility construction in solid waste fill areas.

3.11. Landfill Liners.

3.11.1. Performance Standards.

The application shall must contain plans, drawings, and cross-sections, and specifications for a liner system to demonstrate compliance with performance standards and other requirements of this rule, including, but not limited to section 4.5.4 of this rule, and 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. Q.A./Q.C. Plan.

The application ~~shall~~ must include a quality assurance and quality control (Q.A./Q.C.) plan for the construction and installation of the liner system. At a minimum, the Q.A./Q.C. plan ~~shall~~ must 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. Leachate Considerations.

The application ~~shall~~ must 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~~ must 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 natural 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~~ this rule unless an alternative geotechnical investigation program is approved by the ~~chief~~ director 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~~ as part of 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 map based upon a USGS topographic map, or other equivalent 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 materials from any unacceptable materials;

3.12.3.e. A proposal for maintaining drainage, sedimentation control, and proper abandonment of the property, including the introduction and maintenance of vegetation which conforms to the minimum requirements of section 4.5.6 of this rule; 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 or within surface waters or natural wetlands. It is the responsibility of the applicant or property owner to obtain any such permits.

3.13. Bonding and Financial Assurance for Solid Waste Facilities.

258.74

The mechanisms used to demonstrate financial assurance under this section must ensure that the funds necessary to meet the costs of closure, post-closure care, and corrective action for known releases will be available whenever they are needed, and include the requirements of sections 3.13.14, 3.13.15 and 3.13.16 of this rule, and

3.13.1. Requirements for Commercial Solid Waste Facilities.

Note: Non-commercial solid waste facilities are exempt from the requirements of section 3.13 of this rule.

3.13.1.a. The chief director 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 or other form of financial assurance, as applicable, in accordance with these regulations this rule and the bond or other form of financial assurance is approved by the director.

3.13.1.b. The bond or financial assurance must be submitted after the application is approved but before the permit, modification, transfer, assignment, or other permitting function is approved or issued. No permit will be issued until the bond or financial assurance is approved by the director and is in full force and effect.

3.13.1.c. A person who holds a valid Department division permit to conduct a commercial solid waste activity but wishes to modify, transfer, assign, or perform any other permitting function must comply with section 3.13.1.b of this rule, on the effective date of these regulations this

section must file a bond or other type of financial assurance with the director prior to receiving the approval of the director for the permit, modification or other permitting function as required under these regulations this rule.

258.70

3.13.1.d. Applicability.

258.70(a)

3.13.1.d.A. The requirements of this section apply to permittees of all SWLFs, except as provided in section 3.13.1. The requirements of this section are effective on the date specified in 40 CFR Part 258 Section 70(b), as amended. If a state or federal government entity should become a permittee in the State of West Virginia, they will be exempt from the requirements of this section, since their debts and liabilities are the debts and liabilities of the state or the United States.

3.13.2. General Bonding and Financial Assurance Requirements.

3.13.2.a. All forms of financial assurance and bonds must be submitted under the requirements of these regulations this rule 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) at least thirty (30) years after final closure of the permit site. Any further time period required by the permittee to achieve compliance with the requirements in of the closure plan of the permit or other requirements of the division shall must be added to the considered an additional liability period.

258.74(1)

3.13.2.a.A. The use of any of the mechanisms listed in section 3.13 of this rule, must ensure the satisfaction of the following criteria:

258.74(1)(1)

3.13.2.a.A.(a) That the amount of funds assured is sufficient to cover the costs of closure, post-closure care, and corrective action for known releases when needed;

258.74(1)(2)

3.13.2.a.A.(b) That funds will be available in a timely fashion when needed;

258.74(1)(3)

3.13.2.a.A.(c) The financial assurance mechanism(s) must in full force and effect be by the effective date of these requirements or prior to the initial receipt of solid waste, whichever is later, in the case of closure and post-closure care, and no later than 120 days after the corrective action remedy has been selected in accordance with the requirements of section 4.11.7 of this rule, until the permittee is released from the financial assurance requirements under sections 3.13.13, 3.13.14, and 3.13.15 of this rule.

258.74(1)(4)

3.13.2.a.A.(d) The financial assurance mechanisms must be legally valid, binding, and enforceable under state and federal law.

3.13.2.b. If a permit applicant elects to offer a certificate or securities as a form of financial assurance or 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. All forms of financial assurance or bonds shall must be conditioned on compliance with the Solid Waste Management Act, the regulations any rules promulgated thereunder, orders issued by the chief or the director, and the terms and conditions of the permit.

3.13.2.d. All forms of financial assurance or bonds will be reviewed for legality and form in accordance with established Department division procedures.

3.13.2.e. All forms of financial assurance, or 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 first replaced with an equivalent or greater deposit.

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

258.74(b)(2)

3.13.2.h. The penal sum of any financial assurance must be in an amount at least equal to the sum of the current closure, post-closure care and/or corrective action cost estimate; as applicable.

258.74

3.13.3. Allowable Mechanisms of Financial Assurance or Bonding.

3.13.3.a. The director will accept the following types of financial assurance or bonding:

258.74(b)

3.13.3.a.A. A surety bond;

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

3.13.3.a.B.(a) Cash deposits;

3.13.3.a.B.(b) Collateral securities;

3.13.3.a.B.(c) Certificates, including;

3.13.3.a.B.(c)(A) Bonds of the United States or its possessions;

3.13.3.a.B.(c)(B) Bonds of the Federal Land Bank;

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

3.13.3.a.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;

3.13.3.a.C. Escrow Account. An escrow account;

3.13.3.a.D. Collateral bonds; including;

258.74(c)

3.13.3.a.D.(a) Letters of credit;

3.13.3.a.D.(b) Certificates of deposit; and

3.13.3.a.D.(c) Negotiable bonds

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

258.74(a)

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

258.74(i)

3.13.3.a.G. State-Approved Mechanism (Reserved)

258.74(j)

3.13.3.a.H. State Assumption of Responsibility (Reserved).

258.74(k)

3.13.3.a.J. Use of Multiple Financial Mechanisms.

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.

258.74(b)

3.13.4. Special Terms and Conditions for Surety Bonds Guaranteeing Payment or Performance.

258.74(b)(1)(Part 1)

A permittee may demonstrate financial assurance for closure, post-closure care, or corrective action by obtaining a payment or performance surety bond which conforms to the requirements of this section.

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.

258.74(b)(1)(Part 5)

3.13.4.a.A. The surety company issuing the bond must, at a minimum, be among those listed as acceptable sureties on Federal bonds in Circular 570 of the U.S. Department of the Treasury.

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 division'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's on division for bonds filed by the permittee, the principal and related parties exceeds the surety company's single risk limit.

258.74(b)(6)(Part 1)

3.13.4.d.A. Under the terms of the bond, the surety may cancel the bond by sending notice of cancellation by certified mail to the permittee and to the director 120 days in advance of cancellation.

258.74(b)(6)(Part 2)

3.13.4.d.A.(a) If the surety cancels the bond, the permittee must obtain alternative financial assurance as specified in this section.

258.74(b)(7)

3.13.4.d.B. The permittee may cancel the bond only if alternative financial assurance is substituted as specified in this section or if the permittee is no longer required to demonstrate financial responsibility in accordance with sections 3.13.14.b, 3.13.15.b, or 3.13.16.b of this rule.

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

3.13.4.f. Surety Bond Forfeiture.

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

258.74(b)(4)

3.13.4.f.B. Any surety bond obtained by the permittee must state that the surety will become liable on the bond obligation should the permittee fail to perform as guaranteed by the bond.

3.13.4.g. The Department division 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 must provide that the surety will give written notice to the principal and the Department division within ten (10) days of a notice received or an action filed 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.

258.74(b)(1)(Part 2)

3.13.4.i. Surety Bonds for Corrective Action, Closure and Post-Closure Care.

258.74(b)(1)(Part 3)

3.13.4.i.A. A permittee may demonstrate financial assurance for corrective action, closure and post-closure care by obtaining a performance bond which conforms to the requirements of this section.

258.74(b)(1)(Part 4)

3.13.4.i.B. A bond for corrective action must be effective before the initial receipt of waste, or before the effective date of this rule, whichever is later.

258.74(b)(1)(Part 5)

3.13.4.i.C. A bond for closure or post-closure care, must be effective no later than 120 days after the corrective action remedy has been selected in accordance with the requirements of section 4.11.7.

258.74(b)(4)

3.13.4.j. Standby Trust Fund.

258.74(b)(4)(Part 1)

3.13.4.j.A. The permittee must establish a standby trust fund.

258.74(b)(4)(Part 2)

3.13.4.j.B. The standby trust fund must meet the requirements of section 3.13 of this rule, except the requirements for initial payment and subsequent annual payments specified in section 3.13.11.a of this rule.

258.74(b)(5)(Part 1)

3.13.4.k.B. Payments made under the terms of the bond will be deposited by the surety directly into the standby trust fund.

258.74(b)(5)(Part 2)

3.13.4.k.C. Payments from the trust fund must be approved by the trustee.

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 Deposits.

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, ~~ex~~ 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~~ this rule 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~~ must vest in the state a property interest in the collateral which ~~shall~~ must remain until released under the terms of ~~these regulations~~ this rule, 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 or she deems necessary to meet the requirements of these regulations this rule. If the director determines that collateral deposited does not meet the requirements of these regulations this rule, he or she 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~~ must 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~~ must 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~~ must request such action in writing during the permit application process.

3.13.7. Collateral Bonds; Letter of Credit.

258.74(c)(Part 1)

A permittee may satisfy the requirements of this section by obtaining an irrevocable standby letter of credit which conforms to the requirements of this section.

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~~ an applicant's unqualified obligation to reimburse the issuer for monies paid under the letter of credit.

258.74(c)(3)(Part 1)

3.13.7.a.B. The letter of credit must be irrevocable, and must be so designated. The letter of credit must be issued for a period of at least one year in an amount at least equal to the current cost estimate for closure, post-closure care or corrective action, whichever is applicable, except as provided in section 3.13.11.a of this rule.

258.74(c)(3)(Part 2)

3.13.7.a.B.(a) The letter of credit must provide that the expiration date will be automatically extended for a period of at least one year unless the issuing institution has cancelled the letter of credit by

sending notice of cancellation by certified mail to the permittee and to the director 90 days in advance of cancellation.

258.74(c)(3)(Part 3)

3.13.7.a.B.(b) If the letter of credit is cancelled by the issuing institution, the permittee must obtain alternative financial assurance or bonding.

258.74(c)(4)

3.13.7.a.B.(c) The permittee may cancel the letter of credit only if alternative financial assurance or bonding is substituted as specified in this section or if the permittee is released from the requirements of this section in accordance with sections 3.13.14.b, 3.13.15.b, or 3.13.16.b of this rule.

258.74(c)(2)(Part 1)

3.13.7.a.B.(d) A letter from the permittee referring to the letter of credit by number, issuing institution, and date, and providing the following information: name, and address of the facility, and the amount of funds assured, must be included with the letter of credit in the operating record.

3.13.7.a.C. The director may not accept letters of credit issued for a ~~customer~~ an applicant when the amounts of the letter of credit, aggregated with other loans and credits extended to the ~~customer~~ applicant, exceeds the issuer's legal lending limit for that ~~customer~~ applicant 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 Division of Environmental Protection as beneficiary and ~~shall~~ must be payable to the division Department upon demand, in part or in full, upon presentation of the division's Department's drafts, at sight. The ~~Department's~~ division's right to draw upon the letter of credit does not require documentary or other proof by the division Department that the ~~customer~~ applicant 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 division Department.

3.13.7.b. The director will not accept letters of credit from a bank for any person, for 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~~ will 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~~ must 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~~ must issue 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~~ must immediately revoke the permit. The permittee ~~shall~~ will 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 division will hold the proceeds as cash collateral.

258.74(c)(1)(Part 3)

3.13.7.g. After the letter of credit is approved by the director, the permittee must retain a copy of the letter of credit in the facility operating record.

258.74(c)(1)(Part 2)

3.13.7.h. The letter of credit must be effective before the initial receipt of waste or before the effective date of this section, whichever is later, in the case of closure and post-closure care, or no later than 120 days after the corrective action remedy has been selected in accordance with the requirements of section 4.11.7 of this rule.

258.74(c)(1)(Part 4)

3.13.7.i. The issuing institution must be an entity which has the authority to issue letters of credit and whose letter-of-credit operations are regulated and examined by a federal or state agency.

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 certificates of deposit must be made payable to the permittee division or the permittee and the division and ~~shall~~ must be assigned to the Department division by the permittee, in writing, as required

by the director and on forms provided by the director. The assignment 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 division 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 this rule, without penalty to the Department division.

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 division.

3.13.8.a.H. The permittee is not entitled to interest accruing after forfeiture is declared by the Department division, unless and until the forfeiture declaration is ruled invalid by a court having jurisdiction over the Department division, 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~~ must be at least equal to the amount of the required bond.

3.13.9.a.C. The Department division 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 division 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.

258.74(k)

3.13.10. Use of Multiple Mechanisms Surety/Collateral Combination Bonds.

258.74(k)

3.13.10.a. The director may accept financial assurance or bond which is comprised of more than one financial mechanism per facility, as listed in surety and collateral bond instruments otherwise allowed by these regulations this rule, except that it is the combination of mechanisms, rather than the single mechanism, which must provide financial assurance for an amount at least equal to the current cost estimate for closure, post-closure care or corrective action, whichever is applicable.

3.13.10.a.A. The instruments chosen must be construed as part of the entire bond for the facility.

3.13.10.a.B. The director may refuse to accept the bond if he or she determines that the financial guarantee of the bond is unacceptable, or for another reason does not meet the purposes of the Act, these regulations this rule, or orders of the chief or the director.

258.74(k)

3.13.10.a.C. The financial test and a guarantee provided by a corporate parent, sibling, or grandparent may not be combined if the financial statements of the two firms are consolidated.

3.13.11. Other Forms of Bonding (reserved), Other forms of bonding including, but not limited to;

258.74(a)

3.13.11.a. Trust Fund.

258.74(a)(1)(Part 1)

3.13.11.a.A. A permittee may satisfy the requirements of this section by establishing a trust fund which conforms to the requirements of this section.

258.74(a)(1)(Part 2)

3.13.11.a.A.(a) The trustee must be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency.

258.74(a)(1)(Part 3)

3.13.11.a.A.(b) A copy of the trust agreement must be placed in the facility's operating record.

258.74(a)(2)

3.13.11.a.B. Payment into the trust fund must be made annually by the permittee over the term of the initial permit or over the remaining life of the SWLF, whichever is shorter, in the case of a trust fund for closure or post-closure care, or over one-half of the estimated length of the corrective action program in the case of corrective action for known releases. This period is referred to as the pay-in period.

258.74(a)(3)(Part 1)

3.13.11.a.C. For a trust fund used to demonstrate financial assurance for closure and post-closure care, the first payment into the trust fund must be at least equal to the current cost estimate for closure and post-closure care, except as provided in section 3.13.11.c of this rule, divided by the number of years in the corrective action pay-in period as defined in section 3.13.11.a.B of this section.

258.74(a)(3)(Part 2)

3.13.11.a.D. The amount of subsequent payments must be determined by the following formula:

$$\text{Next Payment} = \frac{\text{CF} - \text{CV}}{Y}$$

where CF is the current cost estimate for closure or post-closure care (updated for inflation or other changes), CV is the current value of the trust fund, and Y is the number of years remaining in the pay-in period.

258.74(a)(4)(Part 1)

3.13.11.a.E. For a trust fund used to demonstrate financial assurance for corrective action, the first payment into the trust fund must be at least equal to one-half of the current cost estimate for corrective action, except as provided in section 3.13.11.c of this rule, divided by the number of years in the corrective action pay-in period as defined in section 3.13.11.a.B of this rule.

258.74(a)(4)(Part 2)

3.13.11.a.E.(a) The amount of subsequent payments must be determined by the following formula:

$$\text{Next Payment} = \frac{\text{RB} - \text{CV}}{Y}$$

where RB is the most recent estimate of the required trust fund balance for corrective action (i.e., the total costs that will be incurred during the second half of the corrective action period), CV is the current value of the trust fund, and Y is the number of years remaining in the pay-in period.

258.74(a)(5)

3.13.11.a.F. The initial payment into the trust fund must be made before the initial receipt of waste or before the effective date of section 40 CFR Part 258.70(b), whichever is later, in the case of closure and post-closure care, or no later than 120 days after the corrective action remedy has been selected in accordance with the requirements of section 4.11.7 of this rule.

258.74(a)(6)

3.13.11.a.G. If the permittee establishes a trust fund after having used one or more alternative mechanisms specified in this section, the initial payment into the trust fund must be at least the amount that the fund would contain if the trust fund were established initially and annual payments made according to the specifications of section 3.13.11 of this rule.

258.74(a)(7)(Part 1)

3.13.11.a.H. The permittee, or other person authorized to conduct closure, post-closure care, or corrective action activities may request reimbursement from the trustee for these expenditures.

258.74(a)(7)(Part 2)

3.13.11.a.H.(a) Requests for reimbursement will be granted by the trustee only if sufficient funds are remaining in the trust fund to cover the remaining costs of closure, post-closure care, or corrective action, and if justification and documentation of the cost is placed in the operating record.

258.74(a)(7)(Part 3)

3.13.11.a.H.(b) The permittee must notify the director that the documentation of the justification for reimbursement has been placed in the operating record and that reimbursement has been received.

258.74(a)(8)

3.13.11.a.I. The trust fund may be terminated by the permittee only if the permittee substitutes alternative financial assurance as specified in this section or if he or she is no longer required to demonstrate financial responsibility in accordance with the requirements of sections 3.13.14.b, 3.13.15.b, or 3.13.16.b of this rule.

258.74(i)

3.13.11.b. State-Approved Mechanism. (Reserved)

258.74(j)

3.13.11.c. State Assumption of Responsibility. (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 this rule, but may not be less than the amount on deposit with the Department division.

3.13.12.b. The Department division will not release existing bonds until the permittee has submitted and the director has approved acceptable replacement bonds that are in full force and effect. A replacement of bonds under section 3.13.12 of these regulations this rule does not constitute a release of bond under these regulations this rule.

3.13.13. Bond Amounts.

3.13.13.a. In accordance with the provisions of W. Va. WV Code §20-5F-5b 22-15-12, all permits shall must be bonded for at least ten thousand dollars (\$10,000), or a sufficient amount to satisfy all of the requirements of this rule, whichever is the higher amount.

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.

258.71

3.13.14. Financial Assurance for Closure.

258.71(a)(Part 1)

3.13.14.a. The permittee must have a detailed written estimate, in current dollars, of the cost of hiring a third party to close the largest area of all SWLFs ever requiring a final cover as required under section 6 of this rule at any time during the active life in accordance with the closure plan.

258.71(a)(Part 2)

3.13.14.a.A. The permittee must notify the director in writing of that the estimate and maintain a copy in the operating record.

258.71(a)(1)

3.13.14.a.A.(a) The cost estimate must equal the cost of closing the largest area of all SWLFs ever requiring a final cover at any time during the active life when the extent and manner of its operation would make closure the most expensive, as indicated by its closure plan (see section 6.1.5.c.A.(B) of this rule).

258.71(a)(2)

3.13.14.a.A.(b) During the active life of the SWLF, the permittee must annually adjust the closure cost estimate for inflation.

258.71(a)(3)

3.13.14.a.A.(c) The permittee must increase the closure cost estimate and the amount of financial assurance provided under sections 3.13.14.b and 3.13.14.b.A of this rule, if changes to the closure plan or SWLF conditions increase the maximum cost of closure at any time during the remaining active life.

258.71(a)(4)(Part 1)

3.13.14.a.A.(d) The permittee may reduce the closure cost estimate and the amount of financial assurance provided under sections 3.13.14.b and 3.13.14.b.A of this rule, if the cost estimate exceeds the maximum cost of closure at any time during the remaining life of the SWLF.

258.71(a)(4)(Part 2)

3.13.14.a.A.(d)(A) The permittee must notify the director that the justification for the reduction of the closure cost estimate and the amount of financial assurance has been placed in the operating record.

258.71(b)(Part 1)

3.13.14.b. The permittee of each SWLF's operating record must establish financial assurance for closure of the SWLF in compliance with section 3.13 of this rule.

258.71(b)(Part 2)

3.13.14.b.A. The permittee must provide continuous coverage for closure until released from financial assurance requirements by demonstrating compliance with section 6 of this rule.

258.72

3.13.15. Financial Assurance for Post-Closure Care.

258.72(a)(Part 1)

3.13.15.a. The permittee must have, at all times, a detailed written estimate, in current dollars, of the cost of hiring a third party to conduct post-closure care for the SWLF in compliance with the post-closure plan developed under section 6.3 of this rule.

258.72(a)(Part 2)

3.13.15.a.A The post-closure cost estimate used to demonstrate financial assurance in sections 3.13.15.b and 3.13.15.b.A of this section must account for the total costs of conducting post-closure care, including annual and periodic costs as described in the post-closure plan over the entire post-closure care period. The permittee must notify the director that a copy of the estimate has been placed in the operating record.

258.72(a)(1)

3.13.15.a.A.(a) The cost estimate for post-closure care must be based on the most expensive costs of post-closure care during the post-closure care period.

258.72(a)(2)

3.13.15.a.A.(b) During the active life of the SWLF and during the post-closure care period, the permittee must annually adjust the post-closure cost estimate for inflation.

258.72(a)(3)

3.13.15.a.A.(c) The permittee must increase the post-closure care cost estimate and the amount of financial assurance provided under sections 3.13.15.b and 3.13.15.b.A of this rule, if changes in the post-closure plan or SWLF conditions increase the maximum costs of post-closure care.

258.72(a)(4)(Part 1)

3.13.15.a.A.(d) The permittee may reduce the post-closure cost estimate and the amount of financial assurance provided under section 3.13.15.b of this rule, if the cost estimate exceeds the maximum costs of post-closure care remaining over the post-closure care period.

258.72(a)(4)(Part 2)

3.13.15.a.A.(d)(A) The permittee must notify the director and receive written approval of the director of the justification for the reduction of the post-closure cost estimate and the amount of financial assurance prior to placing these documents in the operating record.

258.72(b)(Part 1)

3.13.15.b. The permittee of each SWLF must establish, in a manner in accordance with section 3.13.15 of this rule, financial assurance for the costs of post-closure care as required under section 6.3 of this rule.

258.72(b)(Part 2)

3.13.15.b.A. The permittee must provide continuous coverage for post-closure care until released from financial assurance requirements for post-closure care by demonstrating compliance with section 6.3.7.a of this rule.

258.73

3.13.16. Financial Assurance for Corrective Action.

258.73(a)(Part 1)

3.13.16.a. A permittee of a SWLF required to undertake a corrective action program under section 4.11.7 of this rule must have a detailed written estimate, in current dollars, of the cost of hiring a third party to perform the corrective action in accordance with the program required under section 4.11.7 of this rule.

258.73(a)(Part 2)

3.13.16.a.A. The corrective action cost estimate must account for the total costs of corrective action activities as described in the corrective action plan for the entire corrective action period.

258.73(a)(Part 3)

3.13.16.a.A.(a) The permittee must notify the director that the estimate has been placed in the operating record.

258.73(a)(1)

3.13.16.a.B. The permittee must annually adjust the estimate for inflation until the corrective action program is completed in accordance with section 4.11.7.f of this rule.

258.73(a)(2)

3.13.16.a.C. The permittee must increase the corrective action cost estimate and the amount of financial assurance provided under section 3.13.16.b of this rule, if changes in the corrective action program or SWLF conditions increase the maximum costs of corrective action.

258.73(a)(3)(Part 1)

3.13.16.a.D. The permittee may reduce the amount of the corrective action cost estimate and the amount of financial assurance provided under section 3.13.16.b of this rule, if the cost estimate exceeds the maximum remaining costs of corrective action.

258.73(a)(3)(Part 2)

3.13.16.a.D.(a) The permittee must notify the director that the justification for the reduction of the corrective action cost estimate and the amount of financial assurance has been placed in the operating record.

258.73(b)(Part 1)

3.13.16.b. The permittee of each SWLF required to undertake a corrective action program under section 4.11.7 of this rule must establish, in a manner in accordance with section 3.13 of this rule, financial assurance for the most recent corrective action program.

258.73(b)(Part 2)

3.13.16.b.A. The permittee must provide continuous coverage for corrective action until released from financial assurance requirements for corrective action by demonstrating compliance with sections 4.11.7.f and 4.11.7.g of this rule.

3.14. Background Investigation Disclosure Statement.

3.14.1. Applicability.

Every applicant for a solid waste facility permit shall must file a background investigation disclosure statement with the director at the time the initial application is filed, unless exempt from such disclosure under the provisions of section 3.14.4 of these regulations this rule.

3.14.2. Copies and Fees.

Background investigation disclosure statements shall must be filed by submitting a notarized original and one (1) certified copy of all papers and other applicable documents, including Personal History Disclosure Forms, to the director accompanied by a nonrefundable investigation fee in accordance with the schedule of fees in Appendix IV to this rule A of these regulations.

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

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

3.14.3. Fingerprinting Requirements.

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

3.14.3.a. Completed fingerprint cards shall must be supplied by the applicant with the filed background investigation disclosure statement, when submitted. The applicant shall must 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. (Note: 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 background investigation disclosure statement:

3.14.4.a. Any person who is an employee of any department, division, agency, commission or authority of the federal, government or any state, government, or any county, or municipal government or agency thereof.

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

3.14.5. Contents of Background Investigation Disclosure Statement.

The background investigation disclosure statement shall must be filed on forms supplied by the director and shall must be completed in accordance with WV Code §22-15-5 and 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. 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 including ultimate parent corporations, 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 disclosure statement must contain the full name, and business address, home address, date of birth, social security number, a description of the applicant's experience and credentials including any past or present permits for the collection, transportation, treatment, storage or disposal of any company which collects, transports, treats, stores, or disposes of solid waste or hazardous waste, that are or have been issued to or possessed by in which the applicant and any person or persons required to be listed by section 3.14.5.a of this rule 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.c. 3-14.5-g. A listing of any agencies outside of West Virginia which had, or has regulatory responsibility over the applicant in connection with its collection, transportation, treatment, storage, or disposal of solid waste or hazardous waste;

3.14.5.d. An addendum form must be completed and filed with each disclosure statement for each relation (spouse, sibling, parent or child) engaged in the collection, transportation, treatment, storage or disposal of solid or hazardous waste; and

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

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-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. Notarization.

The disclosure statement shall be notarized.

3.14.6. 3-14-7. Signature.

3.14.6.a. Background investigation disclosure statements shall must be signed by each of the following:

3.14.6.a.A. 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.

3.14.6.a.B. 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.

3.14.6.a.C. 3-14-7-c. If of any other business concern, by its chief executive officer, its secretary, and its treasurer.

3.14.6.a.D. 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 therein.

3.14.6.b. 3-14-9. All signatures shall must 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 must be typed, stamped, or legibly printed beneath each signature. all signatures must be notarized.

3.14.7. 3-14-10. Change of Information on Background Investigation Disclosure Statement.

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

3.14.8. 3-14-11. Reporting Requirements.

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

3.14.8.a. 3-14-11-a. The name of the permittee or applicant;

3.14.8.b. 3-14-11-b. The names or identities of any applicant or any any officer, director, or manager, thereof, shareholder owning five percent (5) or more of its capital stock, beneficial or otherwise, including ultimate parent corporations, and any ~~or~~ other person conducting or managing the affairs of the applicant or the proposed permitted premises;

3.14.8.c. 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:

3.14.8.d. 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:

3.14.8.d.A.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.

3.14.8.e. 3-14-13. Changes of information required to be reported pursuant to section 3.14.9 3-14-11 of these regulations this rule may be filed by letter, on amendment forms supplied by the director, or on copies of applicable portions of background investigation disclosure statement forms. The person filing the report of change shall must swear to or affirm the truth of the information contained therein.

3.14.8.f. Filing of Changes of Information.

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

3.14.9. 3-14.14. Annual Updates.

The background investigation disclosure statement annual update shall must be filed yearly on the anniversary of the permit issuance. It must be filed on amendment forms supplied by the director and must contain all changes including but not limited to deletions in officers, directors, managers, owners, companies, etc. that have occurred since the submittal of previous application. If there have been any additions to the officers, directors, managers, shareholders owning five percent (5%) or more of capital stock, beneficial or otherwise; general or limited partners; any person performing a function similar to the director; United States parent corporation, including the ultimate parent corporation; agents; or associates of the permittee, a background investigation disclosure statement application must be filed with the division including proper filing fees and fingerprint cards. 7 or on copies of applicable portions of the disclosure statement form 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.

3.14.10. 3-14-16 Notarization of Annual Updates.

Annual updates ~~shall~~ must be notarized.

3.14.11. 3-14-17. Requirement to File New Background Investigation Disclosure Statement.

Where an applicant or permittee has submitted multiple amendments to its background investigation disclosure statement, or the information concerning an applicant or permittee has undergone substantial change, or if the background investigation 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 background investigation disclosure statement.

3.14.12. 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, and applicant or permittee licensee refuses to comply, the permit of that person may be denied or revoked by the director.

3.14.13. 3-14-19. Physical Evidence.

Upon request, the applicant ~~shall~~ must supply physical evidence, including, but not limited to, photographs or handwriting exemplars of any person individual listed on the background investigation disclosure statement or any amendment thereof.

3.14.14. 3-14-20. Disqualification Criterion.

No permit ~~shall~~ may be approved by the director unless the applicant demonstrates compliance with the provisions of W. Va. WV Code §20-5F-4(e) 22-15-5.

3.14.15. 3-14-21. Cause for Permit Revocation.

In addition to any other cause set forth elsewhere in these regulations this rule, any permit may be revoked for any violation of WV Code §20-5F-4(e) 22-15-5.

3.14.16. 3-14-22. Severance of Disqualifying Individuals. Notwithstanding the disqualification of any applicant or permittee pursuant to these regulations rules, the director may issue or renew a permit if the applicant or permittee severs the interest of, or affiliation with, the person who would otherwise cause that disqualification.

3.14.16.a. 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, that person 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, at the director's discretion ~~may, in his discretion~~, may allow for divestiture over a period of time not to exceed one (1) year.

3.14.16.b. 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.

3.14.16.c. 3-14-22-c- Before the chief director 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 must be submitted with the affidavit.

3.14.17. 3-14-23- Confidential Information. Any information received pursuant to section 3.14 of this rule must these regulations shall be kept confidential by the division Department to the extent allowable by state law including WV W- Va- Code §29B-1-1.

3.14.18. 3-14-24- Convicted Persons Generally. No permittee may shall knowingly hire as an officer or director any person who has been convicted of any of the offenses crimes enumerated in these regulations or in WV W- Va- Code §22-15-5(c) 20-5F-4(e) without first submitting a background investigation disclosure statement to and obtaining the 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 WV W- Va- Code §22-15-5(c) 20-5F-4(e) to acquire an equity interest or debt liability interest without first submitting a background investigation disclosure statement to and obtaining the approval of the director.

3.14.18.a. 3-14-24-a- In connection with any such request, the permittee must shall file with the director an amended background investigation disclosure statement containing the necessary information about the person, including any evidence the permittee wishes to bring forth demonstrating the person's rehabilitation.

3.14.18.b. 3-14-24-b- The director may shall consider whether the person has affirmatively demonstrated rehabilitation, and may shall consider the factors set forth in determining whether to grant permission to the permittee to employ the person individual or allow him or her to acquire an interest in the permit.

3.14.18.c. 3-14-24-c- Any permittee that violates the provisions of section 3.14 of this rule 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.

3.14.18.d. 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 regulation, or rule, or persons convicted of any crime which involved the violation of such statutes or or regulations, or rules, the ~~a~~ director will not consider such person rehabilitated unless that person he has made all reasonable efforts to clean up or mitigate any environmental damage caused by the activities for which he or she 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. WV Code §§20-5, 20-5A, and 20-5F, 22-1, 22-11, 22-12 and 22-15 and all regulations any rules promulgated thereunder. For the purposes of section 3.15 of these regulations this rule only, the requirements in 46 C.S.R. CSR 2, as amended, are hereby incorporated by reference. For landfills a single document permit must will be issued pursuant to section 3.5.2 of these regulations this rule.

3.16. Specific Application and Permitting Requirements.

3.16.1. Requirements for Landfills. The applicant must submit all information required under ~~section 3 of~~ by these regulations this rule, as applicable, in order for an application to constitute a completed an administratively complete application.

3.16.2. Requirements for Incinerators.

3.16.2.a. General Requirements. The applicant must submit the following information to the ~~chief~~ director in order to obtain a permit for a resource recovery, industrial, or municipal solid waste incinerator facility: Provided: That the installation, establishment or construction of a new municipal or commercial solid waste facility utilizing incineration technology for the purpose of solid waste incineration is prohibited, per Chapter 22, Article 15, Section 19 of the Code of WV, with the single exception of pilot projects.

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 this rule;

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 wastes streams, alternative 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 Division of Environmental Protection, Office of Air Quality Pollution Control Commission; and

3.16.2.b.B. A solid waste permit for solid waste storage areas and support facilities from the West Virginia Division of Environmental Protection 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 this rule, 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 this rule. However, such an incinerator must be designed and operated to meet the performance standards of section 5 of these regulations this rule and with all appropriate regulations or rules of the West Virginia Air Pollution Control Commission Office of Air Quality.

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

3.16.3. Requirements for Transfer Stations.

3.16.3.a. General Requirements. The applicant must submit the following information to the chief director 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, and sections 3.7.15, 3.7.16, 3.8.1, 3.8.9, 3.9, 3.13, 3.14, and 3.15 of these regulations this rule;

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 must 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 and receiving 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 must contain designs, cross-sections, and specifications for access roads, including load limits, in accordance with section 4.5.6 of ~~these regulations~~ this rule.

3.16.3.d. Stormwater, Soil Erosion, and Sedimentation Control Plan. An application to conduct transfer station activities shall must include a plan to manage surface storm water and ~~control~~ soil erosion and sedimentation control during the various phases of construction and operation on the permit area. Calculations indicating water quantities shall must be based on the 25-year, 24-hour storm ~~rainfall~~ event. The plan shall must 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 must be included in the plan.

3.16.3.e Groundwater Monitoring Plan. If required by the chief director, the applicant ~~shall~~ must 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 director, the applicant ~~shall~~ must 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~~ must 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~~ must provide for the routine assessment of vector infestation and ~~shall~~ must 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~~ must contain a plan to control litter.

3.16.3.i. Contingency Plan. An application to conduct transfer station activities ~~shall~~ must 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. Recycling facilities whose only function is to accept at no charge, buy or transfer source separated recyclable material for reuse, resale or transfer for further processing are exempt from this rule. All other recycling facilities shall must provide notice and obtain a permit in accordance with the provisions of section 3.16.4 of these regulations this rule. Provided, That mixed waste recovery facilities, sludge processing facilities, and composting facilities are not considered recycling facilities nor considered to be reusing or recycling solid waste within the meaning of §22-15-2 "Recycling facility".

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

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

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 this rule must ~~shall~~ notify the chief director of its existence within ninety (90) days of the effective date of these regulations this rule.

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 this rule must notify the chief director 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 this rule shall must be made to the chief director on forms and in the manner prescribed by the director.

3.16.4.c. Recycling Facility Permitting Requirements. (Reserved)
Except as provided under section 3.16.4.d of this rule, all persons owning or operating a recycling facility must:

3.16.4.c.A. Comply with the applicable prohibitions and location standards listed under section 3.1 of this rule;

3.16.4.c.B. Provide rapidly growing trees, shrubbery, fencing, berms, or other appropriate means at the facility to provide a wind break, screening from the surrounding area and to function as a barrier to discourage unauthorized access;

3.16.4.c.C. Post a sign in conformance with section 4.6.1.a.M of this rule;

3.16.4.c.D. Construct and maintain adequate shelter and sanitary facilities for all personnel;

3.16.4.c.E. Construct and maintain adequate drainage systems to prevent free-standing storm water;

3.16.4.c.F. Ensure that all leachate, waste water, and storm water is collected, treated and/or discharged in a manner that does not violate the water quality standards established under §22-11 or the regulations and rules promulgated thereunder;

3.16.4.c.G. All operations must be conducted within enclosed structure(s);

3.16.4.c.H. Receiving or storing of any hazardous waste material at a recycling facility is strictly prohibited;

3.16.4.c.I. Storage of recyclable materials outside of the enclosed structure must only be materials in bundles, bins or containers; or materials prepared for transportation;

3.16.4.c.J. All materials not used in the recycling process must be properly disposed of;

3.16.4.c.K. No material may be stored for more than sixty (60) days without written approval by the director;

3.16.4.c.L. All materials received by the facility must be accurately weighed or otherwise measured in accordance with the provisions of Title 110, Series 6A, sections 4.2 and 4.3 of the CSR.

3.16.4.d. Other Recycling Exemptions Requirements The following recycling activities are not required to obtain a solid waste permit pursuant to this rule:

3.16.4.d.A. Nonprofit organizations accepting source-separated materials; and

3.16.4.d.B. Returnable container redemption centers operated by a dealer or distributor.

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

3.16.4.f. Other Recycling Requirements. (Reserved)

3.16.5. Requirements for Construction/Demolition Landfills.

3.16.5.a. General Requirements. All construction/demolition landfills shall must apply for and receive approval from the chief director prior to operation unless otherwise specified by section 3.16.5 of these regulations this rule. Notwithstanding the provisions of section 3.16.5 of these regulations this rule, a Class D solid waste facility which qualifies as a commercial solid waste facility pursuant to W. Va. WV Code §20-5F shall be 22-15 is required to meet all appropriate landfill requirements specified by these regulations this rule.

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 this rule. A landowner using construction/demolition waste material to improve the grade of the 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 natural 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 must 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 this rule, an applicant for a Class D-1 solid waste facility permit shall must meet all of the requirements in section 3 of these regulations this rule.

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

3.16.5.c.A.(b) A minimum of one (1) downgradient monitoring well shall must 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 must will be drilled. If the permit area is greater than ten (10) acres, a minimum of three (3) monitoring wells must 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 this rule.

3.16.5.c.A.(d) Upon written request, the chief director may exempt a Class D-1 solid waste facility from compliance with a specific requirement in section 3 of these regulations this rule that the director 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 director 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 director may require any person authorized by a general permit to apply for an individual permit. Any interested person may petition the director 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 of 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 applicant 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 director shall must 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 director decides to prepare a draft permit, a draft permit shall must be prepared that contains the following information:

3.17.2.a. All conditions required under section 3 and other applicable sections of this rule. 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 and/or 5 of these regulations this rule.

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

3.17.4. The fact sheet shall must 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 must include, but not be limited to, the characteristics of the waste materials and the potential effects upon 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, Reissuance, Suspension, and Revocation.

3.18.1. Actions by the Chief Director.

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

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 director 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 director tentatively decides to modify a permit, ~~he the director~~ will prepare a modified draft permit and will follow the public notice procedures in section 3.21 of ~~these regulations~~ this rule. The chief director 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 director at any time except for major modifications as listed in section 3.18.2.b of these regulations this rule. 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 director for a permittee proposing to increase the volume of solid waste accepted at the ~~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 this rule unless an emergency is declared by the director.

3.18.2.b.A. The areal limits capacity of the waste disposal unit will be increased over the permitted disposal area 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 or the final cover (cap) will be decreased;

3.18.2.b.C. The efficiency or performance of the leachate management system will be decreased 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 negatively 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 permitted disposal area 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 permittee 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. A significant change in the WV Code "Solid Waste Management Act", this rule or the counterpart federal regulations that results in a similar modification, as determined by the director.

3.18.2.b.O. Other similar modifications as determined by the chief director.

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, this rule 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 the director's 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 this rule 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 this rule, permit terms and conditions, or orders issued by the chief or the director under the Act or these regulations this rule;

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 this rule 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 must 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 must cease immediately upon receipt of an order of revocation. The solid waste facility owner shall must 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 must 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. Transfer Requirements A permit issued by the chief director in accordance with the provisions of these regulations this rule may be transferred to another person. The person seeking to succeed to the rights granted by the permit shall must:

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

3.19.1.b. Provide performance bond coverage at least equal to that of the original permit in accordance with section 3.13 of these regulations this rule. It shall must 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 this rule; and

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

3.19.2. Denial of Transfer. The chief director 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 must be made in writing giving reasons therefor.

3.19.3. Operator Assignment. 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 must complete background investigation disclosure statement(s) as required under section 3.14 of these regulations this rule.

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 must be on forms prescribed by the director and shall must 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 complete; 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 this rule.

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

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~~ will be treated as a major modification pursuant to section 3.18.2.b of these regulations this rule in addition to the requirements of section 3.20 of these regulations this rule.

3.21. Public Notice.

3.21.1. Scope.

3.21.1.a. Public notice ~~shall~~ must 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 this rule.

3.21.2. Timing.

3.21.2.a. Public notice of the preparation of a draft permit ~~shall~~ must 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~~ director 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~~ must 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 this rule may be combined with that notice required under W. Va. WV Code §20-5A 22-11.

3.21.3. Methods. Public notice ~~shall~~ must 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 division.

3.21.3.b. By the ~~chief~~ chief director publishing the public notice as a class II legal advertisement in a qualified newspaper, as defined in WV W. Va. Code §59-3-1, serving the county, or counties where the facility will be located. The ~~chief~~ chief director may also require that legal advertisement be placed in newspapers of adjacent counties. The cost of the publication will be borne by the applicant who must send a certification of publication to the Department 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. Public Notice Contents. All public notices issued under section 3.21 of these regulations this rule ~~shall~~ must 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 this rule 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 the 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 shown ~~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 class of the 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. Other Public Notice Information. In addition to the contents required under section 3.21.4.a of ~~these regulations~~ this rule, public notices for hearings ~~shall~~ must 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~~ this rule, 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~~ must be in writing and ~~shall~~ must state the nature of the issues proposed to be raised in the hearing. All comments ~~shall~~ must be considered in making the final decision and ~~shall~~ must be answered as provided in section 3.25 of ~~these regulations~~ this rule.

3.23. Public Hearings.

3.23.1. The ~~chief director~~ shall will hold a public hearing in the vicinity of the proposed facility whenever ~~he~~ the director finds, on the basis of requests, a significant degree of public interest on issues relevant to the draft permit. The ~~chief director~~ also may hold a public hearing at his or her 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 will~~ automatically be extended to ten (10) days after the close of any public hearings under section 3.23 of these regulations this rule.

3.23.3. A tape recording or written transcript of the hearing ~~shall~~ will 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~~ director determines to revise any condition of the permit that had been sent to initial public notice, the ~~chief shall~~ director must 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~~ will be limited to the substantial new questions that caused its reopening. The public notice ~~shall~~ must 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~~ must maintain a public participation file. The file ~~shall~~ must 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~~ must clearly address each point in each comment letter including any actions taken by the applicant to address the comment. The response letters ~~shall~~ must be sent by certified mail and the signed return receipts ~~shall~~ must also be included in the public participation file. The complete public participation file ~~shall~~ must be submitted to the ~~chief~~ director by the applicant, within thirty (30) days of the end of the public comment period designed in the public notice. The ~~chief~~ director 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 WV 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~~ director must issue a final permit decision. The ~~chief shall~~ director must provide written notification of the ~~his~~ decision to the applicant and to each person requesting notice of the final permit decision. For the purposes of section 3.27 of these regulations this rule, a "final permit decision" means the final decision of the ~~chief~~ director to issue, deny, modify, suspend, revoke, and reissue, or terminate a permit.

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

3.27.3. A final permit decision ~~shall~~ becomes 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~~ director.

3.28. Permit Review by the Director.

3.28.1. The director may refuse to grant a permit in accordance with the provisions of WV Code ~~§20-5F-4(e)~~ 22-15-5(c). Written notification of such a refusal, and the reasons therefor, ~~shall~~ will 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~~ will determine whether such application, schedule, or plan is complete (i.e., in proper order for technical review to commence) and ~~shall~~ will notify the applicant of ~~the his~~ determination in writing. If the director determines that such application, schedule, or plan is not complete, the notification ~~shall~~ will advise the applicant of the deficiencies that require remedy.

3.29. Appeals. Appeal of permit decisions ~~shall~~ must be conducted in accordance with the provisions of WV Code ~~§20-5F-7~~ 22-15-16.

§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~~ this rule must be conducted in accordance with the provisions of WV Code ~~§20-5F~~ 22-15-1 et seq.

4.2. Solid Waste Assessment Fees. Permittees are required under the provisions of WV ~~W. Va.~~ Code ~~§20-5F-5a~~ 22-15-11 and ~~110 E-S-R~~ CSR 6A of the W. Va. Department of Tax and Revenue to pay solid waste assessment fees.

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

4.3.1. Qualifications. 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 an "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. Applicability. Individuals in responsible charge of existing or 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. Instruction Course Criteria. An approved course of instruction must 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 or university program.

4.3.4. Certificate Requirement. 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.

258.29(a)

4.4. Operations Manual Operating Record. Every facility must develop and maintain, on site, or at an alternative location approved by the director an operations manual operating record that contains the information listed in this section as it becomes available. Existing facilities must develop such a manual record within ninety (90) days of the effective date of these regulations this rule, unless granted a written extension of preparation time by the chief director. New facilities must have a record must in place on the first day of business operations. The record must manual shall include a table of contents which outlines, by section title and page number, the discussion required by these regulations this rule.

4.4.1. General Information. The Operations Manual must identify the following items The items listed in this section may be waived if those items are included in the facility permit, renewals, modifications and other similar permit documents or application thereto, provided that the permit and/or application must be kept in the operating record file including:

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 Division.

4.4.2. Monitoring. The manual record 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. this rule, including:

4.4.3. Operations. The manual record 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. Recordkeeping and reporting requirements as follows:

258.29(a) and 258.29(b)

The permittee must record, retain and maintain copies of the documents listed in this section in the facility operating record, and all information contained in the operating record must be furnished upon request to the director or be made available at all reasonable times for inspection by the director. Those documents include, but are not limited to the following:

258.29(a)(1)

4.4.3.o.A.(a) Any location standard demonstrations required by sections 3.1 and 3.2 of this rule;

258.29(a)(2)

4.4.3.o.A.(b) A listing of any inspection records, training procedures, and notification procedures required by section 4.6.1.f of this rule;

258.29(a)(3)

4.4.3.o.A.(c) Gas Monitoring results from monitoring and any remediation plans developed in accordance with section 4.10 of this rule;

258.29(a)(4)

4.4.3.o.A.(d) Design documentation for the placement of leachate or gas condensate in the SWLF as required by section 4.13.3 of this rule;

258.29(a)(5)

4.4.3.o.A.(e) Any demonstration, certification, finding, monitoring, testing, or analytical data required by section 4.11 of this rule;

258.29(a)(6)

4.4.3.o.A.(f) Any closure and post-closure care plans and any monitoring, testing or analytical data as required by sections 4.11 and/or 6 of this rule.

258.29(a)(7)

4.4.3.o.A.(g) Any cost estimates and financial assurance documentation required by sections 3.7.10 and 3.13 of this rule,

4.4.3.o.A.(h) Any other demonstration, certification, finding, monitoring, testing, or analytical data required by this rule;

258.29(c)

4.4.3.o.B. Alternative Recordkeeping.

258.29(c)

4.4.3.o.B.(a) The director can set alternative schedules for recordkeeping and notification requirements as specified in sections 4.4.3 and 4.4.5.e, except for the notification requirements in sections 3.2.7.b and 4.11.3.q.A.

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 post-closure care and other similar design features.

4.4.5. Appendix. An appendix ~~shall~~ must 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 post-closure 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 must ~~shall~~ be at least equal to the capacity of the unmodified stream channel immediately upstream and downstream of ~~for~~ the diversion.

4.5.2.a.A.(b) The temporary and permanent channel diversions must ~~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 storm ~~rainfall~~ event for a temporary channel diversion and a 100-year, 24-hour storm ~~rainfall~~ event for a permanent channel diversion.

4.5.2.a.B. Removal of Temporary Diversions. Temporary channel diversions ~~shall~~ must 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~~ must 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.

258.26(a)

4.5.2.b.A.(a) Permittees of all SWLFs must design, construct, operate, and maintain:

258.26(a)(1)

4.5.2.b.A.(b) A run-on control system capable of preventing flow onto any part of the disposal area including the active portion of the SWLF during peak discharge from at least a 25-year, 24-hour storm.

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

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

4.5.2.b.C.(a) A "Diversion Design Computation Sheet" must ~~be~~ be completed for each proposed diversion;

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

4.5.2.b.C.(b)(A) A surveyed profile based upon survey 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 must be sampled and classified at intervals of five hundred (500) feet or a demonstration of erosion potential based on existing soils information shall must 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 must be constructed in appropriate locations in order to control sedimentation. All runoff from the disturbed area shall must pass through a sedimentation pond or ponds ~~(e.g., an earthen embankment, excavated ponds, gabions, and cribs)~~. All sediment control structures must be designed, constructed, and maintained in accordance with the specifications contained in contents of the U.S. Soil Conservation Service's "Erosion and Sediment Control Handbook for Developing Areas in West Virginia" unless the chief director approves the use of an equivalent handbook of guidance, or as otherwise specified in this rule.

4.5.2.c.A. Design and Construction Requirements.

4.5.2.c.A.(a) All sediment control structures shall must be designed, 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 must be indicated on "as-built" plans showing the approved design, the changes made, and surveyed reference points. All "as-built" plans shall must be submitted to the chief director.

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

4.5.2.c.A.(c) Failure of the sediment control structure must not result in (1) loss of human life, (2) damages to homes, commercial or industrial buildings, (3) main highways or railroads, (4) interruption of the service of public utilities, or (5) damage to existing water impoundments.

4.5.2.c.A.(d) The sediment control structure must conform to all federal, state and local laws, rules and regulations pertaining to the storage of water.

4.5.2.c.A.(e) 4.5.2.c.A.(e) All sediment control structures shall must have the a sediment capacity to store of 0.125 acre-feet of sediment for each acre of disturbed area in the structure's watershed. In addition to the sediment capacity, the sediment control structure must have the detention capacity to store a 2-year, 24-hour frequency storm. The water stored from this storm must be released through a

nonclogging dewatering device that allows the stored volume of water to be evacuated within a 7-day to 8-day period. The elevation of the nonclogging dewatering device must not be lower than the maximum elevation of the designed sediment storage volume, and also satisfy the storm water provisions of the Federal Clean Water Act, as reflected in §22-11 of the Code of WV and any rules promulgated thereunder.

4.5.2.c.A.(f) 4-5-2-c-A-(d) All discharges from sediment control structures shall must not cause a violation of state and federal water quality standards and shall must meet all effluent limitations as reflected in §22-11 of the Code of WV and any rules promulgated thereunder.

4.5.2.c.A.(g) 4-5-2-c-A-(e) All sediment control structures shall must be designed, constructed, and maintained to prevent shortcircuiting.

4.5.2.c.A.(h) 4-5-2-c-A-(f) All sediment control structures shall must be cleaned out when the sediment accumulation reaches sixty percent (60%) of the this design sediment capacity. The e clean-out elevation shall must be indicated on the plans submitted for the structure. Sediment removal and disposal shall must be done in a manner that minimizes adverse effects on surface water and groundwater quality.

4.5.2.c.A.(i) 4-5-2-c-A-(g) All sediment control structures must shall be designed, constructed, and maintained to meet the following safety standards:

4.5.2.c.A.(i)(A) 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. Earthen materials used in the construction shall must be free of trees, roots, brush, frozen soil, organic materials, coal processing materials waste, construction waste, and other debris. All earthen materials must be properly compacted to prevent excessive settlement.

4.5.2.c.A.(i)(B) 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 storm 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. There must be no outflow through the emergency spillway during the passage of a 10-year, 24-hour frequency storm through the sediment control structure. All spillways must discharge an adequate distance beyond the downstream toe of the structure to in a natural drainway to prevent erosion of the downstream toe.

4.5.2.c.A.(i)(C) The contributing drainage area(s) for a sediment control structure must not exceed 200 acres.

4.5.2.c.A.(i)(D) The minimum diameter of the principal spillway and the discharge conduit must be twelve (12) inches.

4.5.2.c.A.(i)(E) 4-5-2-c-A-(g)-(6) A minimum difference in elevation of one and one-half (1.5) feet between the top of the principal spillway and the bottom of the invert of the emergency spillways must be provided. A minimum difference in elevation of one (1) foot of freeboard 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.(i)(F) The vertical distance between the lowest point along the centerline of the sediment control structure and the top (crest) of the sediment control structure must not exceed twenty-five (25) feet.

4.5.2.c.A.(i)(G) Appropriate barriers must be provided to control seepage along the conduits that extend through the embankment.

4.5.2.c.A.(i)(H) All inspection reports and engineering certifications must be provided to the director

4.5.2.c.A.(i)(I) The sediment control structure must possess a minimum embankment width of ten (10) feet.

4.5.2.A.(i)(J) The embankment must be designed and constructed with a minimum static safety factor of 1.5.

4.5.2.c.A.(i)(K) 4-5-2-c-A-(g)-(B) Stabilization and revegetation of the embankment must be provided. The embankment must be stabilized and revegetated upon construction.

4.5.2.c.A.(j) 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 must be constructed, inspected, and closed in accordance with section 6 of these regulations this rule. 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.

22-14(g)

4.5.2.c.A.(k) 4.5.2.c.A.(i) Any sediment control structure that is an artificial barrier or obstruction, including any works appurtenant to it and any reservoir created by it, which is or will be placed, constructed, enlarged, altered or repaired so that does or will impound or divert water and; that

4.5.2.c.A.(k)(A) ± Is or will be twenty-five (25) feet or more in height from the natural bed of the 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

4.5.2.c.A.(k)(B) that ± Is or will be six (6) feet or more in height from the natural bed of the 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; or is, by definition, a "dam" as defined in WV Code §22-14 is subject to regulation under the provisions of WV W. Va. Code, §22-14-1 et seq. 20-50.

4.5.2.c.A.(1) 4.5.2.c.A.(j) Discharge Structures. Discharge from temporary or permanent sediment control structures, diversions, or stream channel diversions shall must be controlled by energy dissipaters, riprap channels or other devices approved by the chief director to reduce erosion, to prevent deepening or enlargement of stream channels, and to minimize disturbance of the hydrologic balance. Discharge structures shall must 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 must follow the abandonment procedures outlined in section 4.5.2.c.B.(b) of these regulations this rule.

4.5.2.c.B.(b) Embankment-Type Sediment Control Structures Dams; Embankment-Type Excavated Sediment Control Structures Dams; Crib and Gabion Control Structures. Sediment control structures dams and all accumulated sediment above the structure must dam shall be removed from the natural drainway if they are built across it. Sediment control structures Dams adjacent to natural drainways shall must be abandoned by diverting the entrance channel to the natural drainways providing that vegetation has been established on-site, thus preventing any future surface runoff from entering the abandoned sediment control structure impoundment. When sediment control structures dams are removed, the natural drainway shall must be returned to its original profile and cross-section as near as practical. An original

profile and cross-section view for the channel ~~shall~~ must be submitted with the drainage plan. The channel sides and bottom ~~shall~~ must be rock riprap. The riprap ~~shall~~ must 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 of the sediment control structure 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~~ must be seeded and mulched immediately to revegetate and stabilize the disturbed areas.

258.26(a)(2)

4.5.2.d. Run-off Control System.

258.26(a)(2)(Part 1)

4.5.2.d.A. All permittees must design, construct, operate, and maintain a run-off control system capable of flow collections and controlling from any portion of the landfill to collect and control at least the water volume resulting from a 24-hour, 25-year storm.

258.26(b)

4.5.2.d.B. Run-off from all portions of the landfill, including the active portion must be handled in accordance with Chapter 22, Article 15 of the Code of WV.

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~~ must 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 based upon survey 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 materials, 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 this rule.

4.5.3.a.E.(a) All grades referred to in section 4.5.3.b of these regulations this rule shall must be subject to a tolerance of two percent (2%). All linear measurements referred to in section 4.5.3.b of these regulations this rule shall must be measured from the horizontal and shall must 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 of the West Virginia Department Division of Highways.

4.5.3.b. Access Road Construction.

4.5.3.b.A. Grades. The grading of an access road shall must be such that:

4.5.3.b.A.(a) The overall grade shall must not exceed ten percent (10%).

4.5.3.b.A.(b) The maximum pitch grade shall must 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 must pitch toward the ditchline at a 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 must be reduced to less than the approach grade and must ~~should~~ not be greater than ten percent (10%);

4.5.3.b.C. Cut Slopes. Cut slopes must ~~should~~ not be steeper than 1:1 in soils or 1:4 in rock.

4.5.3.b.D. Drainage Ditches. A ditch shall must be provided on both sides of a throughout and on the inside shoulder of a cutfill section, with ditch relief culverts being spaced according to grade. Water shall must be intercepted or directed around and away from a switchback. All ditchlines shall must be capable of passing the peak discharge of a 10-year, 24-hour storm ~~rainfall~~ event. Where superelevation 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 must be installed wherever necessary to ~~insure~~ ensure proper drainage of surface water beneath or through the access road.

4.5.3.b.E.(a) Culverts shall must 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 must be three hundred to eight hundred (300 to 800) feet;

4.5.3.b.E.(a)(B) For a road grade of five ~~six~~ to ten percent (5 ~~6~~ to 10%), the spacing shall must be two hundred to three hundred (200 to 300) feet; and

4.5.3.b.E.(a)(C) For a road grade of ten ~~eleven~~ to fifteen percent (10 ~~11~~ to 15%), the spacing shall must be one hundred to two hundred (100 to 200) feet.

4.5.3.b.E.(b) Culverts shall must 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 the conveyance of intermittent or perennial streams where the pipe shall must be straight and coincide with the normal flow.

4.5.3.b.E.(c) The inlet end of each culvert shall must be protected by a headwall of stable material as approved by the chief director and the slope at the outlet end shall must be protected with an apron of rock riprap, energy dissipater, or other material approved by the chief director.

4.5.3.b.E.(d) Culverts shall must be covered by compacted fill to a minimum depth of one (1) foot or one-half (1/2) of the culvert inside diameter, whichever is greater.

4.5.3.b.E.(e) Alternative culvert designs may be submitted to the chief director for approval in cases where the design criteria in section 4.5.3.b.E of these regulations this rule is deemed to be impractical.

4.5.3.b.F. Culvert Openings. Culvert openings installed on an access road shall must not be less than one hundred (100) square inches in area, but, in any event, all culvert openings shall must be of adequate capacity to carry the storm runoff of a peak discharge capacity of a 1-year, 24-hour storm rainfall event from the contributing watershed and shall must 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 must be used to cross intermittent or perennial streams. Consideration shall must 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 may the sediment load of the stream be significantly increased or the water quality be significantly decreased during the construction period. Water control structures shall must be designed with a discharge capacity capable of passing the peak runoff of for a 10-year, 24-hour storm rainfall event from the contributing watersheds. If approved by the chief director, the capacity of the water control structure itself can be at least equal to or greater than the stream channel discharge capacity immediately upstream and downstream of the crossing provided the structure can pass at least a 1-year, 24-hour storm 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~~ and the storm water provisions of the Federal Clean Water Act, as reflected in 22-11 of the Code of WV and any rules promulgated thereunder. A lesser value as may be approved by the chief director. Temporary erosion and sedimentation control measures shall must be implemented during construction until permanent sedimentation control can be established.

4.5.3.b.I. Revegetation Seeding of Slopes. All disturbed area including fill and cut slopes, ~~shall must~~ be revegetated by the use of seeded and mulched immediately, unless approved by the director, after the construction of an access road and that revegetation must be maintained thereafter as necessary to control or prevent erosion.

4.5.3.b.J. Surfacing. An access road ~~shall must~~ not be surfaced with any acid-producing or toxic materials 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 must~~ not be removed until reclamation is completed and approved by the chief director. 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 this rule shall may be waived by the chief director if it can be demonstrated that reconstruction to meet the requirements of section 4.5.3 of these regulations this rule 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 this rule 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 director 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 this rule.

4.5.3.f. Dust Control. All reasonable means ~~shall must~~ be employed to control dust from the surface of access roads, including those statutes, rules and regulations of the WV Office of Air Quality.

4.5.3.g. Abandonment of Access Roads. Access roads ~~shall must~~ be abandoned in accordance with the following:

4.5.3.g.A. Every effort ~~shall must~~ 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 must~~ 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 must~~ be three hundred to eight hundred (300 to 800) feet;

4.5.3.g.A.(b) For a grade of five ~~six~~ to ten percent (5% to 10%), the spacing shall must be two hundred to three hundred (200 to 300) feet; and

4.5.3.g.A.(c) For a grade of ten ~~eleven~~ to fifteen percent (10 ~~eleven~~ to 15%), the spacing shall must be one hundred to two hundred (100 to 200) feet.

4.5.3.g.B. The land covered by an access road shall must be revegetated by the use of seeded and mulched immediately, unless approved by the director, after the abandonment of the road in accordance with section 4.5.6 of these regulations this rule.

4.5.4. Liners.

4.5.4.a. Liner System Requirements. A person who receives a permit for a landfill after November 4, 1988 the effective date of this rule -- including a permit that results in an expansion of a currently permitted landfill -- shall must design, construct, operate, and maintain a liner system at that landfill. Nothing within these regulations this rule may shall be construed to allow the installations of any liner or system ~~(s)~~ on areas not lined as of the effective date of this rule November 30, 1989, that is not in conformance with section 4.5.4.a.CE or 4.5.4.a.E ~~6~~ of these regulations this rule. Landfills that do have an Article 56 ~~15~~ permit and a liner installed as of that date may November 30, 1989 install a liner as approved by the chief director. "Nothing within section 4.5.4.a.B 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. WV Code §20-5F-5 22-15-10 may remain in operation until November 30, 1991 -- at which time such landfill shall be closed after the date of this rule, provided that -- the facility is in conformance with its permit and these regulations this rule, and 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 this rule;

4.5.4.a.A.(b) A groundwater monitoring program in conformance with the requirements of section 4.11 of these regulations this rule;

4.5.4.a.A.(c) An effective leachate treatment capability;
and

4.5.4.a.A.(d) Sediment run-off control.

258.40(a)(1)(Part 1)

4.5.4.a.B. All new SWLFs and lateral expansions landfill that meets all of the requirements enumerated in sections 4.5.4.a.A and 4.5.4.a.B of this rule, 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, provided that: the liner must meet the following criteria:

258.40(a)(1)(Part 1)

4.5.4.a.B.(a) The liner must be constructed, installed and maintained in accordance with a design approved by the director.

258.40(a)(1)(Part 2)

4.5.4.a.B.(b) The design must ensure that the concentration values listed in Appendix III to this rule will not be exceeded in the uppermost aquifer at the relevant point of compliance, as specified by the director under section 4.5.4.a.G, or;

258.40(a)(2)

4.5.4.a.B.(c) With a composite liner, as defined in section 2 and a leachate collection system that is designed and constructed to maintain less than a 30-cm depth of leachate over the liner.

4.5.4.a.B. 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.B. 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.C. 4.5.4.a.B. A liner system shall must consist of the following elements:

4.5.4.a.C.(a) 4.5.4.a.B.(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.C.(b) 4.5.4.a.B.(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.C.(c) 4.5.4.a.B.(c) Composite liner, which consists of two (2) components; the compacted clay component topped with the synthetic liner; and

4.5.4.a.C.(d) 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.D. 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 this rule, which are in compliance with the former solid waste guidelines of the Department may petition the director to allow use of an alternative alternate liner system, if:

4.5.4.a.D.(a) 4-5-4-a-F(a) A demonstration is made to the director that an alternative 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 this rule. The demonstration must include a series of groundwater monitoring well sampling analyses as well as and also the direction-of-migration and rate-of-flow studies showing that there are no existing or potential groundwater pollution problems; and

4.5.4.a.D.(b) 4-5-4-a-F(b) A bond or other applicable means of financial assurance is posted in compliance with sections 3.7.10 and 3.13. 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.E. 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 alternative alternate liner system Upon a demonstration to the director that the alternative alternate system will be equally or more protective of the groundwater resources than the liner system described in section 4.5.4-a-E of these regulations this rule.

258.40(c)

4.5.4.a.F. Alternative Liner Design. Any permittee who wishes to utilize an alternative liner design must submit a design to the director that complies with section 4.5.4 of this rule, and must address the following factors:

258.40(c)(1)

4.5.4.a.F.(a) The hydrogeologic characteristics of the facility and surrounding land;

258.40(c)(2)

4.5.4.a.F.(b) The climatic factors of the area; and

258.40(c)(3)

4.5.4.a.F.(c) The volume and physical and chemical characteristics of the leachate.

258.40(d)

4.5.4.a.G. Relative Point of Compliance.

258.40(d)(Part 1)

4.5.4.a.G.(a) The relevant point of compliance specified by the director must be no more than 150 meters (492 feet) from the waste

management unit boundary and must be located on land owned by the owner of the SWLF.

258.40(d)(Part 2)

4.5.4.a.G.(b) In determining the relevant point of compliance, the director must consider at least the following factors:

258.40(d)(1)

4.5.4.a.G.(b)(A) The hydrogeologic characteristics of the facility and surrounding land;

258.40(d)(2)

4.5.4.a.G.(b)(B) The volume and physical and chemical characteristics of the leachate;

258.40(d)(3)

4.5.4.a.G.(b)(C) The quantity, quality, and direction, of flow of groundwater;

258.40(d)(4)

4.5.4.a.G.(b)(D) The proximity and withdrawal rate of the groundwater users;

258.40(d)(5)

4.5.4.a.G.(b)(E) The availability of alternative drinking water supplies;

258.40(d)(6)

4.5.4.a.G.(b)(F) The existing quality of the groundwater, including other sources of contamination and their cumulative impacts on the groundwater and whether groundwater is currently, or reasonably expected to be used, for drinking water;

258.40(d)(7)

4.5.4.a.G.(b)(G) Public health, safety, and welfare effects; and

258.40(d)(8)

4.5.4.a.G.(b)(H) Practicable capability of the permittee.

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 metting shall indicate the presence of a ~~The location of the seasonal high groundwater table may be inferred by such indicators as soil metting, soil gleying and iron and manganese concentrations.~~

-----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 must 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 must be maintained between the bottom of the subbase of the liner system and bedrock unless otherwise approved by the chief director. If backfilled material is used, the nature of these materials is subject to approval by the chief director.

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 an additional adjacent liner. The edge shall must 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 must 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 must 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 must be clearly marked.

4.5.4.b.H. The operator shall must comply with additional requirements the chief director 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 must:

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 subbase subgrade construction certification and a Q.A./Q.C. report shall must be submitted to the chief director prior to the placement of any material over the subbase subgrade.

4.5.4.d. Liner System Leachate Detection Zone.

4.5.4.d.A. The leachate detection zone shall must:

4.5.4.d.A.(a) Create a flow zone between the subbase and the composite liner more permeable than 1×10^{-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, as follows:-

4.5.4.d.A.(e)(A) The slope, size, and spacing of the piping system shall must 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 must may not exceed one hundred (100) feet on center unless otherwise approved by the director;

4.5.4.d.A.(e)(C) The pipes shall must be installed nearly perpendicular to the slope with continuous positive slope;

4.5.4.d.A.(e)(D) The minimum diameter of the perforated pipe shall must be four (4) inches with a wall thickness of Schedule 40 or greater;

4.5.4.d.A.(e)(E) The pipe shall must be capable of supporting anticipated loads without failure based upon facility design;

4.5.4.d.A.(e)(F) Rounded stones or aggregates shall must be placed around all portions of the pipes of the piping system. The stones or aggregates shall must be sized to prevent clogging of the pipes and damage to the subbase subgrade and the composite liner;

4.5.4.d.A.(e)(G) The piping system shall must be installed in a fashion that facilitates cleanout, maintenance, and monitoring. Manholes or cleanout risers shall must be located along the perimeter of the leachate collection piping system. The number and spacing

of the manholes or cleanout risers ~~shall~~ must be sufficient to ~~insure~~ ensure 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~~ must 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~~ must be submitted to the ~~chief~~ director prior to the placement of the composite liner.

4.5.4.e. Liner System Composite Liner.

The composite liner must be comprised of the following components, unless otherwise approved in writing by the director:

4.5.4.e.A. The compacted clay component ~~shall~~ must:

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, and must also be free of debris, rock, plant materials, and other foreign materials;

4.5.4.e.A.(e) Be placed without damaging the subbase 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. The synthetic component shall must:

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 ~~portions~~ ~~locations~~, the number of field seams ~~must~~ should be minimized. No horizontal seam ~~may~~ 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, unless otherwise approved by the director 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 must be anchored by cutting a trench twelve (12) to sixteen (16) inches in depth, laying the liner across the soil perimeter 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 or other person approved in writing by the director with documented successful liner installation experience.

4.5.4.e.C. The certification ~~of~~ on the construction of the composite liner compacted clay component and a Q.A./Q.C. report ~~shall~~ must be submitted to the ~~chief~~ director prior to the placement of the composite liner synthetic component.

4.5.4.e.D. The composite liner synthetic component construction certification and the a Q.A./Q.C. report ~~shall~~ must be submitted to the ~~chief~~ director 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~~ must;

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 upon both 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 materials, rocks, or other solid materials 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~~ must also meet the following:

4.5.4.f.A.(g)(A) The slope, sizing and spacing of the piping system ~~shall~~ must ensure that liquids drain efficiently from the leachate collection zone;

4.5.4.f.A.(g)(B) The distance between pipes in the piping system must may not exceed one hundred (100) feet on center unless otherwise approved by the director;

4.5.4.f.A.(g)(C) The pipes ~~shall~~ must be installed nearly perpendicular to the slope with continuous positive slope;

4.5.4.f.A.(g)(D) The minimum diameter of the perforated pipe ~~shall~~ must be four (4) inches with a wall thickness of Schedule 40 or greater;

4.5.4.f.A.(g)(E) The pipe ~~shall~~ must be capable of supporting anticipated loads without failure based upon facility design;

4.5.4.f.A.(g)(F) Rounded stones or aggregates ~~shall~~ must be placed around all portions of the pipes of the piping system. The stones or aggregates ~~shall~~ must 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 must be installed in a fashion that facilitates cleanout, maintenance, and monitoring. Manholes and ~~or~~ cleanout risers shall must be located along the perimeter of the leachate detection piping system. The number and spacing of the manholes and ~~or~~ cleanout risers shall must be sufficient to ~~insure~~ ensure 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 must be cleaned and maintained as necessary; and

4.5.4.f.A.(g)(I) ~~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 the a Q.A./Q.C. report shall must be submitted to the ~~chief~~ director prior to the placement of solid waste.

4.5.4.g. Liner System Engineer Certification.

4.5.4.g.A. The liner system shall must be inspected during, and at the end of the construction by a registered professional engineer.

4.5.4.g.B. Upon completion of construction of each major element or stage of the liner system, including the subbase, leachate detection zone, composite liner, leachate collection zone, and protective cover (and prior to the deposition of waste), the engineer shall must certify to the ~~chief~~ director 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 must 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~~ this rule shall must be employed to ~~insure~~ ensure that the engineering design and performance standards are achieved.

4.5.5.a. The Q.A./Q.C. inspector shall will inspect those aspects of the subbase and subgrade preparation including, but not limited to, the following:

4.5.5.a.A. Subgrade Preparation

4.5.5.a.A.(a) ~~4.5.5.a.A.~~ Site preparation, including clearing, and grubbing;

4.5.5.a.A.(b) ~~4.5.5.a.B.~~ Excavation and contouring of the subgrade to required elevations;

4.5.5.a.B. Subbase Preparation

4.5.5.a.B.(a) ~~4.5.5.a.B.~~ Compaction of subgrade subbase to design density at proper moisture content to achieve required strength and stability to support the liner;

4.5.5.a.B.(b) ~~4.5.5.a.B.~~ Moisture content density and field strength tests performed as required;

4.5.5.a.B.(c) ~~4.5.5.a.B.~~ Compacted lift thickness;

4.5.5.a.B.(d) ~~4.5.5.a.B.~~ Compaction equipment, weight, speed, and number of passes;

4.5.5.a.B.(e) ~~4.5.5.a.B.~~ Method of moisture addition;

4.5.5.a.B.(f) ~~4.5.5.a.B.~~ Proof rolling of subbase subgrade; and

4.5.5.a.B.(g) ~~4.5.5.a.B.~~ Fine finishing of the subbase subgrade for acceptability of areas to be lined.

4.5.5.b. The Q.A./Q.C. inspector ~~shall~~ must inspect those aspects of the liner system including, but not limited to, the following:

4.5.5.b.A. Liner material to ~~insure~~ ensure that the materials being used meets specifications;

4.5.5.b.B. Liner material stockpiling, storage, and handling in a manner that ~~to~~ prevents damage;

4.5.5.b.C. Inspections of locations where inlet/outlet structures or penetration that penetrate through the liner to insure ensure the protection of, and the compatibility of those structures with respect to the liner system;

4.5.5.b.D. Final grades of the liner to ~~insure~~ ensure that they are within acceptable tolerance;

4.5.5.b.E. Final inspection of the liner for acceptability prior to placement of the protective cover material;

4.5.5.b.F. Installation of the compacted clay component of the liner with respect to the following:

4.5.5.b.F.(a) Compaction of the liner to design density at the proper moisture content to achieve the required hydraulic conductivity and the maintenance of the design strength and stability;

4.5.5.b.F.(b) Uniformity of compaction 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 and ~~or~~ welds;

4.5.5.b.G.(f) Cap strips are installed on all seams, as applicable;

4.5.5.b.G.(g) Qualitative and quantitative field seaming tests are performed as required for ~~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~~ must inspect those aspects of the leachate detection, and leachate 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 leachate detection and leachate collection and protective cover zones;

4.5.5.b.H.(d) Grain size analyses, relative density and ~~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 are within acceptable tolerance;

4.5.5.b.H.(g) Placement of stone or aggregate around all portions of the pipes in the piping systems;

4.5.5.b.H.(h) Proper implementation of actions to protect the piping system and the other components of the liner system from the loads and stresses due to the traffic of backfilling and other equipment; and

4.5.5.b.H.(i) Proper placement of the geotextile materials within filter cloth layers on the top of the leachate detection zone and within the leachate collection and protective cover zone.

4.5.5.b.I. Daily Q.A./Q.C. reports shall must be prepared by the Q.A./Q.C. inspectors and maintained in a bound log book which shall must 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 must be signed and dated by the inspector, and shall must be attached to the log book reports. Each daily ~~The~~ log book report shall must 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 prevalent during construction and installation including:

4.5.5.b.I.(b)(A) Temperature (daily high and low);

4.5.5.b.I.(b)(B) Barometric pressure (high and low);

4.5.5.b.I.(b)(C) Wind direction and maximum speed;

4.5.5.b.I.(b)(D) Time of each ~~last~~ precipitation event; and

4.5.5.b.I.(b)(E) Total amount of each precipitation event;

4.5.5.b.I.(c) Description and location of construction currently underway;

4.5.5.b.I.(d) A listing of all 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:

and ~~of~~ tests; 4.5.5.b.I.(i)(A) Acceptance or failure of inspections
unit performance; 4.5.5.b.I.(i)(B) Acceptance or failure of daily work
action taken; 4.5.5.b.I.(i)(C) Problems encountered and corrective
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 is required. Immediate revegetation by the use of seeding and mulching with ~~of~~ approved annuals and biennials on such areas shall must be approved ~~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 must be applied. Fertilizer rates based on soil analyses conducted by a qualified lab may be substituted for the minimum fertilizer rate.

4.5.6.b.B. Lime shall be is required where soil pH is less than 5.5. Lime rates shall must be such that a standard soil pH of 6.0 is ~~will~~ be achieved.

4.5.6.b.C. Mulch shall must be used on all disturbed areas. A list of approved materials and minimum application rates ~~to be applied~~ is available from the chief director.

4.5.6.c. Standards for Evaluating Vegetative Cover.

4.5.6.c.A. Final Revegetation Report. The report shall must be submitted to the chief director within sixty (60) days after the final cover or cap has been completed and contain the actual acreage planted including the application rates of soil amendments, including fertilizer, lime, mulch, and seeding mixture.

4.5.6.c.B. Time for Inspection. Prior to the spring and fall planting seasons, the operator shall must 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 more than sixty (60) days shall must be temporarily revegetated.

4.5.6.c.C. Standards for Perennials. Standards for legumes and perennial grasses shall are required to achieve at least a ninety percent (90%) ground cover. Substandard areas shall must not exceed one-quarter acre in size, nor total more than ten percent (10%) of the revegetated 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 director 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 all adjacent property lines. 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 all adjacent property lines;

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 must not be less than three percent (3%) nor more than twenty-five percent (25%) unless otherwise approved by the chief director as a part of the issued permit. Long slopes shall must 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 must 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 must have the following characteristics:

4.5.7.h.A. The container shall must be constructed to be easily handled for collection; and

4.5.7.h.B. The container shall must 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 must also have the following characteristics:

4.5.7.i.A. The container shall must be equipped with a tight fitting lid or cover, or otherwise sealed; and

4.5.7.i.B. The container shall must be watertight, leak proof, insect proof, and rodent proof; and

4.5.7.j. A permittee that stores waste outside of containers shall must 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 the effective date of this rule, 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 disposal area in accordance with the provisions of section 4.6.1 of these regulations this rule, unless the operator establishes, to the satisfaction of the chief director, 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;

258.21(a)

4.6.1.a.D. Putrescible materials such as spoiled foods and animal carcasses must be immediately compacted and covered by the use of daily cover and other means;

258.25

4.6.1.a.E. Permittees of all SWLFs Access to the facility must be restricted must control public access and prevent unauthorized vehicular traffic through the use of artificial barriers, including fencing, natural barriers, both, or other methods approved in writing by the chief director, as appropriate to protect human health and the environment;

258.20

4.6.1.a.F. Procedures for Excluding the Receipt of Regulated Hazardous Waste.

258.20(a)

4.6.1.a.F.(a) The application must contain an operator implemented program at the facility to detect and prevent attempts to dispose of hazardous wastes (regulated under subtitle C of RCRA and defined in Part 161 of Chapter 40 of the CFR) and polychlorinated biphenyls (PCB) wastes at the facility (regulated under the Toxic Substances Control Act, and as defined in Part 761 of Chapter 40, or as reflected in Chapter 22, Article 18).

258.20(a)

4.6.1.a.F.(b) Measures that solid waste facility operators must incorporate in their programs to exclude receipt of hazardous waste, include at a minimum:

258.20(a)(1)

4.6.1.a.F.(b)(A) 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 division authorities if a regulated hazardous waste is found at the facility unless the permittee takes other steps approved by the director in writing to ensure that incoming loads do not contain regulated hazardous wastes or PCB wastes;

258.20(a)(2)

4.6.1.a.F.(b)(B) Records of any inspections. All activities and information shall must be reported on a form prescribed by the chief director, and copies of these inspection records and all related information must be retained in the SWLF's operating record.

258.20(a)(3)

4.6.1.a.F.(b)(C) Training of facility personnel to recognize regulated hazardous waste and PCB wastes; these records must be maintained in the SWLFs operating record; and

258.20(a)(4)

4.6.1.a.F.(c) Procedures for providing written notification to the director as required under Subtitle C of RCRA, or applicable rules and regulations promulgated under Chapter 22, Article 18, if a regulated hazardous waste or PCB waste is discovered at the facility.

258.25

4.6.1.a.G. Effective means must be taken to limit and control public access and prevent illegal dumping of wastes at the active disposal area to minimize exposure of the public to hazards;

258.21 and 258.22

4.6.1.a.H. Effective means, including the use of daily cover, must be taken to prevent or control on-site populations of disease vectors, including flies, rodents, and other insects, and vermin and other organisms capable of directly or indirectly transmitting infectious diseases or

pathogenic organisms from one person to another, or from an animal to a person, using techniques appropriate for the protection of human health and the environment.

258.21(a)

4.6.1.a.I. Equipment must be provided, and daily cover material made available, to control accidental fires. Also, arrangements must have been made previously with the local fire protection agency to utilize their 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 director, must be posted at the entrance of any facility operated for public use which indicates the facility name, permit number, the hours that solid waste is received, 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 must be posted and maintained for the duration of the active life of the SWLF 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 must 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 director must be taken to control dust resulting from facility operation;

258.20(a)

4.6.1.a.P. Scavenging within Daily cover must be applied to the active disposal area to is prohibit the act of scavenging;

4.6.1.a.Q. All burning is prohibited in accordance with statutes, rules and regulations of the West Virginia Office of Air Quality Pollution Control Commission;

258.24(b)

4.6.1.a.Q.(a) All open burning of solid waste, except for the infrequent burning of land clearing debris, diseased trees, or debris from emergency clean-up operations, except as approved by the Office of Air Quality is prohibited at all SWLFs.

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 must 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 must 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 must be placed for disposal only at designated working faces. Working face width shall must be minimized and shall must not exceed one hundred (100) feet unless otherwise approved by the chief director. The slopes of working faces shall must 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 must be removed.

4.6.2.a.B. Daily Cell Height. Daily cell height shall must not exceed eight (8) feet in the vertical dimension except in the middle area of the daily cell to divert stormwater. The vertical dimension of the middle area of the daily cell must not exceed eleven (11) feet.

4.6.2.a.C. Layering and Compaction. Solid waste shall must 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 compacting ability weight, or as otherwise approved by the chief director.

4.6.2.b. Cover Material Application.

258.21(a)

4.6.2.b.A. Daily Cover. Except as provided in section 4.6.2.b.B, the permittee of all SWLFs must shall be applied to cover the entire exposed solid waste disposal area with a minimum thickness of six inches of compacted cover material at the a minimum frequency of once end of each working operating day, or at more frequent intervals if necessary, to control disease vectors, fires, odors, blowing litter, and scavenging.

258.21(b)

4.6.2.b.A.(a) Alternative materials of an alternative thickness (other than at least six inches of earthen material) may be approved by the director if the permittee demonstrates in writing that the alternative material and thickness does, or will control disease vectors, fires, odors, windblown material, and scavenging and does not present a threat to human health and the environment.

258.21(c)

4.6.2.b.A.(b) The director may grant a temporary waiver from the requirement of sections 4.6.2.b.A and 4.6.2.b.A.(a) if the permittee demonstrates that there are extreme seasonal climatic conditions that make meeting such requirements impractical.

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 must 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 must place final cover in accordance with section 6.1.5.a.A of these regulations this rule.

4.6.2.b.D. Availability. Cover material shall must 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 daily regular cover material.

4.6.2.b.D.(b) Twelve (12) inches of compacted intermediate cover material.

4.6.2.b.D.(c) Sufficient cover material, as required in sections 4.6.2.b and 6 of this rule.

4.6.2.c. Waste Placement in Winter. For the installation of 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 same year in which of the liner was construction construction. Waste must 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 elay liner must be investigated for density and effects from freeze-thaw as specified by the chief director and must be repaired recompacted and recertified during the next construction season if required, prior to additional waste placement. These requirements may be waived by the chief director upon the request of the permittee.

4.7. Acceptable and Unacceptable Wastes.

4.7.1. Acceptable Wastes.

Landfills may receive the following types of solid wastes, as authorized by the facility's permit, or by written permission of the director that such waste is acceptable:

- 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. Unacceptable wastes. Landfills may not receive the following wastes under any conditions:

- 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, or contain less than 20% solids by weight;
- 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 this rule;
- 4.7.2.f. Waste which may be infectious waste, or is recognizable treated noninfectious medical waste, as defined in section 2 of these regulations this rule, must be labeled prior to being transported off-site. Treated medical waste that will pass through a screen with a one-half inch (1/2") grid is not considered recognizable. The label must be sized and attached in the manner required by section 6.3.1 of Title 46, CSR Series 56 for infectious medical waste 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 Identifies the generator of the waste by name, and address and business telephone number of the generator;

4.7.2.f.B.(b) Shall identify Identifies the name, and address and business telephone number of the generator of the facility at which the waste was rendered non-infectious;

4.7.2.f.B.(c) Shall identify Identifies the amount of waste rendered noninfectious by weight, volume, or number of containers, and the method of treatment;

4.7.2.f.B.(d) Shall include Includes 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 Title 47, CSR Series 38 §10, or has been rendered noninfectious in accordance with procedures required by Infectious Medical Waste, Title 46, CSR Series 56, commonly accepted health standards;" and

4.7.2.f.B.(e) Shall be Maintained on file at the municipal solid waste facility receiving that waste for final disposal, with the exception that labels permanently attached to the waste are not required to be maintained on file; and

4.7.2.f.B.(f) The waste has been rendered noninfectious. Certifications establishing the wastes as noninfectious must be maintained for a period of three (3) years at the facility receiving the waste for disposal.

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 this rule; or

4.7.2.i. Petroleum-contaminated soils, except as provided under section 4.13.11 of these regulations this rule.

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 solid waste 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 this rule unless otherwise approved by the chief director 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 this rule, leachate must be collected, treated, and then directly discharged into a POTW or other treatment facility permitted by the division Department. In addition, the operator must operate a leachate treatment facility as provided in section 4.8.1.g of these regulations this rule within three (3) years following the detection of leachate in the collection or handling system, unless otherwise approved by the director. 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 division Department under WV Code §20-5A 22-11, and the rules and regulations promulgated thereunder, if the chief director approves this method in the solid waste facility permit issued under these regulations this rule. 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 director approves this method in the solid waste facility permit issued under these regulations this rule. 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 WV Code §20-5A 22-11, and the rules and regulations promulgated thereunder, is not attainable; and

4.8.1.f.C. Temporary spray irrigation is approved in the municipal solid waste facility permit issued under these regulations this rule.

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 director, leachate may be handled by vehicular transportation to and leachate treatment at an off-site treatment facility. The continued use

of 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. If the director determines that a direct discharge into a POTW or other permitted treatment facility is not reasonably attainable; and within three (3) years at a reasonable cost; or

4.8.1.g.B. If the director determines that a discharge of treated leachate into a receiving stream in a manner consistent with WV Code §20-5A 22-11, and the promulgated rules and regulations and rules promulgated thereunder, is not attainable without potential degradation of the receiving stream 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 alternative off-site treatment facility acceptable to the chief director 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 this rule 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 this rule, 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 director located under the intermediate cover and causes no odors, runoff, or ponding.

4.8.1.j. The permittee ~~shall~~ must immediately notify the chief director and describe remedial steps to be taken if:

4.8.1.j.A. Operation of the leachate treatment facility under these regulations this rule cannot prevent the facility from:

4.8.1.j.A.(a) Violating the terms of its permit, these regulations this rule, the Clean Water Act and the rules and regulations promulgated thereunder, or WV Code §20-5A 22-11 and the rules and 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 at a solid waste facility before or during treatment must be constructed and lined in accordance with sections 4.8.2 and 4.8.3 of these regulations this rule.

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, ~~to~~ 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~~ director 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~~ director 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~~ director 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 director. 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 WV Code §§20-5A, and 20-5F 22-11, 22-15 and 22-12, and all applicable federal and state statutes, rules and regulations.

4.8.3.a.C. All aboveground and onground tanks must be equipped on the tank's discharge side 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~~ director 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~~ director.

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~~ director. 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 E.S.R. 32 §2-6 §22-14-3 of the Code of WV must first obtain a certificate of approval for a dam before a solid waste facility permit can be approved under these regulations this rule.

4.8.3.c.B. Surface impoundments subject to these regulations this rule 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 of these regulations this rule shall must either be closed or retrofitted to conform to these regulations this section within six (6) months following the effective date of this rule 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 must ~~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 this rule.

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 director in accordance with these regulations this rule.

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 director.

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 director. 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 must ~~is to~~ be backfilled and regraded to the surrounding topography.

4.8.4. Leachate Analysis. ~~The permittee shall~~ must comply with the following sampling requirements at all monitoring points of the leachate collection and detection system as prescribed by the chief director:

4.8.4.a. On a daily basis, the flow rate and volume of flowing liquids from the leachate collection and detection systems ~~shall~~ must be determined; and

4.8.4.b. On a quarterly basis, the chemical composition of the leachate flowing into the leachate treatment system ~~shall~~ must be determined through the analysis of the leachate for the following parameters listed in Appendix I, or as specified by the facility permit, or order of the director.
+ 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 must be conducted.

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 WV Code §20-5A 22-11 and the rules promulgated thereunder 46 e-S-R 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:

258.23

4.10.1. Explosive Gases Control.

258.23(a)

4.10.1.a. Effective means must be utilized by the permittee to prevent the migration of explosive gases generated by the waste fill in any facility structure, and to ensure that:

258.23(a)(1)

4.10.1.a.A. At no time may the concentration of methane or other explosive gases generated by the facility, including the waste fill, or 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 does not exceed 25 percent (25%) of the lower explosive limit for methane or other such explosive gases, in facility structures.

258.23(a)(2)

4.10.1.a.B. The chief may require that the concentration of methane and other explosive gases does not exceed the lower explosive detection limit for that methane or other explosive gases at the facility property boundary.

258.23(b)

4.10.2. Gas Monitoring Program. Permittees of all SWLFs must implement initiate an ongoing (routine) explosive gas monitoring program must be initiated to ensure that the standards of section 4.10.1 of these regulations this rule are met. The type and frequency of monitoring must be approved by the chief director and be based on the following factors:

258.23(b)(1)(i)

4.10.2.a. soil conditions;

258.23(b)(1)(ii)

4.10.2.b. Hydrogeologic conditions surrounding the facility, including the disposal area;

258.23(b)(1)(iii)

4.10.2.c. The hydraulic conditions surrounding the facility, including the disposal site; and

258.23(b)(1)(iv)

4.10.2.d. The location of the any man-made or other facility structures and property boundaries.

258.23(b)(2)

4.10.2.e The minimum frequency of monitoring must be quarterly.

258.23(c)

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 this rule, the landfill owner and the appropriate officials identified in the contingency plan must:

258.23(c)(1)

4.10.3.a. Immediately take all necessary steps to ensure the safety and protection of human health and shall must immediately notify the chief director.

258.23(c)(2)

4.10.3.b. Within seven days of detection, place in the operating record the methane gas levels detected and a description of the steps taken to protect human health; and

258.23(c)(3)(Part 1)

4.10.3.c. Within 60 days of detection, implement a remediation plan for the methane gas releases, place a copy of the plan in the operating record, and notify the director that the plan has been implemented.

258.23(c)(3)(Part 2)

4.10.3.d. The plan must describe the nature and extent of the problem and the proposed remedy.

258.23(c)(4)

4.10.3.e. The director may establish alternative schedules for demonstrating compliance with sections 4.10.3.b, 4.10.3.c, and 4.10.3.d.

4.11. Groundwater Monitoring and Corrective Action Program.

4.11.1. Groundwater Monitoring Program

The groundwater sampling and analysis requirements for the groundwater monitoring system are as follows:

258.53(a)

4.11.1.a. Groundwater Sampling and Analysis Requirements. The groundwater monitoring program submitted by the permittee must 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 installed in compliance with section 3.8.4.a after approval by the director. The permittee must retain a copy in the operating record. At a minimum, the program must include procedures and techniques for:

258.53(a)(1)

4.11.1.a.A. Sample collection;

258.53(a)(2)

4.11.1.a.B. Sample preservation and shipment;

258.53(a)(3)

4.11.1.a.C. Analytical procedures; and

258.53(a)(4)

4.11.1.a.D. Chain of custody control; and

258.53(a)(5)

4.11.1.a.E. Quality assurance and quality control.

258.53(b) (Part 1)

4.11.1.b. The groundwater monitoring program must include sampling and analytical methods that are appropriate for groundwater sampling and that accurately measure hazardous constituents and other monitoring parameters in groundwater samples. The sampling and analysis methods must ~~should~~ follow the approved quality assurance/ quality control plan, and the ~~chief~~ may ~~director will~~ require resampling if he or she believes the samples were not properly sampled or analyzed.

258.53(b) (Part 2)

4.11.1.b.A. Groundwater samples must not be field-filtered prior to laboratory analysis, except when monitoring for dissolved metals..

4.11.1.c. The permittee ~~shall~~ must determine groundwater flow rate and direction of groundwater in the uppermost significant aquifer at least annually.

258.53(c)

4.11.1.c.A. The sampling procedures and frequency must be protective of human health and the environment.

258.53(e) (Part 1) and 258.53(f)

4.11.1.d. The permittee ~~shall~~ must 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, or 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~~ this rule.

258.53(e) (Part 2)

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.

258.53(d) (Part 1)

4.11.1.e.C. Groundwater elevations must be measured in each well immediately prior to purging, each time groundwater is sampled.

258.53(d) (Part 2)

4.11.1.e.D. The permittee must determine the rate and direction of groundwater flow each time groundwater is sampled.

258.53(d) (Part 3)

4.11.1.e.E. Groundwater elevations in wells which monitor the same waste management area must be measured within a period of time short enough to avoid temporal variations in groundwater flow which could preclude accurate determination of groundwater flow rate and direction.

258.53(f) (Part 2)

4.11.1.e.F. The sampling procedures must be those specified under section 4.11.2.b for Phase I Detection Monitoring, sections 4.11.3.b and 4.11.3.d for Phase II Assessment Monitoring, and section 4.11.5.b for corrective action.

4.11.1.f. The permittee shall must 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 and Phase II and Phase ~~III~~ monitoring programs. The permittee shall must make these statistical determinations each time he or she assesses groundwater quality.

4.11.1.f.A. In determining whether a statistically significant increase has occurred, the permittee shall must 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 must determine whether there has been a statistically significant increase at each monitoring well at the facility boundary immediately after completion of sampling.

258.53(g)

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. The permittee must specify in the operating record which one of the statistical methods was used in evaluating groundwater monitoring data for each hazardous constituent. The statistical test chosen must be conducted separately for each hazardous constituent in each well.

258.53(g)(1)

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 or methods must include estimation and testing of the contrasts between each compliance (downgradient) well's mean and the background mean levels for each constituent.

258.53(g)(2)

4.11.1.g.B. An analysis of variance (ANOVA) based on ranks followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The procedure or method must include estimation and testing of the contrasts between each compliance (downgradient) well's mean and the background mean levels for each constituent.

258.53(g)(3)

4.11.1.g.C. A tolerance or prediction interval procedure in which an interval for each constituent is established from the distribution of the background data, and the level of each constituent in each compliance well is compared to the upper tolerance or prediction limit, or

258.53(g)(4)

4.11.1.g.D. A control chart approach that gives control limits for each constituent.

258.53(g)(5) (Part 1)

4.11.1.g.E. Another statistical test method that meets the performance standards of section 4.11.1.i.D may be utilized, provided that:

258.53(g)(5) (Part 2)

4.11.1.g.E.(a) The permittee must place a justification for this alternative in the operating record and notify the director of the use of this alternative test; and

258.53(g)(5) (Part 3)

4.11.1.g.E.(b) The justification must demonstrate that the alternative method meets the performance standards of section 4.11.1.i.

4.11.1.h. The chief director may establish an alternative sampling procedure and statistical test for any of the constituents listed in Appendix I or II of these regulations this rule, 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 must be conducted to demonstrate that the normal distribution is not appropriate. Other tests shall must 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 must ~~is to~~ be tested for separately. Each time that a test is done, the test for individual constituents ~~shall~~ must 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 must ~~should~~ be appropriate for the behavior of the parameters or constituents involved. It must ~~should~~ include methods for handling data below the limit of detection. The permittee must ~~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 must ~~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~~ director or permittee suspects that detection is an artifact caused by some feature of the data other than contamination, the ~~chief~~ director 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.

258.53(i)

4.11.1.i.A. The permittee ~~shall~~ must 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, as determined under section 4.11.2.a or 4.11.3.a of this rule. The permittee must make these statistical determinations each time he or she assesses groundwater quality at the landfill.

258.53(i)(1)

4.11.1.i.B. In determining whether a statistically significant increase or decrease has occurred, the permittee ~~shall~~ must compare the groundwater quality of each parameter or constituent at each monitoring well designated pursuant to section 3.8.4.a.J to the background value of that parameter or constituent, according to the statistical procedures specified under section 4.11 of this rule these regulations.

258.53(i)(2)

4.11.1.i.C. Within a reasonable time period after completing sampling and analysis as determined by the ~~chief~~ director, the permittee ~~shall~~ must determine whether there has been a statistically significant increase over background at each monitoring well.

258.53(h)

4.11.1.i.D. Any statistical method chosen under section 4.11.1.g must comply with the following performance standards, as appropriate:

258.53(h)(1) (Part 1)

4.11.1.i.D.(a) The statistical method used to evaluate groundwater monitoring data must be appropriate for the distribution of chemical parameters or hazardous constituents.

258.53(h)(1) (Part 2)

4.11.1.i.D.(b) If the distribution of the chemical parameters or hazardous constituents is shown by the permittee to be inappropriate for a normal theory test, then the data should be transformed or a distribution-free theory test should be used.

258.53(h)(1) (Part 3)

4.11.1.i.D.(c) If the distributions for the constituents differ, more than one statistical method may be needed.

258.53(h)(2) (Part 1)

4.11.1.i.E. If an individual well comparison procedure is used to compare an individual compliance well constituent concentration with background constituent concentrations or a groundwater protection standard, the test shall must be done at a Type I error level no less than 0.01 for each testing period.

258.53(h)(2) (Part 2)

4.11.1.i.E.(a) If a multiple comparisons procedure is used, the Type I experiment wise error rate for each testing period shall must be no less than 0.05; however, the Type I error of no less than 0.01 for individual well comparisons must be maintained.

258.53h)(2) (Part 3)

4.11.1.i.E.(b) This performance standard does not apply to tolerance intervals, prediction intervals, or control charts.

258.53(h)(3) (Part 1)

4.11.1.i.F. If a control chart approach is used to evaluate groundwater monitoring data, the specific type of control chart and its associated parameter values must be protective of human health and the environment.

258.53(h)(3) (Part 2)

4.11.1.i.F.(a) The parameters must be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

258.53(h)(4) (Part 1)

4.11.1.i.G. If a tolerance interval or a predictional interval is used to evaluate groundwater monitoring data, the levels of confidence and, for tolerance intervals, the percentage of the population that the interval must contain, and must be protective of human health and the environment.

258.53(h)(4) (Part 2)

4.11.1.i.G.(a) These parameters must be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

258.53(h)(5) (Part 1)

4.11.1.i.H. The statistical method must account for data below the limit of detection with one or more statistical procedures that are protective of human health and the environment.

258.53(h)(5) (Part 2)

4.11.1.i.H.(a) Any practical quantitation limit (pql) that is used in the statistical method must be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility, as must a concentration level less than the mcl referenced in Appendix III to this rule..

258.53(h)(6)

4.11.1.i.I. If necessary, the statistical method shall must include procedures to control or correct for seasonal and spatial variability as well as temporal correlation in the data.

258.50(e)

4.11.1.j. Once established at a SWLF, groundwater monitoring shall must be conducted throughout the active life and post-closure care period of that SWLF as specified in section 6 of this rule.

258.50(g)

4.11.1.k. The permittee may request the director to establish an alternative schedule(s) for demonstrating compliance with section 3.8.4, pertaining to notification of placement of certification in operating record; section 4.11.2, pertaining to notification that statistically significant increase (SSI) notice is in operating record; section 4.11.2 and 4.11.3.b, pertaining to an assessment monitoring program; section 4.11.3, pertaining to sampling and analyzing Appendix II constituents; section 4.11.3.d.B, pertaining to placement of notice (Appendix II constituents detected) in record and notification of notice in record; section 4.11.3.g, pertaining to sampling for Appendix I and II to this part; section 4.11.3.g, pertaining to notification (and placement of notice in record) of SSI above groundwater protection standard; sections 4.11.5 and 4.11.6, pertaining to assessment of corrective measures; section 4.11.7, pertaining to selection of remedy and notification of placement in record; section 4.11.7, pertaining to notification of placement in record (alternative corrective action measures); and section 4.11.7, pertaining to notification of placement in record (certification of remedy completed).

258.54

4.11.2. Phase I Detection Monitoring Program.

258.54(a)

4.11.2.a. Program Requirements. A Phase I Detection Monitoring Program is required for all groundwater monitoring wells at all landfills and solid waste disposal surface impoundments except as otherwise provided in

these regulations this rule and in section 4.11.3 and 4.11.4 of these regulations of this rule.

4.11.2.b. At a minimum, a Phase I detection monitoring program for commercial solid waste facilities shall include the following monitoring parameters listed in Appendix I, or as specified in the facility permit, or order of the director: 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.

258.54(a)(1)

4.11.2.b.A. The director may delete any of the Appendix I monitoring parameters for a SWLF if it can be shown that the removed constituents are not reasonably expected to be contained in or derived from the waste contained in the SWLF.

258.54(a)(2) (Part 1)

4.11.2.b.B. The director may establish an alternative list of inorganic indicator parameters for a SWLF, in lieu of some or all of the heavy metals (constituents in Appendix I to this rule), if the alternative parameters provide a reliable indication of inorganic releases from the SWLF to the groundwater.

258.54(a)(2) (Part 2)

4.11.2.b.B.(a). In determining alternative parameters, the director may consider the following factors:

258.54(a)(2)(i)

4.11.2.b.B.(a)(A) The types, quantities, and concentrations of constituents in waste managed at the SWLF;

258.54(a)(2)(ii)

4.11.2.b.B.(a)(B) The mobility, stability, and persistence of waste constituents or their reaction products in the unsaturated zone beneath the SWLF;

258.54(a)(2)(iii)

4.11.2.b.B.(a)(C) The detectability of indicator parameters, waste constituents, and reaction products in the groundwater; and

258.54(a)(2)(iv)

4.11.2.b.B.(a)(D) The concentration or values and coefficients of variation of monitoring parameters or constituents in the groundwater background.

4.11.2.c. Phase I Sampling and Analysis Procedures.

The permittee shall monitor quarterly.

258.54(b) (Part 1)

4.11.2.c.A. The monitoring frequency for all constituents listed in Appendix I of this rule, or in the alternative list approved in accordance with section 4.11.2.b.B, must be at least semi-annually during the active life of the facility, including closure and the post-closure periods. The chief director may require more frequent monitoring on a site-specific basis by considering aquifer flow rate and resource value of the groundwater.

258.54(b) (Part 2)

4.11.2.c.B. A minimum of four independent samples from each well (background and downgradient) must be collected and analyzed in accordance with section 4.11.2.b.B, during the first semi-annual sampling event.

258.54(b) (Part 3)

4.11.2.c.C. At least one sample from each well (background and downgradient) must be collected and analyzed during subsequent semi-annual sampling events.

258.54(b) (Part 4)

4.11.2.c.D. The director may specify an appropriate alternative frequency for repeated sampling and analysis for Appendix I constituents, or the alternative list approved in accordance with section 4.11.2.b.B, during the active life (including closure) and the post-closure care period.

258.54(b) (Part 5)

4.11.2.c.E. The alternative frequency during the active life (including closure) must be no less than annual.

258.54(b) (Part 6)

4.11.2.c.F. The alternative frequency must be based on consideration of the following factors:

258.54(b)(1)

4.11.2.c.F.(a) Lithology of the aquifer and unsaturated zone;

258.54(b)(2)

4.11.2.c.F.(b) Hydraulic conductivity of the aquifer and unsaturated zone;

258.54(b)(3)

4.11.2.c.F.(c) Groundwater flow rates;

258.54(b)(4)

4.11.2.c.F.(d) Minimum distance between upgradient edge of the SWLF and downgradient monitoring well screen (minimum distance of travel); and

258.54(b)(5)

4.11.2.c.F.(e) Resource value of the aquifer.

258.54(c) (Part 1)

4.11.2.d. Unless otherwise directed by the director, if the permittee determines pursuant to this rule, that there is a statistically significant increase over background for one or more any of the constituents listed in Appendix I to this rule, or in the alternative list approved in accordance with section 4.11.2.b.B., Phase I parameter at the boundary specified under sections 3.8.4.a.J, the he permittee must:

258.54(c)(1) (Part 1)

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. Within 14 days of this finding, place a notice in the operating record indicating which constituents have shown statistically significant changes from background levels, and notify the director that this notice was placed in the operating record;

4.11.2.d.B. Within a thirty-day period, repeat the sampling of the groundwater in all appropriate monitoring wells as approved by the director, and determine the concentration of all constituents designated under section 4.11.2.b of this rule 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

258.54(c)(2)

4.11.2.d.D. If the repeat sampling confirms that a statistically significant increase over background levels has occurred, establish a Phase II assessment monitoring program meeting the requirements of section 4.11.3 of these regulations within ninety 90 thirty (30) days of confirmation, except as provided for in section 4.11.2.e.

258.54(c)(3)

4.11.2.e. Other Source Determination.

258.54(c)(3) (Part 1)

4.11.2.e.A. The permittee may demonstrate that a source other than a SWLF caused the contamination or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. A report documenting this demonstration must be certified by a qualified groundwater scientist approved by the director and be placed in the operating record.

258.54(c)(3) (Part 2)

4.11.2.e.B. If the director agrees that a successful demonstration has been made and documented, the permittee may continue Phase I Detection Monitoring as specified in this section.

258.54(c)(3) (Part 3)

4.11.2.e.C. If, after 90 days, a successful demonstration has not been made, the permittee must initiate a Phase II Assessment Monitoring Program as required in section 4.11.3.

258.55

4.11.3. Phase II Assessment Monitoring Program.

258.55(a)

4.11.3.a. A Phase II assessment monitoring program is required whenever statistically significant increases over background have been detected between background and downgradient monitoring wells for one or more of the Phase I monitoring parameters constituents listed in Appendix I or in the alternative list approved by the director in accordance with section 4.11.2.b.B.

258.55(b)

4.11.3.b. Phase II Sampling and Analysis Procedures.

A Phase II monitoring program must include quarterly monitoring of all constituents identified in Appendix II of these regulations this rule in addition to specified Phase I parameters, or in the case of Class F solid waste facilities, those specified by the director chief unless waived by the director chief upon request of the permittee.

258.55(b) (Part 1)

4.11.3.b.A. Within 90 days of triggering an assessment monitoring program, and annually thereafter, the permittee must sample and analyze the groundwater for all constituents identified in Appendix II of this rule.

258.55(b) (Part 2)

4.11.3.b.B. A minimum of one sample from each downgradient well must be collected and analyzed during each sampling event.

258.55(b) (Part 3)

4.11.3.b.C. For any constituent detected in the downgradient wells as the result of the complete Appendix II analysis, a minimum of four independent samples from each well (background and downgradient) must be collected and analyzed to establish background for new constituents.

258.55(b) (Part 4)

4.11.3.b.D. The director may specify an appropriate subset of wells to be sampled and analyzed for Phase II constituents during assessment monitoring.

258.55(b) (Part 5)

4.11.3.b.E. The director may delete any of the Phase II Monitoring Parameters for a SWLF if it can be shown that the removed

constituents are not reasonably expected to be in or derived from the waste contained in the SWLF.

4.11.3.b.F. 4-11-2-b-Ar For those Phase II constituents that are determined to be below the detectable limits of the standard analytical methods, the chief director may reduce the required monitoring frequency. In no case may the monitoring frequency be less than once per year.

4.11.3.b.G. 4-11-3-b-Br If the permittee finds no Phase II constituent in groundwater during the initial sampling made pursuant to a Phase II assessment monitoring program, the permittee he may petition the chief director for a reinstatement of the Phase I monitoring program. Within ninety (90) days of the receipt of such a petition, the director may chief shall either approve or deny the petition and notify the permittee of the his decision in writing.

258.55(c)

4.11.3.c. The director may specify an appropriate alternative frequency for repeated sampling and analysis for the full set of Appendix II constituents required by section 4.11.3.b of this rule, during the active life (including closure) and post-closure care of the SWLF considering the following factors:

4-11-3-c-r If the permittee determines that there is a statistically significant increase of any Phase II monitoring parameter specified in section 4-11-3-b-r of these regulations at any monitoring well at the facility boundary, he must:

4-11-3-c-Ar 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;

258.55(c)(1)

4.11.3.c.A. Lithology of the aquifer and unsaturated zone;

258.55(c)(2)

4.11.3.c.B. Hydraulic conductivity of the aquifer and unsaturated zone;

4-11-3-c-Br 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-Gr By using ambient values in upgradient wells, establish a background value for each Appendix C constituent that has been found.

258.55(c)(3)

4.11.3.c.C. Groundwater flow rates;

258.55(c)(4)

4.11.3.c.D. Minimum distance between upgradient edge of the SWLF and downgradient monitoring well screen (minimum distance of travel);

258.55(c)(5)

4.11.3.c.E. Resource value of the aquifer; and

258.55(c)(6)

4.11.3.c.F. Nature (fate and transport) of any constituents detected in response to this section.

258.55(d)

4.11.3.d. After obtaining the results from the initial or subsequent sampling events required in section 4.11.3.b, the permittee must perform the following:

258.55(d)(1)

4.11.3.d.A. Within 14 days, place a notice in the operating record identifying the Phase II constituents that have been detected and notify the director that this notice has been placed in the operating record;

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.d.B. Resampling Procedures.

258.55(d)(2) (Part 1)

4.11.3.d.B.(a) Within 90 days, and on at least a semiannual basis thereafter, resample all wells specified by section 3.8.4, the permittee must conduct analyses for all constituents in Appendix I to this rule or in the alternative list approved in accordance with section 4.11.2 and for those constituents in Appendix II to this rule that are detected in response to section 4.11.2.c, and record their concentrations in the facility operating record.

258.55(d)(2) (Part 2)

4.11.3.d.B.(b) At least one sample of each well (background and downgradient) must be collected and analyzed during these sampling events.

258.55(d)(2) (Part 3)

4.11.3.d.B.(c) The director may specify an alternative monitoring frequency during the active life (including closure) and post-closure period for the constituents referred to in this section.

258.55(d)(2) (Part 4)

4.11.3.d.B.(d) The alternative frequency for Appendix I constituents, or the alternative list approved in accordance with section 4.11.2.b.B, during the active life (including closure) must be no less than annual.

258.55(d)(2) (Part 5)

4.11.3.d.B.(e) The alternative frequency must be based on consideration of the factors specified in section 4.11.3.c;

258.55(d)(3)

4.11.3.d.C. Establish background concentrations for any constituents detected pursuant to section 4.11.3.b or 4.11.3.d; and

258.55(d)(4) (Part 1)

4.11.3.d.D. Groundwater Protection Standards.

258.55(d)(4) (Part 1)

4.11.3.d.D.(a) Establish groundwater protection standards for all constituents detected pursuant to section 4.11.3.b or 4.11.3.d.

258.55(d)(4) (Part 2)

4.11.3.d.D.(b) The groundwater protection standards must be established in accordance with section 4.11.3.h or 4.11.3.i.

258.55(e)

4.11.3.e. If the concentrations of all Appendix II constituents are shown to be at or below background values, using the statistical procedures in sections 4.11.1.g and 4.11.1.h of this rule, for two consecutive sampling events, the permittee must notify the director of this finding and may return to Phase I detection monitoring.

258.55(f)

4.11.3.f. If the concentrations of any Appendix II constituents are above background values, but all concentrations are below the groundwater protection standard established under section 4.11.3.h, or 4.11.3.i, using the statistical procedures in sections 4.11.1.g and 4.11.1.h of this rule, the permittee must continue assessment monitoring in accordance with this section.

258.55(g) (Part 1)

4.11.3.q. Statistically Significant Level Above Groundwater.

258.55(g) (Part 1)

4.11.3.q.A. If one or more Appendix II constituents are detected at statistically significant levels above groundwater protection standard established under section 4.11.3.h, or 4.11.3.i, in any sampling event, the permittee must, within 14 days of this finding, place a notice in the operating record identifying the Appendix II constituents that have exceeded the groundwater protection standard and notify the director and all appropriate local government officials that the notice has been placed in the operating record. The permittee must also:

4.11.3.q.B. Characterization and Extent of Contamination.

258.55(g)(1)(i)

4.11.3.q.B.(a) Characterize the nature and extent of the release by installing additional monitoring wells as necessary;

258.55(g)(1)(ii)

4.11.3.q.B.(b) Install at least one additional monitoring well at the facility boundary in the direction of contaminant migration and sample this well in accordance with section 4.11.3.d.B;

258.55(g)(1)(iii)

4.11.3.q.B.(c) Notify all persons who own the land or reside on the land that directly overlies any part of the plume of contamination if contaminants have migrated off-site if indicated by sampling of wells in accordance with section 4.11.3.q; and

258.55(q)(1)(iv)

4.11.3.q.B.(d) Initiate an assessment of corrective measures as required by section 4.11.5 of this rule within 90 days; or

4.11.3.q.C. Other Source of SSI Determination.

258.55(q)(2 (Part 1))

4.11.3.q.C.(a) May demonstrate that a source other than a SWLF caused the contamination, or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

258.55(q)(2 (Part 2))

4.11.3.q.C.(b) A report documenting this demonstration must be certified by a qualified groundwater scientist and approved by the director of an approved state and placed in the operating record.

258.55(q)(2 (Part 3))

4.11.3.q.C.(c) If the director agrees that a successful demonstration has been made the permittee must continue monitoring in accordance with the assessment (phase II) monitoring program pursuant to section 4.11.3, and may return to Phase I detection monitoring if the Phase II constituents upon resampling are at or below background as specified in section 4.11.3.e.

258.55(q)(2 (Part 4))

4.11.3.q.C.(d) Until the director agrees that a successful demonstration has been made, the permittee must continue to comply with section 4.11.3.q including initiating an assessment of corrective measures.

4.11.3.h. Establishment of Groundwater Protection Standards.

258.55(h)

4.11.3.h.A. The permittee must establish a groundwater protection standard for each Appendix II constituent detected in the groundwater.

258.55(h)(1)

4.11.3.h.B. The groundwater protection standard must be as follows:

4.11.3.h.B.(a) For constituents for which a maximum contaminant level (MCL) has been promulgated under section 1412 of the Safe Drinking Water Act (codified) under 40 CFR Part 141, or 46 CSR 12, the MCL for that constituent;

258.55(h)(2)

4.11.3.h.B.(b) For constituents for which MCLs have not been promulgated, the background concentration for the constituent established from wells in accordance with section 3.8.4; or

258.55(h)(3)

4.11.3.h.B.(c) For constituents for which the background level is higher than the MCL identified under section 4.11.3.h, or health

based levels, identified under section 4.11.3.i, the background concentration.

258.55(i) (Part 1)

4.11.3.i. Alternative Groundwater Protection Standards.

258.55(i) (Part 1)

4.11.3.i.A. The director may establish an alternative groundwater protection standard for constituents for which MCLs have not been established.

258.55(i) (Part 2)

4.11.3.i.B. These groundwater protection standards must be appropriate health based levels that satisfy the following criteria:

258.55(i)(1)

4.11.3.i.C. The level is derived in a manner consistent with EPA guidelines for assessing the health risks of environmental pollutants (51 CFR 33992, 34006, 34014, 34028, September 24, 1986);

258.55(i)(2)

4.11.3.i.D. The level is based on scientifically valid studies conducted in accordance with the Toxic Substances Control Act, Good Laboratory Practice Standards (40 CFR Part 792) or equivalent;

258.55(i)(3)

4.11.3.i.E. For carcinogens, the level represents a concentration associated with an excess lifetime cancer risk level (due to continuous lifetime exposure) with the 1×10^{-4} to 1×10^{-6} range; and

4.11.3.i.F. Systemic Toxicants.

258.55(i)(4) (Part 1)

4.11.3.i.F.(a) For systemic toxicants, the level represents a concentration to which the human population (including sensitive subgroups) could be exposed to on a daily basis that is likely to be without appreciable risk of deleterious effects during a lifetime.

258.55(i)(4) (Part 2)

4.11.3.i.F.(b) For purposes of this section, systemic toxicants include toxic chemicals that cause effects other than cancer or mutation.

258.55(j)

4.11.3.j. In establishing groundwater protection standards under section 4.11.3.i., the director may consider the following:

258.55(j)(1)

4.11.3.j.A. Multiple contaminants in the groundwater;

258.55(j)(2)

4.11.3.j.B. Exposure threats to sensitive environmental receptors; and

258.55(j)(3)

4.11.3.j.C. Other site-specific exposure or potential exposure to groundwater.

4.11.4. (Reserved)

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.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 III 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 III 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.G.~~ Continue to monitor in accordance with the Phase III monitoring program.

258.56

4.11.5. Assessment of Corrective Measures.

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 director at sites without monitoring programs, which is determined by the chief director to have resulted in a significant adverse effect on an aquifer, and which is attributable to a solid waste facility, the chief director may require appropriate corrective or remedial action pursuant to West Virginia Code Chapter 20 22, Articles 5A 11 and 12, and Chapter 20 22, Article 5F 15 to abate, remediate or correct such pollution. Any such corrective or remedial action order shall must take into account any applicable groundwater quality protection standards, the existing use of such waters, the reasonable uses of such waters, background water quality, and the protection of human health and the environment.

258.56(a) (Part 1)

4.11.5.a. Within 90 days of finding that any of the constituents listed in Appendix II have been detected at a statistically significant level exceeding the groundwater protection standards defined under section 4.11.3.h or 4.11.3.i of this rule, the permittee must initiate an assessment of corrective measures.

258.56(a) (Part 2)

4.11.5.a.A. Such an assessment must be completed within a period of time as agreed to in writing by the director.

258.56(b)

4.11.5.b. The permittee must continue to monitor in accordance with the assessment monitoring program as specified in section 4.11.3.

258.56(c)

4.11.5.c. The assessment must include an analysis of the effectiveness of potential corrective measures in meeting all of the requirements and objectives of the remedy as described under section 4.11.6, addressing at least the following:

258.56(c)(1)

4.11.5.c.A. The performance, reliability, ease of implementation, and potential impacts of appropriate potential remedies, including safety impacts, cross-media impacts, and control of exposure to any residual contamination;

258.56(c)(2)

4.11.5.c.B. The time required to begin and complete the remedy;

258.56(c)(3)

4.11.5.c.C. The costs of remedy implementation; and

258.56(c)(4)

4.11.5.c.D. The institutional requirements such as state or local permit requirements or other environmental or public health requirements that may substantially affect implementation of the remedy(ies).

258.56(d)

4.11.5.d. The permittee must discuss the results of the corrective measures assessment, prior to the selection of remedy, in a public meeting with interested and affected parties.

258.57

4.11.6. Selection of Remedy.

258.57(a) (Part 1)

4.11.6.a. Based on the results of the corrective measures assessment conducted under section 4.11.5 the permittee must select a remedy that, at a minimum, meets the standards listed in section 4.11.6.b.

258.57(a) (Part 2)

4.11.6.a.A. The permittee must notify the director, within 14 days of selecting a remedy, a report describing the selected remedy has been placed in the operating record and how it meets the standards in section 4.11.6.b.

258.57(b)

4.11.6.b. Remedies must:

258.57(b)(1)

4.11.6.b.A. Be protective of human health and the environment;

258.57(b)(2)

4.11.6.b.B. Attain the groundwater protection standard as specified pursuant to sections 4.11.3.h or 4.11.3.i;

258.57(b)(3)

4.11.6.b.C. Control the source(s) of releases so as to reduce or eliminate further releases of Appendix II constituents into the environment; and

258.57(b)(4)

4.11.6.b.D. Comply with standards for management of wastes as specified in section 4.11.7.d.

258.57(c)

4.11.6.c. In selecting a remedy that meets the standards of section 4.11.6.b, the permittee must consider the following evaluation factors:

258.57(c)(1)

4.11.6.c.A. The long- and short-term effectiveness and protectiveness of the potential remedy(ies), along with the degree of certainty that the remedy(ies) will prove successful based on consideration of the following:

258.57(c)(1)(i)

4.11.6.c.A.(a) Magnitude of reduction of existing risks;

258.57(c)(1)(ii)

4.11.6.c.A.(b) Magnitude of residual risks in terms of likelihood of further releases due to waste remaining following implementation of a remedy;

258.57(c)(1)(iii)

4.11.6.c.A.(c) The type and degree of long-term management required, including monitoring, operation, and maintenance;

258.57(c)(1)(iv)

4.11.6.c.A.(d) Short-term risks that might be posed to the community, workers, or the environment during implementation of such a remedy, including potential threats to human health and the environment associated with excavation, transportation, and re-disposal of containment;

258.57(c)(1)(v)

4.11.6.c.A.(e) Time until full protection is achieved;

258.57(c)(1)(vi)

4.11.6.c.A.(f) Potential for exposure of humans and environmental receptors to remaining wastes, considering the potential threat to human health and the environment associated with excavation, transportation, re-disposal, or containment;

258.57(c)(1)(vii)

4.11.6.c.A.(g) Long-term reliability of the engineering and institutional controls; and

258.57(c)(1)(viii)

4.11.6.c.A.(h) Potential need for replacement of the remedy.

258.57(c)(2)

4.11.6.c.B. The effectiveness of the remedy in controlling the source to reduce further releases based on consideration of the following factors:

258.57(c)(2)(i)

4.11.6.c.B.(a) The extent to which containment practices will reduce further releases;

258.57(c)(2)(ii)

4.11.6.c.B.(b) The extent to which treatment technologies may be used;

258.57(c)(3)

4.11.6.c.C. The ease or difficulty of implementing a potential remedy(ies) based upon consideration of the following types of factors:

258.57(c)(3)(i)

4.11.6.c.C.(a) Degree of difficulty associated with constructing the technology;

258.57(c)(3)(ii)

4.11.6.c.C.(b) Expected operational reliability of the technologies;

258.57(c)(3)(iii)

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

258.57(c)(3)(iv)

4.11.6.c.C.(d) Availability of necessary equipment and specialists; and

258.57(c)(3)(v)

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

258.57(c)(4)

4.11.6.c.D. Practicable capability of the permittee, including a consideration of the technical and economic capability.

258.57(c)(5)

4.11.6.c.E. The degree to which community concerns are addressed by a potential remedy(ies).

258.57(d) (Part 1)

4.11.6.d. The permittee must specify as part of the selected remedy a schedule(s) for initiating and completing remedial activities.

258.57(d) (Part 2)

4.11.6.d.A. Such a schedule must require the initiation of remedial activities within period of time agreed to in writing by the director, taking into consideration the factors set forth in section 4.11.6.d.

258.57(d) (Part 3)

4.11.6.d.B. The permittee must consider the following factors in determining the schedule of remedial activities:

258.57(d)(1)

4.11.6.d.B.(a) Extent and nature of contamination;

258.57(d)(2)

4.11.6.d.B.(b) Practical capabilities of remedial technologies in achieving compliance with groundwater protection standards established under sections 4.11.3.g or 4.11.3.h and other objectives of the remedy;

258.57(d)(3)

4.11.6.d.B.(c) Availability of treatment or disposal capacity for wastes managed during implementation of the remedy;

258.57(d)(4)

4.11.6.d.B.(d) Desirability of utilizing technologies that are not currently available, but which may offer significant advantages

over already available technologies in terms of effectiveness, reliability, safety, or ability to achieve remedial objectives;

258.57(d)(5)

4.11.6.d.B.(e) Potential risks to human health and the environment from exposure to contamination prior to completion of the remedy;

258.57(d)(6)

4.11.6.d.B.(f) Resource value of the aquifer including:

258.57(d)(6)(i)

4.11.6.d.B.(f)(A) Current and future uses;

258.57(d)(6)(ii)

4.11.6.d.B.(f)(B) Proximity and withdrawal rate of users;

258.57(d)(6)(iii)

4.11.6.d.B.(f)(C) Groundwater quantity and quality;

258.57(d)(6)(iv)

4.11.6.d.B.(f)(D) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituent(s);

258.57(d)(6)(vi)

4.11.6.d.B.(f)(E) The hydrogeologic characteristic of the facility and surrounding land;

258.57(d)(6)(vii)

4.11.6.d.B.(f)(F) Groundwater removal and treatment costs; and

258.57(d)(viii)

4.11.6.d.B.(f)(G) The cost and availability of alternative water supplies.

258.57(d)(7)

4.11.6.d.B.(q) Practicable capability of the permittee.

258.57(d)(8)

4.11.6.d.B.(h) Other relevant factors.

258.57(e)

4.11.6.e. The director may determine that remediation of a release of an Appendix II constituent from a SWLF is not necessary if the permittee demonstrates to the satisfaction of the director that:

258.57(e)(1)

4.11.6.e.A. The groundwater is additionally contaminated by substances that have originated from a source other than a SWLF and those substances are present in concentrations such that cleanup of the release from the SWLF would provide no significant reduction in risk to actual or potential receptors; or

258.57(e)(2)

4.11.6.e.B. The constituent(s) is present in groundwater that:

258.57(e)(2)(i)

4.11.6.e.B.(a) Is not currently or reasonably expected to be a source of drinking water; and

258.57(e)(2)(ii)

4.11.6.e.B.(b) Is not hydraulically connected with waters to which the hazardous constituents are migrating or are likely to migrate in a concentration(s) that would exceed the groundwater protection standards established under section 4.11.3.h or 4.11.3.i; or

258.57(e)(3)

4.11.6.e.C. Remediation of the release(s) is technically impracticable; or

258.57(e)(4)

4.11.6.e.D. Remediation results in unacceptable cross-media impacts.

258.57(f)

4.11.6.f. A determination by the director pursuant to section 4.11.6.e. must not affect the authority of the state to require the permittee to undertake source control measures or other measures that may be necessary to eliminate or minimize further releases to the groundwater, to prevent exposure to the groundwater, or to remediate the groundwater to concentrations that are technically practicable and significantly reduce threats to human health or the environment.

258.58

4.11.7. Implementation of the Corrective Action Program.

258.58(a)

4.11.7.a. Based on the schedule established under section 4.11.6.d for initiation and completion of remedial activities the permittee must:

258.58(a)(1)

4.11.7.a.A. Establish and implement a corrective action groundwater monitoring program that:

258.58(a)(1)(i)

4.11.7.a.A.(a) At a minimum, meet the requirements of an assessment monitoring program under section 4.11.3;

258.58(a)(1)(ii)

4.11.7.a.A.(b) Indicate the effectiveness of the corrective action remedy; and

258.58(a)(1)(iii)

4.11.7.a.A.(c) Demonstrate compliance with groundwater protection standard pursuant to section 4.11.7.e.

258.58(a)(2)

4.11.7.a.B. Implement the corrective action remedy selected under section 4.11.6; and

258.58(a)(3) (Part 1)

4.11.7.a.C. Take any interim measures necessary to ensure the protection of human health and the environment.

258.58(a)(3) (Part 2)

4.11.7.a.C.(a) Interim measures must, to the greatest extent practicable, be consistent with the objectives of and contribute to the performance of any remedy that may be required pursuant to section 4.11.6.

258.58(a)(3) (Part 3)

4.11.7.a.C.(b) The following factors must be considered by an permittee in determining whether interim measures are necessary:

258.58(a)(3)(i)

4.11.7.a.C.(b)(A) Time required to develop and implement a final remedy;

258.58(a)(3)(ii)

4.11.7.a.C.(b)(B) Actual or potential exposure of nearby populations or environmental receptors to hazardous constituents;

258.58(a)(3)(iii)

4.11.7.a.C.(b)(C) Actual or potential contamination of drinking water supplies or sensitive ecosystems;

258.58(a)(3)(iv)

4.11.7.a.C.(b)(D) Further degradation of the groundwater that may occur if remedial action is not initiated expeditiously;

258.58(a)(3)(v)

4.11.7.a.C.(b)(E) Weather conditions that may cause hazardous constituents to migrate or be released;

258.58(a)(3)(vi)

4.11.7.a.C.(b)(F) Risks of fire or explosion, or potential for exposure to hazardous constituents as a result of an accident or failure of a container or handling system; and

258.58(a)(3)(viii)

4.11.7.a.C.(b)(G) Other situations that may pose threats to human health and the environment.

258.58(b) (Part 1)

4.11.7.b. A permittee may determine, based on information developed after implementation of the remedy has begun or other information, that compliance with requirements of section 4.11.6.b are not being achieved through the remedy selected.

258.58(b) (Part 2)

4.11.7.b.A. In such cases, the permittee must implement other methods or techniques that could practicably achieve compliance with the requirements, unless the permittee makes the determination under section 4.11.7.c.

258.58(c)

4.11.7.c. If the permittee determines that compliance with requirements under section 4.11.6.b of this rule cannot be practically achieved with any currently available methods, the permittee must:

258.58(c)(1)

4.11.7.c.A. Obtain certification of a qualified groundwater scientist and approval by director that compliance with requirements under section 4.11.6.b cannot be practically achieved with any currently available methods;

258.58(c)(2)

4.11.7.c.B. Implement alternative measures to control exposure of humans or the environment to residual contamination, as necessary to protect human health and the environment; and

258.58(c)(3)

4.11.7.c.C. Implement alternative measures for control of the sources of contamination, or for removal or decontamination of equipment, units, devices, or structures that are:

258.58(c)(3)(i)

4.11.7.c.C.(a) Technically practicable; and

258.58(c)(3)(ii)

4.11.7.c.C.(b) Consistent with the overall objective of the remedy.

258.58(c)(4)

4.11.7.c.D. Notify the director within 14 days that a report justifying the alternative measures prior to implementing the alternative measures has been placed in the operating record.

258.58(d)

4.11.7.d. All solid wastes that are managed pursuant to a remedy required under section 4.11.6, or an interim measure required under section 4.11.7.a.C must be managed in a manner:

258.58(d)(1)

4.11.7.d.A. That is protective of human health and the environment; and

258.58(d)(2)

4.11.7.d.B. That complies with applicable RCRA requirements.

258.58(e)

4.11.7.e. Remedies selected pursuant to section 4.11.6 must be considered complete when:

258.58(e)(1)

4.11.7.e.A. The permittee complies with the groundwater protection standards established under sections 4.11.3.h or 4.11.3.i at all points within the plume of contamination that lie beyond the groundwater monitoring well system established under section 3.8.4 and 3.8.4.a.

258.58(e)(2) (Part 1)

4.11.7.e.B. Compliance with the groundwater protection standards established under section 4.11.3.h or 4.11.3.i have been achieved by demonstrating that concentrations of Appendix II constituents have not exceeded the groundwater protection standard(s) for a period of three consecutive years using the statistical procedures and performance standards in sections 4.11.1.g and 4.11.1.h of this rule.

258.58(e)(2) (Part 2)

4.11.7.e.B.(a) The director may specify an alternative length of time during which the permittee must demonstrate that concentrations of Appendix II constituents have not exceeded the groundwater protection standard(s) taking into consideration:

258.58(e)(2)(i)

4.11.7.e.B.(a)(A) Extent and concentration of the release(s);

258.58(e)(2)(ii)

4.11.7.e.B.(a)(B) Behavior characteristics of the hazardous constituents in the groundwater;

258.58(e)(2)(iii)

4.11.7.e.B.(a)(C) Accuracy of monitoring or modeling techniques, including any seasonal, meteorological, or other environmental variabilities that may affect the accuracy; and

258.58(e)(2)(iv)

4.11.7.e.B.(a)(D) Characteristics of the groundwater.

258.58(e)(3)

4.11.7.e.C. All actions required to complete the remedy have been satisfied.

258.58(f) (Part 1)

4.11.7.f. Upon completion of the remedy, the permittee must notify the director within 14 days that a certification that the remedy has been completed in compliance with the requirements of section 4.11.7.e has been placed in the operating record.

258.58(f) (Part 2)

4.11.7.f.A. The certification must be signed by the permittee and by a qualified groundwater scientist and approved by the director.

258.58(g)

4.11.7.g. When, upon completion of the certification, the director determines that the corrective action remedy has been completed in accordance with the requirements under section 4.11.7.e, the permittee must be released from the requirements for financial assurance for corrective action under section 3.7.10.a.

4.12. Reporting.

4.12.1. Daily Logs. Accurate, complete and true 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 Act, other state acts Acts, and the division's Department's rules and regulations.

4.12.2. Monthly Tonnage and Monitoring Reports.

4.12.2.a. Monthly Solid Waste Tonnage Reports.

4.12.2.a.A. Monthly solid waste tonnage reports describing the type, amount, and origin received at the solid waste facility for the month must be submitted to the chief director before the twentieth fifteenth day of the following month.

4.12.2.a.B. The monthly tonnage report ~~shall~~ must also include results of the hazardous waste exclusion efforts as required by section 4.6.1.a.F of these regulations this rule.

4.12.2.b. Groundwater Monitoring Reports.

4.12.2.b.A. The ground and surfacewater sampling analysis monitoring reports and accompanying report of determining whether there was 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 and Phase II monitoring programs, as required in section 4.11 of these regulations this rule shall must be submitted with the monthly solid waste reports due before the twentieth fifteenth day of April, July, October November, and January.

4.12.2.c. Surface Water Monitoring Reports.

The surface water sampling analysis monitoring reports must be submitted as required by §22-11 and the rules promulgated thereunder.

4.12.2.c. Leachate Monitoring Reports.

The leachate sampling analysis monitoring reports must be submitted as required by §22-11 and the rules promulgated thereunder.

4.12.2.d. Reporting and Recordkeeping.

A copy of ~~this~~ the monthly tonnage and the monitoring reports shall must 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 all of these reports required by this section must be kept on file at the solid waste facility.

4.12.3. Annual Operational Report. An annual solid waste facility operational report must ~~is to~~ be submitted for the current previous calendar year to the chief director before January 31 of the following year.

4.12.3.a. The report ~~should~~ must 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 or portion of facilities as that are a part of the approved solid waste facility.

4.12.3.b. The annual solid waste facility operational report for landfills ~~shall~~ must 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 the area that has been filled; and

4.12.3.b.C. Computations estimating the volume of the area that has been filled, and the volume of the remaining useful life of the facility, in months.

4.13. Other Acceptance and Handling of Special Solid Wastes.

4.13.1. General.

4.13.1.a. Except as expressly specified by these ~~regulations, or in an order or other written approval by~~ of the chief or the director, a solid waste facility may receive only those any solid wastes 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~~ must request and receive a letter of permission from the ~~chief or the director~~ before receiving the waste.

4.13.1.b. Nothing ~~shall~~ must limit or affect the power of the ~~chief or the director~~ to prohibit or require special handling requirements he

determined to be 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.

4.13.1.c.A. Any analytical laboratory performing services for a special waste generator or a contractor under his or her employ must not profit from the treatment, removal or disposal of such waste, and must sign an affidavit stating such facts on a form provided by the director.

4.13.1.c.B. The permittee must provide a waste profile/chain of custody document to the director when requesting approval to dispose of any special waste at his/her commercial solid waste facility on forms provided by the director. Any solid waste landfill which is granted approval to accept special waste for disposal, such as petroleum contaminated soil for example must, at a minimum, maintain on site at the facility a HNU Photoionizer, or equivalent, to monitor the levels of total organic volatiles (TOVs) present in soil being aerated to ensure that total TOVs are less than one hundred parts per million (100 ppm) prior to disposal of waste soil in the landfill or for use of the soil as daily cover.

Note: The use of any trade name does not imply endorsement by the West Virginia Division of Environmental Protection.

4.13.2. Asbestos Wastes. The permittee ~~shall~~ must ensure that every individual involved in the management of wastes is protected from exposure in conformance with the provisions of these regulations this rule and other applicable state and federal statutes, rules and regulations.

4.13.2.a. Packaging of Friable and Nonfriable Category II Asbestos Materials.

All solid wastes that may contain friable or nonfriable category II asbestos ~~shall~~ must 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: CONTAINS ASBESTOS FIBERS. AVOID CREATING DUST. CANCER AND LUNG DISEASE HAZARD." "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." The name and address of the generator shall must also be marked on the container. 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 is, or will be achieved. Such alternative alternate methods shall must 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 must ~~shoud~~ 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 and Nonfriable Asbestos Materials. Asbestos waste may must be disposed in a special purpose landfill or in a special area of a landfill, and ~~shall~~ must meet the following conditions:

4.13.2.c.A. Asbestos waste ~~shall~~ must 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 this rule.

4.13.2.c.B. Asbestos waste ~~shall~~ must be hand placed in the trench or cell or by other means ~~approved means~~ by the director which ~~insure~~ ensure integrity of bags, wrappings, or containers.

4.13.2.c.C. Asbestos waste ~~shall~~ must 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~~ must 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~~ must 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~~ must 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~~ must 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~~ must be fenced, or a waiver from the director must be obtained. Provided; That a natural barrier exists on the site that adequately deters access by the general public. The fence ~~shall~~ must be of the six (6) feet high chain link type with three (3) strands of barbed wire on top. The fence ~~shall~~ must completely encompass ~~encircle~~ the disposal area and internal buffer zone and maintain access control through locked gates.

4.13.2.c.F. The fence ~~shall~~ must bear permanent signs every three hundred (300) feet or closer that boldly state: "CAUTION: CONTAINS ASBESTOS FIBERS. AVOID CREATING DUST. CANCER AND LUNG DISEASE HAZARD." 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~~ must be provided to the ~~chief or the~~ director upon request and ~~shall~~ must be contained and specifically noted in the deed notation as required by section 6.2.6 of these regulations this rule.

4.13.2.c.H. Asbestos waste ~~shall~~ must 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 director, 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~~ must 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 for a period of three (3) years on the 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~~ must be absorbed on solid material before being placed in a landfill.

258.28(a)

4.13.3.a. Permittees must not place bulk or noncontainerized liquid waste in SWLF unless:

258.28(a)(1)

4.13.3.a.A. The waste is household waste other than septic waste; or

258.28(a)(2)

4.13.3.a.B. The waste is leachate or gas condensate derived from the SWLF, whether it is a new or existing SWLF or lateral expansion, is designed with a composite liner and leachate collection system as described in section 4.5.4.a.B of this rule.

258.28(a)(2)

4.13.3.a.C. The Permittee must place the demonstration in the operating record and notify the director that it has been placed in the operating record.

258.28(b)

4.13.3.b. Permittees must not place containers holding liquid waste in a SWLF unless:

258.28(b)(1)

4.13.3.b.A. The container is a small container similar in size to that normally found in household waste;

258.28(b)(2)

4.13.3.b.B. The container is designed to hold liquids for use other than storage; or

258.28(b)(3)

4.13.3.b.C. The waste is household waste.

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. Alternative 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 this rule, drums and other bulk containers shall must 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 this rule 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 alternative alternate schedule may be approved by the director.

4.13.7. Infectious Waste. Waste which has the appearance of infectious waste, as defined in section 2 of these regulations this rule, shall must not be disposed of in a landfill except in accordance with section 4.7.2.f of these regulations this rule. Nonhazardous bottom ash from the incineration of infectious waste shall must not be considered infectious waste.

4.13.8. Sewage Sludge.

4.13.8.a. Sewage sludge disposed at a landfill shall must 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 director prior to disposal. Alternative sludge disposal methods can be utilized upon obtaining written approval from the chief director.

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 division Department may require the landfill operator to periodically sample and analyze incoming sewage sludge.

4.13.9. Shredder Fluff. Shredder fluff shall must not be disposed of in any facility unless specifically approved in writing by the chief director.

4.13.10. Municipal Incinerator Ash. Ash from municipal incinerators shall must be disposed of on a liner system that conforms to the requirements of 47 C.S.R. CSR 35.

4.13.11. Petroleum-Contaminated Soils. Soils contaminated with petroleum shall must 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 this rule these regulations.

5.1.1.b. Waste characterization must be performed in accordance with section 5.1 of this rule 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 natural 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 at 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, permit ~~license~~ number, the hours of operation, the hours waste may be received, 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 this rule 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 air pollution control management rules;

5.1.3.a.N. Ash and residue must be disposed of at a solid waste facility permitted by the chief director to accept the material or be handled by an alternative 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 this rule these regulations. Ash or residue from a facility with a design capacity of five hundred (500) pounds per hour ~~shall~~ must be placed in a monofill which ~~shall~~ must meet the design requirements of 47 G.S.R. CSR 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 director must be notified to allow inspection of the facility both prior to and during any performance test(s) 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 director in writing, must be used during any time that the facility is inoperative; 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 an ash 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 Characteristic Leaching Procedure (TCLP) 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 director; 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 director may specify an alternative 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 this rule if the chief director determines through an examination of information required in section 5.1.3.a.T of these regulations this rule 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 director has first issued a permit for the activities in accordance with the requirements of this rule 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 this rule to be received or handled at a transfer station unless

the chief director has specifically approved handling that waste by ~~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 a 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 this rule 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~~ must identify the operation by posting and maintaining a sign in accordance with section 4.6.1.a.M of this rule these regulations.

5.2.4. Access Control.

5.2.4.a. A gate or other barriers ~~shall~~ must 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~~ must 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~~ must be limited to times when an attendant is on duty.

5.2.5. Access Roads. Access roads ~~shall~~ must be designed, constructed, and maintained in accordance with section 4.5.3 of this rule these regulations.

5.2.6. Measuring Waste. Solid waste delivered to a transfer station ~~shall~~ must be accurately weighed or otherwise accurately measured prior to unloading in accordance with the provisions of 110 C.S.R. CSR 6A § sections 4.2 and 4.3.

5.2.7. Operations and Equipment.

5.2.7.a. Loading, unloading, storage, compaction and related activities ~~shall~~ must be conducted in an enclosed building, unless otherwise approved by the chief director.

5.2.7.b. The permittee shall must maintain on the site equipment necessary for operation of the facility in accordance with the permit. The equipment shall must be maintained in an operable condition.

5.2.7.c. Standby equipment shall must 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 must utilize standby equipment as necessary to comply with this rule these regulations.

5.2.7.d. Equipment shall must 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 must be cleaned at the end of each working day.

5.2.8. Unloading Area.

5.2.8.a. The approach and unloading area shall must 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 must be constructed of impervious material which is capable of being cleaned by high pressure water spray and shall must 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 must 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 must direct vehicles to the unloading area.

5.2.8.e. The permittee shall must ensure that collection vehicles unload waste promptly in unloading areas.

5.2.8.f. Solid waste shall must be confined to the unloading area and the approved storage areas.

5.2.9. Cleaning and Maintenance.

5.2.9.a. All areas within the building shall must be kept clean.

5.2.9.b. The operator must 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 must be properly maintained, and the floors shall must be well drained.

5.2.9.d. Macerators, hammer mills, and grinders shall must be cleanable and shall must be equipped with drains that connect to a sanitary sewer system or treatment facility.

5.2.9.e. Provision shall must be made for the routine operational maintenance of the facility.

5.2.10. Water Quality Protection. All permit holders must meet the requirements of §22-11 and the rules promulgated thereunder. 46 C.S.R. 1.

5.2.11. Other Requirements.

5.2.11.a. The operator shall must also prevent and eliminate conditions not otherwise prohibited by these regulations this rule 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 must prevent the attraction, harborage or breeding of vectors.

5.2.11.d. Salvaging of materials must 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 must be promptly removed from the unloading area and either stored in an approved area or transported off site.

5.2.11.f. The operator must 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 must 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 must be collected at least weekly from fences, roadways, tree line barriers, and other barriers and disposed or stored in accordance with the act Act, and the regulations and rules promulgated thereunder, unless a greater frequency is set forth in the permit.

5.2.11.i. A facility subject to these regulations this rule shall must 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 must meet all of the reporting requirements as specified in section 4.12 of this rule these regulations.

5.2.11.k. The facility ~~shall~~ must 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~~ must be accepted at the facility. No industrial waste, infectious waste, construction and demolition debris, or hazardous waste regulated under 47 C.F.R. CSR 35 ~~shall~~ must be accepted unless specifically approved by the chief director.

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 division ~~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 that 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 must ~~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~~ must meet all of the requirements in section 4 of these regulations this rule unless an alternative standard from section 5.4.2 of these regulations this rule is met or the chief director has granted, upon written request, an exemption from a specific requirement of section 4 of this rule these regulations.

5.4.2.a. A liner system for a Class D-1 solid waste facility ~~shall~~ must 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~~ must 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~~ must:

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 1×10^{-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 the 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~~ must be submitted to the ~~chief~~ director prior to the placement of the leachate collection and protective cover zone.

5.4.2.d. The leachate collection and protective cover zone ~~shall~~ must:

5.4.2.d.A. Create a flow zone between the compacted soil 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;

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~~ must also meet the following:

5.4.2.d.G.(a) The slope sizing and spacing of the piping system ~~shall~~ must ensure 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~~ must be installed perpendicular to the flow;

5.4.2.d.G.(d) The minimum diameter of the perforated pipe ~~shall~~ must be four (4) inches with a wall thickness of Schedule 40 or greater;

5.4.2.d.G.(e) The pipe ~~shall~~ must be capable of supporting anticipated loads without failure based on facility design;

5.4.2.d.G.(f) Rounded stones or aggregates ~~shall~~ must be placed around the pipes of the piping system. The stones or aggregates ~~shall~~ must be sized to prevent clogging of the pipes and damage to the composite liner;

5.4.2.d.G.(g) The piping system ~~shall~~ must be installed in a fashion that facilitates cleanout, maintenance, and monitoring. Manholes or cleanout risers ~~shall~~ must be located along the perimeter of the leachate detection piping system. The number and spacing of the manholes or cleanout risers ~~shall~~ must be sufficient to ensure 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~~ must 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~~ must be submitted to the chief director 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 this rule unless otherwise required by the director, but must comply with the requirements of sections 5.4.3.a through 5.4.3.g of these regulations this rule.

5.4.3.a. Access shall must be controlled in such a manner as to discourage unauthorized entry and shall must 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 must 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 must be revegetated to prevent erosion and sedimentation in accordance with section 4.5.6 of this rule 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 must 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 must notify the chief director 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 director may require a Class D -2 solid waste facility to meet any specific requirement in section 4 of this rule 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 section 5.5 of this rule 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 director chief may waive or modify the requirements of the subsections of section 3 of this rule these regulations that are listed in section 5.5.1.a of this rule these regulations and the requirements of the subsections of section 4 of this rule these regulations that are listed in section 5.5.1.b of this rule these regulations. Failure of the applicant to supply documentation requested by the director chief, which is necessary to justify the requested waiver or modification, are shall be grounds for waiver or modification denial. Each request for waiver or modification of a requirement of section 3 or 4 of this rule must 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 this rule these regulations which may be waived or modified by the director 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 this rule 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 this rule 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 this rule these regulations may also be waived or modified by the director chief for coal combustion by-product facilities.

5.5.1.b. The following requirements of section 4 of this rule these regulations which may be waived or modified by the director chief for Class F 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 this rule 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 this rule must 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 HDPE 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 alternative 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 alternative liner systems for landfills may be approved by the director ~~chief~~ on a case-by-case basis. Such alternative liner system may be more or less stringent than the liner system described in section 5.5.2.a.A of this rule ~~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 alternative liner design at the applicant's facility may result in the director ~~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 director ~~chief~~ on a case-by-case basis. Such determination must ~~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 director chief on a case-by-case basis. Taking into account site-specific conditions, an appropriate groundwater interceptor drainage system, which must shall also serve as a leachate detection system, must 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 this rule these regulations do not apply to coal combustion by-product surface impoundments. Surface impoundments associated with a coal combustion by-product facility shall be are not subject to any of the groundwater monitoring requirements of this rule 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 this rule are these regulations shall be as follows:

5.5.2.b.A. Operating landfills in existence on the effective date of this rule 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 this rule these regulations. Groundwater remediation may be determined on a case-by-case basis by the director chief based upon an evaluation of the information from groundwater monitoring and assessment programs, as provided for in section 4.11 of this rule these regulations. Upon evidence of such contamination, a corrective action program may be required as described in section 4.11.5 of this rule these regulations. Such corrective action programs may include closure in accordance with section 6 of this rule these regulations, retrofit in accordance with section 5.5.2.a of this rule 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 this rule these regulations, the liner provisions of sections 5.5.2.a.A, 5.5.2.a.B, and 5.5.2.a.C of this rule these regulations and the provisions of section 4.11 of this rule 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 this rule these regulations except for currently-permitted closed facilities or in connection with any remedial or corrective action program ordered by the director chief.

5.5.2.b.C. The requirements of this rule these regulations are not applicable to coal combustion by-product disposal surface impoundments in existence on or before the effective date of this rule these regulations and which are operating under a permit issued under WV Code §22-11 §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 director 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 this rule these regulations, may require a corrective action program as described in section 4.11.6 4.11.5 of this rule 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 this rule 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 this rule 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 must shall, unless waived by the director 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 director chief in writing.

5.5.2.c.A.(a) The monitoring parameters listed in section 5.5.2.c.A of this rule must these regulations shall be reported as total metals, unless otherwise specified by the director 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 this rule these regulations so long as such uses are consistent with the requirements of section 5.5.2.d of this rule 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 this rule 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 director 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 WV Code Chapter 22, Articles 2 and 3 of the West Virginia Division of Environmental Protection 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 Division Department of Highways or the project owner.

Note: section 5.5.2.d of this rule 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 rulemaking. 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~~ are as follows:

5.5.3.a.A. Except as otherwise provided in section 5.5.3 of this rule these ~~regulations~~, all provisions of section 4 of this rule these ~~regulations~~ ~~shall be~~ are applicable to industrial solid waste landfills and industrial solid waste disposal surface impoundments constructed after the effective date of this rule these ~~regulations~~.

5.5.3.a.A.(a) Any provision of section 4 of this rule these ~~regulations~~ may be waived or modified by the director ~~chief~~ upon written request of the permittee if such provision, in the discretion of the director ~~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 director ~~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 this rule these regulations, the liner provisions in sections 4 and 5.5 of this rule these regulations shall not apply to closed or closed portions of such landfills. However, the liner provisions shall be 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 this rule 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 this rule these regulations.

5.5.3.a.C. Solid waste disposal surface impoundments in operation on the effective date of this rule these regulations may continue operation throughout the design life of the impoundment, provided the impoundment shall must not be expanded to a size greater than the design approved by the director chief in the permit last issued for the facility. Groundwater remediation may be determined on a case-by-case basis by the director chief based upon an evaluation of the information developed under the assessment provisions of section 4.11.5 of this rule these regulations.

5.5.3.b. Appropriate monitoring provisions of section 4.11 of this rule 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 this rule these regulations. No monitoring shall be required for such facilities closed prior to the effective date of this rule these regulations except for closed facilities under permit as of the effective date of this rule these regulations or in connection with any remedial or corrective action program ordered by the director chief.

5.6. Requirements for Uncommon or Miscellaneous Facilities.

5.6.1. Green Boxes, Bins, roll-offs 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.a.5.6.1.b. Each person who causes to be placed a green box, bin, roll-off or dumpster at places other than approved solid waste facilities shall be are responsible for maintenance, prevention of litter, and open dump control, and leachate management at the site of the dumpster.

5.6.2. Composting. (Reserved)

Note: Composting requirements are regulated under Title 47 Series 38D "Sewage Sludge Management Regulations", and Title 47 Series 38E "Yard Waste Composting Regulations."

§47-38-6. Closure and Post-Closure Care Bond Release.

6.1. Permanent Closure Criteria.

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 director determines that closure is required, cease to accept waste and perform closure activities at ~~close~~ the facility or portion thereof in accordance with the plan approval issued by the chief director and the provisions of section 6.1 of these regulations this rule unless otherwise approved by the chief director in writing.

6.1.1.a. Upon request of the permittee, or upon the director's his own initiative, the chief director may waive or modify any of the closure requirements of section 6 of these regulations this rule 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.

258.16

6.1.1.b. Closure of existing solid waste landfills.

258.16(a)

6.1.1.b.A. Existing SWLFs that cannot make the demonstration specified in section 3.2.7 pertaining to airports, section 3.2.4 pertaining to floodplains, or section 3.2.10 pertaining to unstable areas, must close by October 9, 1996, in accordance with section 6.1 of this rule and conduct post-closure activities in accordance with section 6.3 of this rule.

258.16(b)

6.1.1.b.B. The deadline for closure may be extended up to two years if the permittee can demonstrate to the director in writing that:

258.16(b)(1)

6.1.1.b.B.(a) There is no available alternative disposal capacity;

258.16(b)(2)

6.1.1.b.B.(b) There is no immediate threat to human health and the environment.

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 ~~must~~ notify the chief director in writing of the intent to close the facility and the expected date of closure. Prior to this date, the permittee shall ~~must~~ notify all users of the facility of the intent to close the facility so that alternative disposal options may be evaluated ~~can be arranged~~.

6.1.2.b. Signs shall ~~must~~ 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 ~~must~~ 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 director 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 must restrict access by the use of gates, fencing, or other appropriate means to ensure 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 director.

6.1.4. **Deed Notation.**

258.60(i)(1) and (2)

6.1.4.a. Following Upon closure of all portions of the SWLF a landfill, the owner or operator must record a deed notation to the SWLF facility property with the county clerk's office that shall must be available with the deed of the property that will in perpetuity notify any potential purchaser that of the following: (The permittee must also retain a copy of the deed notation in the facility operating record.)

258.60(i)(2)(i)

6.1.4.a.A. The land has been used as a landfill facility;

258.60(i)(2)(ii)

6.1.4.a.B. Its use is restricted under section 6.3.6.c 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.

258.60(j)

6.1.4.a.C. The permittee may request permission from the director to remove the notation from the deed if all wastes are removed from the facility.

6.1.4.b. The deed shall must include at a minimum:

6.1.4.b.A. 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 director.

6.1.4.c. A certification of deed notation must be filed with the chief director within ninety (90) days of closure.

258.60

6.1.5. Closure and Post-Closure Care.

258.60(a) (Part 1)

6.1.5.a. Unless otherwise approved by the chief director in writing, the closure plan shall must include the following: installation of a

final cover system that is designed to minimize infiltration and erosion, as follows:

258.60(a) (Part 2)

6.1.5.a.A. The permittee shall must provide a final cover system comprised of an erosion layer underlain by an infiltration layer and grading in the following manner:

6.1.5.a.A.(a) Gas Management Layer. A one (1) foot layer of a material with a high hydraulic conductivity or a geocomposite drainage layer having a permeability of at least 1×10^{-3} cm/sec may be used in lieu of the one (1) foot drainage layer shall must be placed directly on the intermediate cover refuse mass to facilitate landfill gas control;

6.1.5.a.A.(b) Clay Cap Layer. 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 must be placed and graded over the entire surface of each final lift in six (6) inch lifts. The chief director may, in the issued permit, approve the use of a synthetic material in lieu of the layer of clay;

258.60(a)(1)

6.1.5.a.A.(b)(A) An alternative clay cap layer may be approved by the director on a site-specific basis. In no case may this (infiltration) layer be comprised of a less than a minimum of 18 inches of earthen material that has a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present, or a

permeability no greater than 1×10^{-5} cm/sec, whichever is less, and

6.1.5.a.A.(c) Drainage Layer. A one (1) foot drainage layer that is more permeable than 1×10^{-3} cm/s or a geocomposite drainage layer having a permeability of at least 1×10^{-3} cm/sec may be used in lieu of the one (1) foot drainage layer, and capable of transmitting flow and preventing erosion shall must be placed over the cap. and

256.60(a)(2)

6.1.5.a.A.(d) Vegetative Cover Layer. A uniform and compacted layer of soil that is at least two (2) feet in thickness and capable of supporting vegetation shall must be placed over the drainage layer. The erosion layer portion of the drainage layer must consist of a minimum six (6) inches of earthen material that is capable of sustaining native plant growth.

6.1.5.a.B. Placement of Final Cover.

The operator shall must place final cover within six (6) months one (1) year after disposal in the final lift ceases or as soon thereafter as weather permits, unless the permittee he obtains written approval from the chief director 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 director 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 this rule, or 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.

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 earthen material or a layer of synthetic material acceptable to the chief director.

6.1.5.a.D. The grade of the final surface of the facility shall must not be less than three percent (3%) nor more than twenty-five percent (25%) unless otherwise approved by the chief director as a part of the issued permit. Long slopes shall must 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 must complete seeding, fertilizing, and mulching of the finished surface. The seed type and amount of fertilizer applied shall must 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 director in writing, seed mixture and application rates must be in accordance with section 4.5.6 of these regulations this rule.

6.1.5.a.F. Additional information may be required at the discretion of the chief director.

6.1.5.a.G. ~~6.1.5.b.~~ A closure plan for solid waste facilities other than landfills shall must include the requirements of sections 6.1.5.a.D and 6.1.5.a.E of these regulations this rule and any other requirement specified by the chief director.

258.60(b)

6.1.5.b. Alternative Final Cover Design The director may approve an alternative final cover design that includes:

258.60(b)(1)

6.1.5.b.A. An infiltration layer that achieves an equivalent reduction in infiltration as the infiltration layer specified in section 6.1.5.a.A.(b)(A) and

258.60(b)(2)

6.1.5.b.B. An erosion layer that provides equivalent protection from wind and water erosion as the erosion layer specified in section 6.1.5.a.A.(d).

258.60(c) (Part 1)

6.1.5.c. The permittee must prepare a written closure plan that describes the steps necessary to close all portions of the SWLF at any point during its active life in accordance with the cover design requirements in section 6.1.5.a or 6.1.5.b, as applicable.

258.60(c) (Part 2)

6.1.5.c.A. The closure plan, at a minimum, must include the following information:

258.60(c)(1)

6.1.5.c.A.(a) A description of the final cover, designed in accordance with section 6.1.5.a and the methods and procedures to be used to install the cover;

258.60(c)(2)

6.1.5.c.A.(b) An estimate of the largest area of the SWLF ever requiring a final cover as required under section 6.1.5.a at any time during the active life;

258.60(c)(3)

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

258.60(c)(4)

6.1.5.c.A.(d) A schedule for completing all activities necessary to satisfy the closure criteria in section 6 of this rule.

258.60(d)

6.1.5.d. The permittee must notify the director that a closure plan has been prepared and placed in the operating record no later than the effective date of this rule, or by the initial receipt of waste, whichever is later.

258.60(e)

6.1.5.e. Prior to beginning closure of each portion of the SWLF as specified in section 6.1.5.f a permittee must notify the director that a notice of the intent to close the portion of the SWLF has been placed in the operations record.

258.60(f) (Part 1)

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

258.60(f) (Part 2)

6.1.5.f.A. Extensions beyond the one-year deadline for beginning closure may be granted by the director if the permittee demonstrates that the SWLF has the capacity to receive additional wastes and the permittee has taken and will continue to take all steps necessary to prevent threats to human health and the environment from the unclosed portion of the SWLF.

258.60(g) (Part 1)

6.1.5.g. The permittee of all SWLFs must complete closure activities of each SWLF in accordance with the closure plan within 180 days following the beginning of closure as specified in section 6.1.5.f of this rule

258.60(g) (Part 2)

6.1.5.g.A. Extensions of the closure period may be granted by the director if the permittee demonstrates that closure will, of necessity, take longer than 180 days and he or she has taken and will continue to take all steps to prevent threats to human health and the environment from the unclosed portion of the SWLF.

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.

258.60h

6.1.7.a. Following closure of each portion of the SWLF, all closure activities must be inspected and approved by a registered professional engineer prior to the application to the chief director for closure approval. The permittee must also notify the director, in writing of this certification, signed by an independent registered professional engineer and approved by the director, verifying that closure has been completed in

accordance with the closure plan. A copy of all related information must be retained in the facility operating record.

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~~ must 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~~ must:

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 this rule.

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 this rule.

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 facility.

6.2.7. Other Assurances. Provide any other assurance specified by the director.

258.61(a) (Part 1)

6.3. Post-Closure Care Requirements.

Following closure of each portion of the SWLF, the permittee must conduct post-closure care as required by the permit. Post-closure care shall must continue for up to thirty (30) ~~ten (10)~~ years after final closure of areas unless otherwise modified extended by the director and shall must consist of the following:

258.61(a)(1)

6.3.1. Monitoring. Monitoring ~~shall~~ must 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~~ must be repaired promptly. Such repairs ~~shall~~ must include any necessary regrading, additions of fill material, and revegetation of settled areas, while maintaining the integrity and effectiveness of any final cover, including making repairs to the cover as necessary to correct the effects of settlement, subsidence, erosion, or

other events, and preventing run-on and run-off from eroding or otherwise damaging the final cover;

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 must be repaired immediately. Such repairs shall must 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 must be monitored by the permittee, at a minimum frequency of once each month during the post-closure period, to ensure 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 must be promptly removed and disposed of at an approved solid waste facility. Evidence of disease vectors shall must be treated promptly.

258.61(a)(2) (Part 1)

6.3.4.a. Maintaining and operating the leachate collection system in accordance with the requirements in section 4.5.4.a.

258.61(a)(2) (Part 2)

6.3.4.a.A. The director may allow the permittee to stop managing leachate if the permittee demonstrates that leachate no longer poses a threat to human health and the environment;

258.61(a)(3)

6.3.4.b. Monitoring the groundwater in accordance with the requirements of section 4.11. and maintaining the groundwater monitoring system, if applicable; and

258.61(a)(4)

6.3.4.c. Maintaining and operating the gas monitoring system in accordance with the requirements of section 4.10 of this rule.

258.61(b)

6.3.5. Length of the Post-Closure Care Period The length of the post-closure care period may be:

258.61(b)(1)

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

258.61(b)(2)

6.3.5.b. Increased by the director, if the director determines that the lengthened period is necessary to protect human health and the environment.

258.61(c)

6.3.6. Post-Closure Plan The permittee of all SWLFs must prepare a written post-closure plan that includes, at a minimum, the following information:

258.61(a)(1)

6.3.6.a. A description of the monitoring and maintenance activities required in section 6.3 for each SWLF, and the frequency at which these activities will be performed;

258.61(a)(2)

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

258.61(a)(3) (Part 1)

6.3.6.c. A description of the planned uses of the property during the post-closure period.

258.61(a)(3) (Part 2)

6.3.6.c.A. Post-closure use of the property must not disturb the integrity of the final cover, liner(s), or any other components of the containment system, or the function of the monitoring systems unless necessary to comply with the requirements in this rule.

258.61(a)(3) (Part 3)

6.3.6.c.B. The director may approve any other disturbance if the permittee demonstrates that disturbance of the final cover, liner or other component of the containment system, including any removal of waste, will not increase the potential threat to human health or the environment.

258.61(d)

6.3.7. The permittee must notify the director that a post-closure plan has been prepared and placed in the operating record no later than the effective date of this rule, or by the initial receipt of waste, whichever is later.

258.61(e)

6.3.7.a. Following completion of the post-closure care period for each portion of the SWLF, the permittee must notify the director that a certification, signed by an independent registered professional engineer and approved by the director, verifying that post-closure care has been completed in accordance with the post-closure plan, has been placed in the operating record.

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 rules and regulations of the West Virginia Department of Natural Resources Division of Environmental Protection, all terms and conditions of the facility permit(s), including the approved closure plan, and all 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, all other environmental laws of the State of West Virginia, the rules and regulations of the division 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, and will not cause, any 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 this rule, the permittee will be eligible for bond release pursuant to section 6.6 of these regulations this rule.

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 this rule, the director shall will initiate proceedings for bond forfeiture pursuant to section 6.5 of these regulations this rule.

6.5. Bond Forfeiture.

6.5.1. Procedure. If the director declares a bond or any other form of financial assurance provided by the permittee forfeited, he shall the director will:

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 the director's ~~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 Bonds and other Forms of Financial Assurance. If the director declares a collateral bond forfeited, he shall the director will 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 division Department the proceeds of a collateral undertaking such as a certificate of deposit, letter of credit or government negotiable bond, the director shall will take appropriate steps to collect the proceeds.

6.5.3. Surety Bond. If the director declares a surety bond forfeited, he or she will 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, post-closure and all necessary remedial actions have been accomplished shall must be deposited in the Solid Waste Enforcement Fund that was established pursuant to W. Va. WV Code §22-15-11(h)(1) 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 this rule.

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 or rules promulgated thereunder, orders issued by the ~~chief or the~~ director, or the terms and conditions of permits are expressly preserved. Nothing in these regulations this rule is an exclusive penalty or remedy for such a violation. No action taken under these regulations this rule 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 at any time after April 17, 1988.

7.1.3. Except as provided in sections 7.1.4 and 7.1.5 of this rule these regulations, no landowner may allow an open dump to exist on his or her

property unless such open dump is under a compliance schedule approved by the director 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 or her residence or farm is not deemed to constitute a violation of section 7.1.3 of this rule ~~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 or her 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 or her 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 this rule ~~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 division ~~Department~~ in stopping the dumping. Cooperation with the division ~~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 WV Code §20-7-26(b); or

7.1.5.e. Testimony before a judicial officer regarding the identity of contributors to the dump.

7.1.6. Open burning of solid waste is prohibited.

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 director 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 division Department policy, ~~or~~ regulation, or rule.

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 or she 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 division 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, or rule 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 Environmental Quality Water Resources Board pursuant to the provisions of the WV Code §22B-3-1 et seq. 20-5F-7.

7.5. Cooperation with the State Division Department of Highways.

7.5.1. Roadway Specifications. Standards and design specifications for roadways which provide access to municipal solid waste facilities, as promulgated by the commissioner of the West Virginia Division Department of Highways, are hereby incorporated by reference. A municipal 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 director may designate authorized representatives to coordinate with authorized representatives of the commissioner of the West Virginia Division 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 rules or regulations promulgated by the Division Department of Highways.

7.6. Cooperation with the State Tax and Revenue Division Department.

7.6.1. The division Department will cooperate with the State Tax Commissioner in the handling of proceeds received by the State Tax and Revenue Division Department from fees collected pursuant to the Act.

7.7. Cooperation with the State Health Division Department.

7.7.1. The division Department will cooperate with the West Virginia Division 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 division 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 division Department resources and appropriations available for such purposes.

APPENDIX I
CONSTITUENTS FOR PHASE I DETECTION MONITORING¹

GROUP A:

Inorganic Constituents:

<u>COMMON NAME²</u>	<u>CAS RN³</u>
Acidity.....	(Total)
Aluminum.....	(Total)
Alkalinity.....	(Total)
Ammonia Nitrogen.....	(Total)
Antimony.....	(Total)
Arsenic.....	(Total)
Barium.....	(Total)
Beryllium.....	(Total)
Bicarbonates.....	(mg/l)
Boron.....	(Total)
Cadmium.....	(Total)
Chlorides.....	(Total)
Chromium.....	(Total)

Cobalt.....	(Total)
COD.....	(mg/l)
Copper.....	(Total)
Cyanide (Free).....	(Total)
Dissolved Manganese.....	(Total)
Iron.....	(Total)
Lead.....	(Total)
Magnesium.....	(Total)
Mercury.....	(Total)
Molybdenum.....	(Total)
Nickel.....	(Total)
Nitrate.....	(Total)
pH.....	(Std. Units)
Potassium.....	(Total)
Selenium.....	(Total)
Silver.....	(Total)
Sodium.....	(Total)
Specific Conductivity.....	(Micro Ohms)
Sulfate.....	(Total)
TDS.....	(mg/l)
Thallium.....	(Total)
TOC.....	(mg/l)
Total Phenolic Materials.....	(Total)
TSS.....	(Total)
Turbidity.....	(Total)
Vanadium.....	(Total)
Zinc.....	(Total)

¹ This list contains volatile organics for which possible analytical procedures provided in EPA Report SW-846 "Test Methods for Evaluating Solid Waste," third edition, November 1986, as revised December 1987, includes Method 8260; and 15 metals for which SW-846 provides either Method 6010 or a method from the 7000 series of methods.

² Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

³ Chemical Abstracts Service registry number. Where "Total" is entered, all species in the groundwater that contain this element are included.

In addition to the above, the following parameters should be analyzed:

Temperature, hardness, total dissolved solids, total suspended solids, (BOD-5day), fluoride, nitrite, hexavalent chromium and calcium.

GROUP B:

Organic Constituents:

<u>COMMON NAME</u>	<u>CAS RN</u>
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; Chlorodibromomethane.....	124-48-1
1,2-Dibromo-3-chloropropane; DBCP.....	96-12-8
1,2,-Dibromoethane; Ethylene dibromide; EDB.....	106-93-4
o-Dichlorobenzene; 1,2-Dichlorobenzene.....	95-50-1
p-Dichlorobenzene; 1,4-Dichlorobenzene.....	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-Dichloroethene;	
Vinylidene chloride.....	75-35-4
cis-1,2-Dichloroethylene; cis-1,2-	
Dichloroethene.....	156-59-2
trans-1,2-Dichloroethylene; 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 II
PHASE II ASSESSMENT MONITORING

GROUP A:
INORGANIC AND ORGANIC CONSTITUENTS

<u>COMMON NAME</u>	<u>CAS RN</u>	<u>CHEMICAL ABSTRACTS</u> <u>SERVICE INDEX NAME</u>	<u>SUGGESTED</u> <u>MEHTODS</u>	<u>POL</u> <u>(UG/L)</u>
Acenaphthene	83-32-9	Acenaphthylene, 1,2-dihydro	8100 8270	200 10
Acenaphthylene	208-96-8	Acenaphthylene	8100 8270	200 10
Acetone	67-64-1	2-Propanone	8260	100
Acetonitrile; Methyl cyanide	75-05-8	Acetonitrile	8015	100
Acetophenone	98-86-2	Ethanone, 1-phenyl	8270	10
2-Acetylamino fluorene; 2-AAF	53-96-3	Acetamide, N-9H-fluoren-2-yl-	8270	20
Acrolein	107-02-8	2-Propenal	8030 8260	5 100
Acrylonitrile	107-13-1	2-Propenenitrile	8030	5
Aldrin	309-00-2	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro- 1,4,4a,5,8,8a-hexahydro- (1a,4a,4aB,5a,8a,8aB)-	8080 8270	.05 10
Allyl chloride	107-05-1	1-Propene, 3-chloro-	8010 8260	5 10
4-Aminobiphenyl	92-67-1	{1,1-Biphenyl}-4-amine	8270	20
Anthracene	120-12-7	Anthracene	8100 8270	200 10
Antimony	(Total)	Antimony	6010 7040 7041	300 2000 30
Arsenic	(Total)	Arsenic	6010 7060 7061	500 10 20
Barium	(Total)	Barium	6010 7080	20 1000

Benzene	71-43-2	Benzene	8020	2
			8021	0.1
			8260	5
Benzo(a)anthracene;	56-55-3	Benz(a)anthracene	8100	200
Benzanthracene			8270	10
Benzo(b)fluoranthene	205-99-2	Benz(e)acephenanthrylene	8100	200
			8270	10
Benzo(k)fluoranthene	207-08-9	Benzo(k)fluoranthene	8100	200
			8270	10
Benzo(ghi)perylene	191-24-2	Benzo(ghi)perylene	8100	200
			8270	10
Benzo(a)pyrene	50-32-8	Benzo(a)pyrene	8100	200
thene			8270	10
Benzyl alcohol	100-51-6	Benzenemethanol	8270	20
Beryllium	(Total)	Beryllium	6010	3
			7090	50
			7091	2
alpha-BHC	319-84-6	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1a,2a,3B,4a,5B,6B)	8080	0.05
			8270	10
beta-BHC	319-85-7	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1a,2a,3B,4a,5B,6B)	8080	0.05
			8270	20
delta-BHC	319-86-8	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1a,2a,3a,4B,5a,6B)	8080	0.1
			8270	20
gamma-BHC;	58-89-9	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1a,2a,3B,4a,5a,6B)	8080	0.05
Lindane			8270	20
Bis(2-chloroethoxy)methane	111-91-1	Ethane, 1,1-(methylenebis(oxy))bis(2-chloro-	8110	5
			8270	20
Bis(2-chloroethyl ether; Dichloroethyl ether	111-44-4	Ethane, 1,1-oxybis(2-chloro-	8110	3
			8270	10
Bis(2-chloro-1-methylethyl) ether;	108-60-1	Propane, 2,2-oxybis(1-chloro-	8110	10
2,2-Dichlorodiisopropyl ether; DCIP See Note 7.			8270	10
Bis(2-ethylhexyl) phthalate	117-81-7	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester	8060	20

Bromochlorome-	74-97-5	Methane, bromochloro-	8021	0.1
thane; Chloro-			8260	5
bromomethane				
Bromodichlorome-	75-27-4	Methane, bromodichloro-	8010	1
thane; Dibromo-			8021	0.2
chloromethane			8260	5
Bromoform;-	75-25-2	Methane, tribromo	8010	2
Tribromomethane			8021	15
			8260	5
4-Bromophenyl	101-55-3	Benzene, -bromo-4-phenoxy	8110	5
phenyl ether			8270	10
Butyl benzyl	85-68-7	1,2-Benzenedicarboxylic acid,	8060	5
phthalate; Benzyl		butyl phenylmethyl ester	8270	10
butyl phthalate				
Cadmium	(Total)	Cadmium	6010	40
			7130	50
			7131	1
Carbon disulfide	75-15-0	Carbon disulfide	8260	100
Carbon tetrachlo-	56-23-5	Methane, tetrachloro-	8010	1
ride			8021	0.1
			8260	10
Chlordane	See Note 8	4,7-Methano-1H-indene,	8080	0.1
		1,2,4,,5,6,7,8,8-octachloro-	8270	50
		2,3,3a,4,7,7a-hexahydro-		
p-Chloroaniline	106-47-8	Benzenamine, 4-chloro	8270	20
Chlorobenzene	108-90-7	Benzene, chloro-	8010	2
			8020	2
			8021	0.1
			8260	5
Chlorobenzilate	510-15-6	Benzenecetic acid, 4-chloro-	8270	10
		a-(4-chlorophenyl)-a-		
		hydroxyethyl ester		
p-Chloro-m-cresol;	59-50-7	Phenol, 4-chloro-3-methyl-	8040	5
4-Chloro-3-			8270	20
methylphenol				
Chloroethane;	75-00-3	Ethane, chloro-	8010	5
Ethyl chloride			8021	1
			8260	10
Chloroform,	67-66-3	Methane, trichloro-	8010	0.5
Trichloromethane			8021	0.2
			8260	5

2-Chloronaphth- alene	91-58-7	Naphthalene, 2-chloro-	8120 8270	10 10
2-Chlorophenol	95-57-8	Phenol, 2-chloro-	8040 8270	5 10
4-Chlorophenyl phenyl ether	7005-72-3	Benzene, 1-chloro-4-phenoxy-	8110 8270	40 10
Chloroprene	126-99-8	1,3-Butadiene, 2-chloro-	8010 8260	50 20
Chromium	(Total)	Chromium	6010 7190 7191	70 500 10
Chrysene	218-01-9	Chrysene	8100 8270	200 10
Cobalt	(Total)	Cobalt	6010 7200 7201	70 500 10
Copper	(Total)	Copper	6010 7210 7211	60 200 10
m-Cresol; 3-methy- lphenol	108-39-4	Phenol, 3-methyl	8270	10
o-Cresol; 2-methy- lphenol	95-48-7	Phenol, 2-methyl	8270	10
p-Cresol; 4-methy- lphenol	106-44-5	Phenol, 4-methyl	8270	10
Cyanide	57-12-5	Cyanide	9010	200
2,4-D; 2,4-Dichlo- rophenoxyacetic acid	94-75-7	Acetic acid (2,4-dichloro- phenoxy)	8150	10
4,4-DDD	72-54-8	Benzene 1,1-(2,2-dichloro- ethylidene)bis(4-chloro-	8080 8270	0.1 10
4,4-DDE	72-55-9	Benzene 1,1-(dichloro- ethvenylidene)bis(4-chloro-	8080 8270	0.05 10
4,4-DDT	50-29-3	Benzene 1,1-(trichloro- ethylidene)bis(4-chloro-	8080 8270	0.1 10
Diallate	2303-16-4	Carbamothioic acid, bis(1- methylethyl)-S-(2,3-dichloro- 2-propenyl) ester	8270	10

Dibenz(a,h)anthra- cene	53-70-3	Dibenz(a,h)anthracene	8100 8270	200 10
Dibenzofuran	132-64-9	Dibenzofuran	8270	10
Dibromochlorometh- ane; Chlorodibromomethane	124-48-1	Methane, dibromochloro-	8010 8021 8260	1 0.3 5
1,2-Dibromo- 3-chloropropane; DBCP	96-12-8	Propane, 1,2-dibromo-3-chloro- Ethane, 1,2-dibromo-	8011 8021 8260	0.1 30 25
1,2-Dibromoethane; Ethylene dibromide; EDB	106-93-4	Ethane, 1,2-dibromo	8011 8021 8260	0.1 10 5
Di-n-butyl phtha- late	84-74-2	1,2-Benzenedicarboxylic acid, dibutyl ester	8060 8270	5 10
o-Dichlorobenzene; 1,2-Dichlorobenzene	95-50-1	Benzene, 1,2-dichloro-	8010 8020 8021 8120 8260 8270	2 5 0.5 10 5 10
m-Dichlorobenzene; 1,3-Dichlorobenzene	541-73-1	Benzene, 1,3-Dichloro-	8010 8020 8021 8120 8260 8270	2 5 0.2 10 5 10
p-Dichlorobenzene; 1,4-Dichlorobenzene	106-46-7	Benzene, 1,4-Dichloro-	8010 8020 8021 8120 8260 8270	2 5 0.1 15 5 10
3,3-Dichloroben- zidine	91-94-1	{1,1-Biphenyl}-4,4-diamine, 3,3-dichloro-	8270	20
trans-1, 4-Dichloro- 2-butene	110-57-6	2-Butene, 1,4-dichlor-(E)	8260	100
Dichlorodifluoro- methane; CFC 12	75-71-8	Methane, dichlorodifluoro	8021 8260	0.5 5
1,1-Dichloroethane; Ethylidene chloride	75-34-3	Ethane, 1,1-dichloro	8010 8021 8260	1 0.5 5

1,2-Dichloroethane;	107-06-2	Ethane, 1,1-dichloro, (E)	8010	0.5
		Ethylene dichloride	8021	0.3
			8260	5
1,1-Dichloroethy-	75-35-4	Ethene, 1,1-dichloro	8010	1
lene; 1,1-Dichloro-			8021	0.5
oethene;			8260	5
Vinylidene chloride				
cis-1,2-Dichloroe-	156-59-2	Ethene, 1,2-dichloro-, (Z)	8021	0.2
thylene; cis-1,2-			8260	5
Dichloroethene				
trans-1,2-Dichloro-	156-60-5	Ethene, 1,2-dichloro-, (E)	8010	1
ethylene; trans-1,2-			8021	0.5
			8260	5
Dichloroethene				
2,4-Dichlorophenol	120-83-2	Phenol, 2,4-dichloro-	8040	5
			8270	10
2,6-Dichlorophenol	87-65-0	Phenol, 2,6-dichloro-	8270	10
1,2-Dichloropro-	78-87-5	Propane, 1,2-dichloro-	8010	0.5
pane; Propylene			8021	0.05
dichloride			8260	5
1,3-Dichloropro-	142-28-9	Propane, 1,3-dichloro-	8021	0.3
pane; Trimethylene			8260	5
dichloride				
2,2-Dichloropro-	594-20-7	Propane, 2,2-dichloro-	8021	0.5
pane; Isopropylidene			8260	15
chloride				
1,1-Dichloropro-	563-58-6	1-Propene, 1,1-dichloro-	8021	0.2
pene			8260	5
cis-1,3-Dichlo-	10061-01-5	1-Propene, 1,3-dichloro-(Z)	8010	20
ropropene			8260	10
trans-1,3-Dichlo-	10061-02-6	1-Propene, 1,3-dichloro-(E)	8010	5
ropropene			8260	10
Dieldrin	60-57-1	26,7:3,6-Dimethanonaphth	8080	0.05
		{2,3-b}oxirene, 3,4,5,6,9,	8270	10
		9,-hexa, chloro-1a,2,2a,3,		
		6,6a,7,7a-octahydro-, (1aa,		
		2B,2aa,3B,6B,6aa,7B,7aa)-		
Diethyl phthalate	84-66-2	1,2-Benzenedicarboxylic	8060	5
		acid, diethyl ester	8270	10

0,0-Diethyl 0-2-pyrazinyl phosphorothioate; Thionazin	297-97-2	Phosphorothioic acid, 0,0-diethyl 0-pyrazinyl ester	8141 8270	5 20
Dimethoate	60-51-5	Phosphorodithioic acid, 0,0-diethyl, S-(2-(methylamino)-2-oxoethyl) ester	8141 8270	3 20
p-(Dimethylamino)-azobenzene	60-11-7	Benzenamine, N,N-dimethyl-4-(phenylazo)	8270	10
7,12-Dimethylbenzofluoranthene	57-97-6	Benzofluoranthene, 7,12-dimethyl-	8270	10
3,3-Dimethylbenzidine	119-93-7	{1,1Biphenyl}-4,4-diamine, 3,3-dimethyl-	8270	10
2,4-Dimethylphenol; m-Xylenol	105-67-9	Phenol, 2,4-dimethyl	8040 8270	5 10
Dimethyl phthalate	131-11-3	1,2-Benzenedicarboxylic acid, dimethyl ester	8060 8270	5 10
m-Dinitrobenzene	99-65-0	Benzene, 1,3-dinitro-	8270	20
4,6-Dinitro-o-cresol	534-52-1	Phenol, 2-methyl-4,6-dinitro	8040	150
4,6-Dinitro-2-methylphenol			8270	50
2,4-Dinitrophenol	51-28-5	Phenol, 2,4-dinitro	8040 8270	150 50
2,4-Dinitrotoluene	121-14-2	Benzene, 1-methyl-2,4-dinitro-	8090 8270	0.2 10
2,6-Dinitrotoluene	606-20-2	Benzene, 2-methyl-1,3-dinitro-	8090 8270	0.1 10
Dinoseb; DNBP; 2-sec-Butyl-4,6-dinitrophenol	88-85-7	Phenol, 2-(1-methylpropyl)-4,6-dinitro	8150 8270	1 20
Di-n-octyl phthalate	117-84-0	1,2-Benzenedicarboxylic acid, dioctyl ester	8060 8270	30 10
Diphenylamine	122-39-4	Benzenamine, N-phenyl-	8270	10
Disulfoton	298-04-4	Phosphorodithioic acid, 0,0-diethyl S-(2-(ethylthio)ethyl) ester	8140 8141 8270	2 0.5 10

Endosulfan I	959-98-8	6,9-Methano-2,4,3-benzodiox-	8080	0.1
		athiepin, 6,7,8,9,10,10-hexa-	8270	20
		chloro-1,5,5a,6,9,9a-hexa-		
		hydro, 3-oxide		
Endosulfan II	33213-65-9	6,9-Methano-2,4,3-benzodiox-	8080	0.05
		athiepin, 6,7,8,9,10,10-hexa-	8270	20
		chloro-1,5,5a,6,9,9a-hexa-		
		hydro, 3-oxide, (3a,5aa,6B,9B,9aa)		
Endosulfan sulfate	1031-07-8	6,9-Methano-2,4,3-benzodiox-	8080	0.5
		athiepin, 6,7,8,9,10,10-hexa-	8270	10
		chloro-1,5,5a,6,9,9a-hexa-		
		hydro, 3,3-dioxide,		
Endrin	72-20-8	2,7:3,6-Dimethanonaphth{2,3-b}	8080	0.1
		oxirene, 3,4,5,6,9,9-hexa-	8270	20
		chloro-1a,2,2a,3,6,6a,7,7a-		
		octahydro-, (1aa,2B,2aB,3a,6a,6aB,7B,7aa)-		
Endrin aldehyde	7421-93-4	1,2,4-Methenocyclopenta{cd}	8080	0.2
		pentalene-5-carboxaldehyde,	8270	10
		2,2a,3,3,4,7-hexachlorodec-		
		ahydro-, (1a,2B,2aB,4B,4aB,5B,6aB,6bB,7R)		
Ethylbenzene	100-41-4	Benzene, ethyl-	8020	2
			8221	0.05
			8260	5
Ethyl methacrylate	97-63-2	2-Propenoic acid, 2-methyl-,	8015	5
		ethyl ester	8260	10
			8270	10
Ethyl methanesul-	62-50-0	Methanesulfonic acid, ethyl	8270	20
fonate		ester		
Famphur	52-85-7	Phosphorothioic acid, O-{4- {(dimethylamino)sulfonyl} phenyl} 0,0-dimethyl ester	8270	20
Fluoranthene	206-44-0	Fluoranthene	8100	200
			8270	10
Fluorene	86-73-7	9-H-Fluorene	8100	200
			8270	10
Heptachlor	76-44-8	4,7-Methano-1H-indene, 1,4,	8080	0.05
		5,6,7,8,8-heptachloro-3a,4,7,	8270	10
		7a-tetrahydro-		
Heptachlor exp-	1024-57-3	2,5-Methano-2H-indeno{1,2-b}	8080	1
		oxirene, 2,3,4,5,6,7,7-hept-	8270	10
		achloro-1a,1b,5,5a,6,6a-hexa-		

		hydro-, (1aa,1bB,2a,5a,5aB,6B, 6aa)		
Hexachlorobenzene	118-74-1	Benzene, hexachloro-	8120	0.5
			8270	10
Hexachlorobutadiene	87-68-3	1,3-Butadiene, 1,1,2,3,4,4- hexachloro-	8021	0.5
			8120	5
			8260	10
			8270	10
Hexachlorocyclo- pentadiene	77-47-4	1,3-Cyclopentadiene, 1,2,3, 4,5,5-hexachloro-	8120	5
			8270	10
Hexachloroethane	67-72-1	Ethane, hexachloro-	8120	0.5
			8260	10
			8270	10
Hexachloropropene	1888-71-7	1-Propene, 1,1,2,3,3,3-hexa- chloro-	8270	10
2-Hexanone; Methyl	591-78-6	2-Hexanone butyl ketone	8260	50
Indeno(1,2,3-cd) pyrene	193-39-5	Indeno(1,2,3-cd)pyrene	8100	200
			8270	10
Isobutyl alcohol	78-83-1	1-Propanol, 2-methyl-	8015	50
			8240	100
Isodrin	465-73-6	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4, 4a,5,8,8a hexahydro-(1a,4a, 4aB,5B,8B,8aB)	8270	20
			8260	10
Isophorone	78-59-1	2-Cyclohexen-1-one, 3,5,5- trimethyl-	8090	60
			8270	10
Isosafrole	120-58-1	1,3-Benzodioxole, 5-(1-pro- penyl)	8270	10
Kepone	143-50-0	1,3,4-Metheno-2H-cyclobuta- {cd}pentalen-2-one, 1,1a,3, 3a,4,5,5,5a,5b,6-decachlo- rooctahydro-	8270	20
Lead	(Total)	Lead	6010	400
			7420	1000
			7421	10
Mercury	(Total)	Mercury	7470	2
Methacrylonitrile	126-98-7	2-Propenenitrile, 2-methyl-	8015	5
			8260	100

Methapyrilene	91-80-5	1,2-Ethanediamine, N.N-di-methyl-N-2- <u>pridiny</u> l-N1/2-thienylmethyl	8270	100
Methoxychlor	72-43-5	Benzene, 1,1-(2,2,2, trichloroethylidene)bis(4-methoxy-	8080	2
			8270	10
Methyl bromide;	74-83-9	Methane, bromo-	8010	20
		Bromomethane	8021	10
Methyl chloride;	74-87-3	Methane, chloro-	8010	1
		Chloromethane	8021	0.3
3-Methylcholan-	56-49-5	Benz[<u>j</u>]aceanthrylene, 1,2-threne	8270	10
Methyl ethyl	78-93-3	2-Butanone	8015	10
ketone; MEK;			8260	100
2-Butanone				
Methyl iodide;	74-88-4	Methane, iodo-	8010	40
Iodomethane			8260	10
Methyl methacrylate	80-62-6	2-Propenoic acid, 2-methyl ester	8015	2
			8260	30
Methyl methane-	66-27-3	Methanesulfonic acid, methyl ester	8270	10
sulfonate				
2-Methylnaphthalene	91-57-6	Naphthalene, 2-methyl-	8270	10
Methyl parathion;	298-00-0	Phosphorothioic acid, 0,0-dimethyl 0-(4-nitrophenyl) ester	8140	0.5
Parathion methyl			8141	1
			8270	10
4-Methyl-2-penta-	108-10-1	2-Pentanone, 4-methyl	8015	5
none; Methyl			8260	100
isobutyl ketone				
Methylene bromide;	74-95-3	Methane, dibromo-	8010	15
Dibromomethane			8021	20
			8260	10
Methylene chloride;	75-09-2	Methane, dichloro-	8010	5
Dichloromethane			8021	0.2
			8260	10
Naphthalene	91-20-3	Naphthalene	8021	0.5
			8100	200
			8260	5
			8270	10
1,4-Naphthoquinone	130-15-4	1,4-Naphthalenedione	8270	10
1-Naphthylamine	134-32-7	1-Naphthalenamine	8270	10

2-Naphthylamine	91-59-8	2-Naphthalenamine	8270	10
Nickel	-(Total)	Nickel	6010	150
<u>o-Nitroaniline;</u> <u>2-Nitroaniline</u>	88-74-4	Benzenamine, 2-nitro-	8270	50
<u>m-Nitroaniline;</u> <u>3-Nitroaniline</u>	99-09-2	Benzenamine, 3-nitro-	8270	50
<u>p-Nitroaniline;</u> <u>4-Nitroaniline</u>	100-01-6	Benzenamine, 4-nitro-	8270	20
Nitrobenzene	98-95-3	Benzene, nitro-	8090	40
			8270	10
<u>o-Nitrophenol;</u> <u>2-Nitrophenol</u>	88-75-5	Phenol, 2-nitro-	8040	5
			8270	10
<u>p-Nitrophenol;</u> <u>4-N-butyl-N-</u>	100-02-7	Phenol, 4-nitro-	8040	10
			8270	50
<u>N-Nitrosodie-</u> <u>butylamine</u>	55-18-5	Ethanamine, n-ethyl-N- nitroso	8270	10
<u>N-Nitrosodie-</u> <u>thylamine</u>	55-18-5	Ethanamine, n-ethyl-N- nitroso-	8270	20
<u>N-Nitrosodime-</u> <u>thylamine</u>	62-75-9	Methanamine, N-methyl-N- nitroso-	8070	2
<u>N-Nitrosodiphe-</u> <u>nylamine</u>	86-30-6	Benzenamine, N-nitroso-N- phenyl	8070	5
<u>N-Nitrosodipro-</u> <u>pylamine; N-</u> <u>Nitroso-N-</u> <u>dipropylamine;</u> <u>Di-n-propylnitrosamine</u>	621-64-7	1-Propanamine, N-nitroso-N- propyl	8070	10
<u>N-Nitrosomethy-</u> <u>lethalamine</u>	10595-95-6	Ethanamine, N-methyl-N- nitroso-	8270	10
<u>N-Nitrosopiper-</u> <u>idine</u>	100-75-4	Piperidine, 1-nitroso-	8270	20
<u>N-Nitrosopyr-</u> <u>rolidine</u>	930-55-2	Pyrrolidine, 1-nitroso-	8270	40
<u>5-Nitro-o-to-</u> <u>luidine</u>	99-55-8	Benzenamine, 2-methyl-5- nitro-	8270	10
Parathion	56-38-2	Phosphorothioic acid, 0,0- diethyl 0-(4-nitrophenyl) ester	8141	0.5
			8270	10

<u>Pentachloroben-</u> <u>zene</u>	608-93-5	Benzene, pentachloro-	8270	10
<u>Pentachloronit-</u> <u>robenzene</u>	82-68-8	Benzene, pentachloronitro	8270	20
<u>Pentachloroph-</u> <u>enol</u>	87-86-5	Phenol, pentachloro-	8040	5
			8270	50
<u>Phenacetin</u>	62-44-2	Acetamide, N-(4-ethoxyphenyl)	8270	20
<u>Phenanthrene</u>	85-01-8	Phenanthrene	8100	200
			8270	10
<u>Phenol</u>	108-95-2	Phenol	8040	1
<u>p-Phenylenediamine</u>	106-50-3	1,4-Benzenediamine	8270	10
<u>Phorate</u>	298-02-2	Phosphorodithioic acid, 0,0-diethyl S-(ethylthio)methyl ester	8140	2
			8141	0.5
			8270	10
<u>Polychlorinated</u> <u>biphenyls; PCBs;</u> <u>Aroclors</u>	See Note 9	1,1-Biphenyl, chloro derivatives	8080	50
			8270	200
<u>Pronamide</u>	23950-58-5	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-	8270	10
<u>Propionitrile;</u> <u>Ethyl cyanide</u>	107-12-0	Propanenitrile	8015	60
			8260	150
<u>Pyrene</u>	129-00-0	Pyrene	8100	200
			8270	10
<u>Safrole</u>	94-59-7	1,3-Benzodioxole, 5-(2-propenyl)	8270	10
<u>Selenium</u>	(Total)	Selenium	6010	750
			7740	20
			7741	20
<u>Silver</u>	(Total)	Silver	6010	70
			7760	100
			7761	10
<u>Silvex</u>	93-72-1	Propanoic acid, 2-(2,4,5-trichlorophenoxy)-	8150	2
<u>Styrene</u>	100-42-5	Benzene, ethenyl-	8020	1
			8021	0.1
			8260	10
<u>sulfide</u>	18496-25-8	sulfide	9030	4000

2,4,5-T; 2,4,5-Trichlorophen-oxyacetic acid	93-76-5	Acetic acid, (2,4,5-trichlorophenoxy)	8150	2
1,2,4,5-Tetrachlorobenzene	95-94-3	Benzene, 1,2,4,5-tetrachloro-	8270	10
1,1,1,2-Tetrachloroethane	630-20-6	Ethene, 1,1,1,2-tetrachloro-	8010	5
			8021	0.05
			8260	5
1,1,2,2-Tetrachloroethane	79-34-5	Ethane, 1,1,2,2-tetrachloro-	8010	0.5
			8021	0.1
			8260	5
Tetrachloroethylene; Tetrachloroethene; Perchloroethylene	127-18-4	Ethane, tetrachloro-	8010	0.5
			8021	0.5
			8260	5
2,3,4,6-Tetrachlorophenol	58-90-2	Phenol, 2,3,4,6-tetrachloro-	8270	10
Thallium (Total)		Thallium	6010	400
			7840	1000
			7841	10
Tin (Total)		Tin	6010	40
Toluene	108-88-3	Benzene, methyl-	8020	2
			8021	0.1
			8260	5
o-Toluidine	95-53-4	Benzenamine, 2-methyl-	8270	10
Toxaphene	See Note 10	Toxaphene	8080	2
1,2,4-Trichlorobenzene	120-82-1	Benzene, 1,2,4-trichloro-	8021	0.3
			8120	0.5
			8260	10
			8270	10
1,1,1-Trichloroethane; Methylchloroform	71-55-6	Ethane, 1,1,1-trichloro-	8010	0.3
			8021	0.3
			8260	5
1,1,2-Trichloroethane	79-00-5	Ethane, 1,1,2-trichloro-	8010	0.2
			8260	5
Trichloroethylene; Trichloroethene	79-01-6	Ethene, trichloro-	8010	1
			8021	0.2
			8260	5
Trichlorofluoromethane; CFC-	75-69-4	Methane, trichlorofluoro-	8010	10
			8021	0.3

11			8260	5
2,4,5-Trichloro- ophenol	95-95-4	Phenol, 2,4,5-trichloro-	8270	10
2,4,6-Trichloro- ophenol	88-06-2	Phenol, 2,4,6-trichloro-	8040	5
			8270	10
1,2,3-Trichloro- opropane	96-18-4	Propane, 1,2,3-trichloro-	8010	10
			8021	5
			8260	15
0,0,0-Triethyl phosphorothioate	126-68-1	Phosphorothioic acid, 0,0,0-triethylester	8270	10
sym-Trinitroben- zene	99-35-4	Benzene, 1,3,5-trinitro-	8270	10
Vanadium	(Total)	Vanadium	6010	80
			7910	2000
			7911	40
Vinyl acetate	108-05-4	Acetic acid, ethenyl ester	8260	50
Vinyl chloride; Chloroethene	75-01-4	Ethene, chloro-	8010	2
			8021	0.4
			8260	10
Xylene (total)	See Note 11	Benzene, dimethyl-	8020	5
			8021	0.2
			8260	5
Zinc	(Total)	Zinc	6010	20
			7950	50
			7951	0.5

Notes

7 This substance is often called Bis92-chloroisopropyl ether, the name Chemical Abstracts Service applies to its noncommercial isomer, Propane, 2,2"-oxybis(2-chloro-(CAS RN 39638-32-9)).

8 Chlordane: This entry includes alpha-chlordane (CAS RN 5103-71-9), beta-chlordane (CASRN 5103-74-2), gamma-chlordane (CAS RN 5566-34-7), and constituents of chlordane (CAS RN 57-74-9 and CAS RN 12789-03-6). PQL shown is for technical chlordane. PQLs of specific isomers are about 20 ug/L by method 8270.

9 Polychlorinated biphenyls (CAS RN 1336-36-3); this category contains congener chemicals, including constituents of Aroclor 1016 (CAS RN 12676-74-11-2), Aroclor 1221 (CAS RN 11104-28-2), Arclor 1232 (CAS RN 11141-16-5), Arclor 1242 (CAS RN 53469-21-9), Aroclor 1248 (CAS RN 12672-29-6), Aroclor 1254 (CAS RN 11097-69-1), and Aroclor 1260 (CAS RN 11096-82-5). The PQL shown is an average value for PCB congeners.

10 Toxaphene: This entry includes congener chemicals contained in technical

toxaphene (CAS RN 8001-35-2), i.e., chlorinated camphene.

11 Xylene (total): This entry includes o-xylene (CAS RN 96-47-6), m-xylene (CAS RN 108-38-3), p-xylene (CAS RN 106-42-3), and unspecified xylenes (dimethylbenzenes) (CAS RN 1330-20-7). PQLs for method 8021 are 0.2 for o-xylene and 0.1 for m- or p-xylene. The PQL for m-xylene is 2.0 ug/L by method 8020 or 8260.

APPENDIX III

MAXIMUM CONTAMINANT LEVELS (MCLs)

(PROMULGATED UNDER THE SAFE DRINKING WATER ACT)

<u>Chemical</u>	<u>CAS No.</u>	<u>MCL</u> <u>(mg/l)</u>
Arsenic.....	7440-38-2.....	0.05
Barium.....	7440-39-3.....	1.0
Benzene.....	71-343-2.....	0.005
Cadmium.....	7440-43-9.....	0.01
Carbon tetrachloride.....	56-23-5.....	0.005
Chromium (hexavalent).....	7440-47-3.....	0.05
2,4-Dichlorophenoxy acetic acid.....	94-75-7.....	0.1
1,4-Dichlorobenzene.....	106-46-7.....	0.075
1,2-Dichloroethane.....	107-06-2.....	0.005
1,1-Dichloroethylene.....	75-35-4.....	0.007
Endrin.....	75-20-8.....	0.0002
Fluoride.....	7.....	4.0
Lindane.....	58-89-9.....	0.004
Lead.....	7439-92-1.....	0.05
Mercury.....	7439-97-6.....	0.002
Methoxychlor.....	72-43-5.....	0.1
Nitrate.....		10.0
Selenium.....	7782-49-2.....	0.01
Silver.....	7440-22-4.....	0.05
Toxaphene.....	8001-35-2.....	0.005
1,1,1-Trichloroethane.....	71-55-6.....	0.2
Trichloroethylene.....	79-01-6.....	0.005
2,4,5-Trichlorophenoxy acetic acid.....	93-76-5.....	0.01
Vinyl chloride.....	75-01-4.....	0.002

Appendix IV

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 E Solid Waste Facility	(Reserved)
Class F Solid Waste Facility	\$5,000.00
<u>Non-Disposal Solid Waste Facility</u>	<u>\$2,500.00</u>
Renewal of Permit	\$1,000.00
Solid Waste Facility Closure	\$2,500.00
Modification to Approved Solid Waste Facility	\$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 this rule ~~these regulations~~.

REASONS FOR PROPOSED AMENDMENTS

The following amendments were made to the rule in response to the public comments received and also the public hearing.

General comments were with reference to: dissolved metals, regulation of coal combustion by-products (Class F) facilities, "significant," throughout the proposed rule.

Additionally, specific comments were received and amendments were made to: sections 1.1, 2.8, 2.28, 2.33, 2.36, 2.1, 2.46, 2.74, 2.76, 2.56, 2.57, 2.57.3, 2.83, 2.89, 2.90, 2.93, 2.104, 2.121, 2.124, 3.2., 3.2., 3.2.4.a., 3.2.7.a., 3.2.10.a., 3.2.2.b., 3.1., 3.2.2, 3.2.3, 3.2.5, 3.2.8.a, 3.2.9.a, 3.2., 3.2.10.a, 3.2.14.a, 3.4.1.b.A., 3.5.3., 3.15. 3.21, 3.5.2, 3.5.4, 3.6.1, 3.6.2, 3.7.6.f., 3.7.7., 3.8.1.1., 3.8.1.1.v., 3.8.1.1.g., 3.8.3., 3.8.4., 3.10.2., 3.8.4.a.g., 3.8.4.a.i., 3.8.4.a., 3.8.4.a.e, 3.8.4.a.g, 3.8.4.e., 4.8.4.b., 4.11.2.b., 4.11.3.a., 2.29, 2.90., 2.124., 3.2.2.c.g., 3.7.6.g., 3.8.4., 3.13.1.c, 3.13.4., 3.13.4.d, 3.13.7.a.A., 3.13.14.a.A.(a), 3.14.2, 3.14.5.c.A.(c), 3.16.2.a.A., 3.16.3.a.c., 3.16.5.d.B., 3.18.1.a., 3.18.1.b.B., 3.27.2., 4.1., 4.4., 4.4., 4.5.2.a.B, 4.5.2.b.A., 4.5.5.a.A.(a), 4.5.5.a.A.(b), 4.5.5.a.B(b), 4.5.5.b.C., 4.5.5.b.I., 4.6.2.c., 4.7.2.f.B.(e), 4.8.1.d., 4.8.1.g.B., 4.11.1.e.G., 4.11.1.e.F., 4.11.1.e.G., 4.11.1.i.G., 4.11.2.c.A., 4.11.2.c.B., 4.11.2.c.D., 4.11.2.d. 4.11.2.d.A., 4.11.3.d.A., 4.11.3.d.B.(a), 4.11.5.c.D., 4.11.6.c.A., 4.11.6.c.C., 4.11.6.c.e., 4.11.7.g., 4.12.3. 5.1.3.a.P., 5.1.4.a.A., 5.5.2.a.A., 5.5.2.b.A., 5.4.2.e., 5.5.2.a.H., 5.5.2.b.A., 6.1.5.a., 6.1.5.a.G., 6.1.5.c., 7.1.5., 3.13.1.d., 3.16.2., 3.16.2.a., 3.18.2.b.N., 4.5.2.d.B., 4.5.2.c.A(i)(F), 4.5.4.a.B.(c), 4.5.4.b.A.(a), 4.5.4.d.A.(e)(C), 4.5.4.e.A.(d), 4.5.e.B., 4.5.5.a.A., 4.5.5.a., 4.6.1.a.F., 4.6.1.a.E., 4.6.1.a.G., 4.6.1.a.G., 4.8.3.a.C., 4.8.4.b., 4.11.1.b.A., 4.11.1.e.F., 4.11.1.e.G., 4.11.1.d., 4.11.1.i.C., 4.11.1.i.D., 4.11.1.i.E, 4.11.2.b., 4.11.2.d.D., 4.11.6.e., 4.12.2.b.A., 5.5.1., 6.1.1., 5.5.2.a.A., 5.5.2.b.C., 5.6.1, 6.1.5.a.A., 6.1.8., Appendix III, 2.57, 4.7.2.f., 2.126., 2.112, 2.128, 3.5.4., 3.6.2., 3.7.10.a., 3.18.2.b., 3.18.2.b.A., C., D., E., and L., 4.5.4.d.A.(e)(B), (g)(B) and (g)(C), 6.1.5.a.A.(a), (c), and (C), 2.13., 2.13., 3.3.1., 3.16.4.c.A., 3.20., 4.6.1.a.Q.(a), 4.12.1., 4.12.2.d. and 4.6.2.a.B.

Solid Waste Regulations Public Hearing July 24, 1995

RHEINLANDER: Good evening. My name is Bill Rheinlander. I'm with the Public Information Office of the Division of Environmental Protection. The purpose of this hearing is to allow citizens and various parties to comment on proposed changes in the solid waste regulations. As I understand, the comment period ends tonight at this hearing, at 11:59 p.m. If people are passing me things later, that's fine. The meeting was advertised in the Secretary of State's Register and we also issued a statewide news release about the hearing and the comment period. It would probably be easier to introduce the people who are visitors than all the bureaucrats who are here, but I'll start with the DEP. To my immediate left is Larry Atha (sp?). Larry is an environmental resource specialist with the Solid Waste Management section. And next to him is Martha Barber. Martha is with our new Legal Services Office. She's an attorney. Behind those two is Selvim (sp?) Aroknoeklem (sp?). He's an engineer with the Solid Waste Management Section. There's Dick Cook. He's the Solid Waste Management Assistant Chief, and Lana Schaffer is his assistant, and Greg Rose at the door, he's with the Water Resources Office and he's an environmental technician.

We'll do three things tonight. Larry Atha will summarize the changes, then we'll receive comments. If you have any written comments, you can turn them into the podium and make your comment. And then we'll answer

questions if we can. So, Larry ...

LARRY ATHA: Did everyone get a handout? I think you did. That pretty well summarizes in the regulations where all the new writing is. Of course, it all started with the Federal Register back in 19 . . . really prior to 1991, but specifically with the date of the publishing of the Federal Register on October 9, 1991. In addition to reflecting the federal regulations, there have been a lot of Code changes since the last day of the Regulation amendments, which was May 1, 1990, and as a result, we have several pages of changes as you may have noted if you've gone through it. Primarily they are in the field of Section 2, which is definitions. Here before we had about 62 definitions. We've now increased that to 138 definitions. Most of those are to reflect the federal. However, we did try to improve the regulatory language where we had the same definitions in the reg as we did in the Code. We tried to go back and try to make those as nearly identical as we could. And then we added the federal definitions onto that. So in volume it more than doubled.

In Section 3 we have some additional requirements for siting. I'm just hitting the highlights on these, by the way. We have some additional requirements for siting, but I think if you'll go through those, for the most part those are not applicable to existing facilities in the state of West Virginia. Bonding and financial assurance is one that I'm sure many of you will want to look at very closely if you haven't already. And, of course, under the old bonding scenario, if you had a composite liner, \$4,000 per

acre. Now with the third party coming in and perhaps looking at an at-worst situation, it could be quite a bit more. Groundwater monitoring has been changed. Before we had a three-phase system. Now we have a two-phase system. In essence, about the change. We have more parameters now that we're only requiring you to monitor half the time that you did before. Twice per year instead of four times per year. In the areas of closure and post closure, you might want to look at that. The amount of time you had previously has now been cut in half. You did have one year to put on your final cap, and now you have six months. On the post-closure care, the old regulations said ten years, but the Code changed that a long time ago to thirty.

In addition to that, we had to do a lot of editing due to the reorganization of the DEP, which moved from Chapter 20 over to Chapter 22. A lot of the articles correspondingly were changed. Of course, we went from the DNR to the DEP and we performed a lot of other clerical functions at the time of the original filing. And since that time we've had time to go back and look again and noted a pretty large number of clerical type items that needed to be changed. I think we have a question and answer period at the end of the session here. Bill, do you open it up for comment now?

RHEINLANDER: Yes. Are you through?

LARRY ATHA: So we'll be around afterwards if you have any specific questions and answers.

RHEINLANDER: Okay. Who wants to make a comment? Anybody? Leonard?

LEONARD: I would suggest to you that you allow the comment period to remain open for an additional week to accept additional comments. I appreciate the fact that this might push it close to the legislative rule making review committee problems, but the legislative rule making review process is already in serious trouble anyway. So I submit to you that an additional week a chance . . . for the solid waste regulations in this state is hardly out of line with the complexity of these changes. I don't have any further comments.

RHEINLANDER: Anyone else? Okay. That's the formal part of the year. We can answer questions now on the record. If you want a copy of the transcript, we'll be happy to Xerox a copy when we get it done tomorrow. But at this time we'll . . . [machine turned off and then back on]

FRANK WILLIAMS: My name is Frank Williams, and I'm the general manager of LCS Services located in Hedgesville, West Virginia. I don't have a copy of the regs with me, but there are two revisions that I think there should be consideration given to. The first is that there's still the definition of the daily lift as eight feet in height. With the management of storm water and the need to divert as much storm water as we can to keep it out of [inaudible] and with typical cells today typically being maybe 400 feet across ... 200 feet across, there has to be some allowance given for shaping the top of the landfill. Which means that if you work to eight feet and you try to slope it so

that you can control the drainage, you've got to be less than eight feet. And it's not practical to put in a lift that shallower than eight feet because you don't get good utilization of air space. So it would appear that there should be some flexibility provided. The landfill could say we're going to start a lift eleven feet high and slope it down to eight feet. Then we could have positive drainage established. We can take that storm water and divert it off the cell.

UNIDENTIFIED: When you're talking about the eight foot ... are you talking about [inaudible] cell or ...

WILLIAMS: Landfill stations and transfer stations all have a tonnage capacity of 20,000 tons. I think the station would give consideration to the definition of transfer station. It seems to be somewhat overly restricted.

[END OF TAPE]

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SOLID WASTE MANAGEMENT RULE

COMMENTS AND RESPONSES

The various comments received and the agency's responses are divided into four basic groups: 1) industry associations including Appalachian Power, Allegheny Power System and West Virginia Manufacturer's Association, 2) medical and health including Charleston Area Medical Center and the WV Bureau of Public Health, Office of Environmental Health Services, 3) consulting engineers/Almes & Associates, Inc., 4) citizens and solid waste authority including Tom Degen, Secretary, Calhoun County Solid Waste Authority and a Mr. Leonard Knee.

Group 1

GENERAL COMMENTS

Comment: That, in the proposed rule, certain concerns with "dissolved metals," be reflected.

Response: The agency agrees and has made the appropriate amendments.

Comment: That, in the proposed rule, certain variances and deviations be allowed, since the proposed amendments were not primarily addressed toward the regulation of coal combustion by-products (Class F) facility.

Response: The agency agrees, and the opportunity for variances and waivers have been provided, as reflected in the Agency responses below:

Comment: The impact of the word "adverse", without the qualifier term "significant" is too broad.

Response: The agency agrees and has reinserted the word "significant" throughout the proposed rule.

SPECIFIC COMMENTS

Comment: That section 1.1 should have bonding "where applicable."

Response: The agency disagrees.

Comment: That section 2.8 has an incorrect definition of "Aquifer"

Response: The agency disagrees (Federal requirement).

Comment: That section 2.28 has an incorrect definition of "Coal combustion by-products".

Response: The agency agrees and has made the appropriate amendments.

Comment: That section 2.33 has an overly restrictive definition of

"Composite Liner".

Response: The agency disagrees (Federal Requirement).

Comment: That section 2.36 has an incorrect definition of "Coal combustion by-products".

Response: The agency agrees and has made the appropriate amendments.

Comment: That there are section numbering problems involving section numbers 2.1, 2.46, 2.74 and 2.76 that should cause section 2 to be re-numbered.

Response: The agency agrees and has made the appropriate amendments.

Comment: That section 2.56 has an incomplete definition of "Industrial solid waste landfill".

Response: The agency agrees and has made the appropriate amendments.

Comment: That section 2.57, and subsection 2.57.3 have inaccurate definitions of "Infectious waste".

Response: The agency agrees and has made the appropriate amendments.

Comment: That section 2.83 has an incomplete definition of "Open Dump".

Response: The agency agrees and has made the appropriate amendments.

Comment: That section 2.89 has an incomplete definition of "Permittee".

Response: The agency agrees and has made the appropriate amendments.

Comment: That section 2.90 has an incomplete definition of "Permittee".

Response: The agency agrees and has made the appropriate amendments.

Comment: That section 2.93. should say that petroleum contaminated soils containing less than 100 ppm hydrocarbon is not a solid waste.

Response: The agency disagrees.

Comment: That section 2.104. should be deleted.

Response: The agency disagrees.

Comment: That section 2.121 has an incomplete definition of "Solid waste facility".

Response: The agency agrees and has made the appropriate amendments.

Comment: That section 2.124 has an incomplete definition of "Storage", and needs to include an allowance to exceed 180 days under certain circumstances.

Comment: That, in the subsections of section 3.2., the use of the phrase

"Existing SWLF" is in need of clarification.

Response: The agency partially agrees and has so amended 3.2., except for sections 3.2.4.a., 3.2.7.a., 3.2.10.a., since they are federal requirements.

Comment: That section 3.2.2,b. and subsections should be moved to section 3.1.

Response: The agency disagrees.

Comment: That, in section 3.2.2 (and other places throughout the rule), the term "natural" (wetlands) is better than the proposed "existing" (wetlands).

Response: The agency agrees and has made the appropriate amendments throughout the rule.

Comment: That, in section 3.2.3 piping of streams under landfills under certain conditions should be allowed.

Response: The agency disagrees since pipe failure could result in the potential perpetual production of leachate.

Comment: That, in section 3.2.5, the location standard distance restriction for county roads should provide for a variance.

Response: The agency disagrees since a variance is presently possible under section 3.2, However, some clarification was made to further define the use of the term "federal aid secondary" roads.

Comment: That, in section 3.2.8.a, the phrase "capable of being occupied" is ambiguous.

Response: The agency agrees and has made the appropriate amendments.

Comment: That, in section 3.2.9.a, the location standard downstream distance restriction for wells should be more flexible.

Response: The agency disagrees since a variance is presently possible under section 3.2.

Comment: Section 3.2.10. Commentor states that the section employs the use of the undefined term "unmonitorable"

Response: The agency agrees and has made the appropriate amendments.

Comment: That, in section 3.2.10.a, "self" should be "SWLF".

Response: The agency agrees and has made the appropriate amendments.

Comment: That section 3.2.14.a is incomplete, and that this agency is attempting to regulate air emissions.

Response: The agency disagrees but has made minor amendments for

clarification, reflecting the federal counterpart language.

Comment: That section 3.4.1.b.A. should define "qualified newspaper."

Response: The agency agrees and has made the appropriate amendments.

Comment: That sections 3.5.3. and 3.15. should specify an automatic closure permit renewal for Class F facilities provided that public notice requirements in section 3.21 are followed.

Response: The agency agrees and has made the appropriate amendments.

Comment: That section 3.5.2 need clarification.

Response: The agency disagrees.

Comment: That section 3.5.4 should specify a 180 (currently 90) day time period for permit modification.

Response: The agency disagrees.

Comment: That sections 3.6.1 and 3.6.2 incorrectly references Appendix III.

Response: The agency agrees, and has made the appropriate amendments.

Comment: That section 3.6.2. should include the word "substantial" for permit incompleteness penalties.

Response: The agency agrees, and has made the appropriate amendments.

Comment: That section 3.7.6.f. should include references to allow the use of datum other than USGS.

Response: The agency disagrees.

Comment: That section 3.7.7. should include plans for "construction and disposal operations including environmental monitoring".

Response: The agency disagrees with reference to "construction operations and environmental monitoring," but disagrees for "disposal operations", and has responded accordingly.

Comment: Section 3.7.13.e,f,g and h should be deleted.

Response: The agency disagrees.

Comment: That sections 3.8.1.1. and 3.8.1.1.V. incorrectly reference sections 3.1.1 and 3.1.2.

Response: The agency disagrees, and has made the appropriate amendments.

Comment: That section 3.8.1.1.G. incorrectly requires "angle of draw" for all underground mines.

Response: The agency disagrees, but has made some amendments, for

clarification.

Comment: That section 3.8.3. should allow for more flexibility in the facility drilling program.

Response: The agency agrees, and has made the appropriate response by adding "Unless otherwise approved by the director, all applicants must comply with the following permit requirements:" to section 3. of the rule.

Comment: That section 3.8.4. should be clarified throughout the rule to ensure that either the "uppermost" or the "uppermost significant" aquifer is specified in well installation, and also questions the monitoring well construction requirements for Class F facilities.

Response: The agency agrees, and has made the appropriate amendments throughout the rule, by the substitution of the "or for "and", and by providing the opportunity for variance or waiver in section 3.

Comment: That section 3.10.2. should not limit the size of submitted drawings.

Response: The agency agrees, and note that an existing variance provides this desired flexibility.

Comment: Section 3.8.4.a.G. Commentor suggests that the section should be amended to provide for the acceptability of surface mount wells for Class F facilities.

Response: The agency agrees and has made the appropriate amendments.

Comment: Section 3.8.4.a.I. Commentor suggests that the section should be amended to provide for security, but only by lockable outer wells, and not by other devices.

Response: The agency agrees and has made the appropriate amendments.

Comment: That section 3.8.4.a. should be amended to allow for the pending Monitoring Well Design Standards proposed under WV47CSR60.

Response: The agency disagrees, since no rule change can be made for a proposed rule. However, the above response to section 3.8.3. should allow for any such amendment by the addition of the "Unless otherwise approved by the director" language to section 3. of the rule.

Comment: That section 3.8.4.a.E should be amended to a 1.5 foot concrete apron requirement at boreholes.

Response: The agency disagrees.

Comment: That section 3.8.4.a.G should be amended to allow for surface mounted wells in traffic areas, and additional concerns.

Response: The agency disagrees.

Comment: Disagrees that section 3.8.4.a.H should be amended to require a survey mark on the top of well casings.

Response: The agency disagrees.

Comment: That section 3.8.4.a.I. should be amended to allow for other types of locks for security use on wells.

Response: The agency disagrees. This provision is for a minimum lock, and the commentors concerns are thus provided.

Comment: That sections 3.8.4.e., 4.8.4.b., 4.11.2.b., and 4.11.3.a. reference to Appendix I for total metals instead of dissolved metals, and do not include several additional parameters, normally tested for coal combustion by-product (Class F) facilities.

Response: The agency agrees, in part. Class F landfills may on need to analyze dissolved metals, but the Federal requirement for Municipal is total metals as listed in Appendix I. However, the Agency has added the additional testing parameters, and the ability of the permittee to utilize the facility permit to provide the guidance for specific parameters regardless of class.

Comment: That sections 2.29, 2.90., 2.124., 3.2.2.c.G., 3.7.6.g., 3.8.4., 3.13.1.c, 3.13.4., 3.13.4.d, 3.13.7.a.A., 3.13.14.a.A.(a), 3.14.2, 3.14.5.c.A.(c), 3.16.2.a.A., 3.16.3.a.C., 3.16.5.d.B., 3.18.1.a., 3.18.1.b.B., 3.27.2., 4.1., 4.4., 4.4., 4.5.2.a.B, 4.5.2.b.A., 4.5.5.a.A.(a), 4.5.5.a.A.(b), 4.5.5.a.B(b), 4.5.5.b.C., 4.5.5.b.I., 4.6.2.c., 4.7.2.f.B.(e), 4.8.1.d., 4.8.1.g.B., 4.11.1.e.G., 4.11.1.e.F., 4.11.1.e.G., 4.11.1.i.G., 4.11.2.c.A., 4.11.2.c.B., 4.11.2.c.D., 4.11.2.d. 4.11.2.d.A., 4.11.3.d.A., 4.11.3.d.B.(a), 4.11.5.c.D., 4.11.6.c.A., 4.11.6.c.C., 4.11.6.c.e., 4.11.7.g., 4.12.3. 5.1.3.a.P., 5.1.4.a.A., 5.5.2.a.A., 5.5.2.b.A., 5.4.2.e., 5.5.2.a.H., 5.5.2.b.A., 6.1.5.a., 6.1.5.a.G., 6.1.5.c., 7.1.5., and need minor editing.

Response: The agency agrees and has made the appropriate amendments.

Comment: That section 3.13.1.d. is in need of clarification as they apply to Class F facilities.

Response: The agency agrees and has made the appropriate amendments.

Comment: That sections 3.16.2. and 5.1. are in need of clarification and revision as they apply to industrial incinerators.

Response: The agency agrees in part and has amended 3.16.2.a. However the agency believes the rule needs no further clarification for section 5.1.

Comment: That section 3.18.2.b.N. is in need of clarification and revision as they apply to major modifications

Response: The agency agrees and has made the appropriate amendments.

Comment: That section 3.18.2.O.

Comment: That section 4.5.2.c.A.(i)(C), which specifies the maximum drainage area of a sedimentation structure be deleted.

Response: The agency disagrees.

Comment: That sections 4.5.2.b.A.(a) and 4.5.2.b.A.(b) are repetitious and be deleted.

Response: The agency disagrees.

Comment: That section 4.5.2.d.B. should reference WV Code 22-11.

Response: The agency agrees and has made the appropriate amendments.

Comment: That section 4.5.2.c.A.(i)(F), which specifies a 25-foot restriction for sedimentation structures be deleted.

Response: The agency disagrees.

Comment: That section 4.5.4.a.B.(c) should include a discussion of newer products.

Response: The agency disagrees and believes the commentor(s) misunderstand the rule section.

Comment: That section 4.5.4.b.A.(a) should include a discussion of other seasonal high water table indicators

Response: The agency agrees and has made the appropriate amendments.

Comment: That sections 4.5.4.c., 4.5.4.d., and 4.5.4.e. should not require both field and laboratory testing.

Response: The agency disagrees.

Comment: That section 4.5.4.d.A.(e)(C) should be amended.

Response: The agency agrees and has made the appropriate amendments.

Comment: That section 4.5.4.e.A.(d) should be amended.

Response: The agency agrees and has made the appropriate amendments.

Comment: That section 4.5.e.B. should be amended.

Response: The agency agrees and has made the appropriate amendments.

Comment: That sections 4.5.4.e.C., and 4.5.4.e.D. should require only one certification for the soil and synthetic components of the composite liner.

Response: The agency disagrees.

Comment: That sections 4.5.4.e.C., and 4.5.4.e.D. should require only one

certification for the soil and synthetic components of the composite liner.

Response: The agency disagrees.

Comment: That the headings for sections 4.5.5.a.A. and 4.5.5.a., are reversed.

Response: The agency agrees and has made the appropriate amendments.

Comment: That section 4.5.5.b.I., which requires that weather conditions be recorded at the site be deleted.

Response: The agency disagrees.

Comment: That section 4.6.1.a.E. should include a provision for the use of natural barriers for fencing.

Response: The agency agrees and has made the appropriate amendments.

Comment: That section 4.6.1.a.F.(b)(A), is repetitive with other sections of that section.

Response: The agency disagrees.

Comment: That section 4.6.1.a.G., is repetitive with 4.6.1.a.E. and be deleted.

Response: The agency disagrees, but has made some changes for clarification.

Comment: That section 4.6.1.a.G., is repetitive with 4.6.1.a.E. and be deleted.

Response: The agency disagrees, but has made some changes for clarification.

Comment: That section 4.8.3.a.C., needs clarification.

Response: The agency agrees, and has made some changes for clarification.

Comment: That section 4.8.4.a., which requires that monitoring of the daily flow rates from the leachate and detection systems be changed to semiannual.

Response: The agency disagrees.

Comment: That section 4.8.4.b. be amended to allow leachate monitoring requirements to be based on permit requirements.

Response: The agency agrees and has made the appropriate amendments.

Comment: Section 4.11.1.b.A. The commentor desires that field filtering for Class F facilities negate determination of dissolved metal concentrations.

Response: The agency agrees and has made the appropriate amendments.

Comment: That section 4.11.1.e.D be deleted since it requires the permittee to determine groundwater rate each time sampled.

Response: The agency disagrees. (Federal requirement)

Comment: That sections 4.11.1.e.F. and 4.11.1.e.G. are almost repetitive with section 4.11.1.d. and should be deleted.

Response: The agency agrees, and also deleted section 4.11.1.H. for the same reason. However, some revisions had to be made to section 4.11.1.d. to address some of the concerns previously reflected.

Comment: That sections 4.11.1.i.A., 4.11.1.i.B. and 4.11.1.i.C. are repetitive with other sections and should be deleted.

Response: The agency disagrees.

Comment: That the section 4.11.1.g. use of the word "hazardous" is inappropriate for Subtitle D facilities.

Response: The agency disagrees. (Federal requirement) However, the phrase "or other" was added to allow for Subtitle "D" concerns.

Comment: That the section 4.11.1.i.C., 4.11.1.i.D., and 4.11.1.i.E should be deleted from the rule.

Response: The agency agrees and has made the appropriate amendments.

Comment: Section 4.11.2.b. The commentator does not want to analyze all parameters in re-sampling but only those that were out of compliance.

Response: To perform proper statistical tests, all parameters must be resampled.

Comment: That section 4.11.2.c.B. is excessive and should be either deleted from the rule, or clarified.

Response: The agency disagrees (Federal requirement).

Comment: That section 4.11.2.d.B. should only require the re-sampling of all constituents if one or more constituents show statistical increases.

Response: The agency disagrees (Federal requirement).

Comment: That section 4.11.2.d.D. be amended to allow for a 90 (currently 30) day time period to develop a Phase II assessment monitoring program

Response: The agency agrees and has made the appropriate amendments.

Comment: That section 4.11.3.b. 4.11.3.b.A. should only require the re-sampling of all constituents if one or more constituents show statistical increases on the basis of cost and because coal combustion by-product (Class F facilities do not produce organics.

Response: The agency disagrees (Federal requirement).

Comment: That section 4.11.3.d.B.(d) should not refer to Appendix I.

Response: The agency disagrees (Federal requirement).

Comment: That section 4.11.5. should be coordinated with the Groundwater Protection Act's variance rule.

Response: The agency disagrees. The ability to obtain a variance has been provided as a result of these comments, in section 3.2.

Comment: That section 4.11.5.c.D. should be coordinated with the Groundwater Protection Act's variance rule, and as a result, create a (new) section 4.11.6.e.E.

Response: The agency disagrees to adding a separate section, but has made the appropriate response by adding "Unless otherwise approved by the director, all applicants must comply with the following landfill performance standards:" in section 4. of the rule.

Comment: That section 4.11.6.e. should be coordinated with the Groundwater Protection Act's variance rule, and as a result, create a (new) section 4.11.6.e.E.

Comment: That, in section 4.12.2.b.A., the date should be changed to the twentieth, and the month of October should replace November.

Response: The agency agrees and has made the appropriate amendments.

Comment: That, in section 4.13.2.c.E., natural barriers may be utilized in satisfying the fencing requirements.

Response: The agency agrees and has made the appropriate amendments.

Comment: That, in section 5.5.1., there should be a cross-reference to a new section -- 5.5.1.c. -- that provides for additional waivers for coal combustion products (Class F), and therefore the new section (5.5.1.c.) would cause new reference for 4.5.2.c.A.(c).

Response: The agency partially agrees and has made the appropriate amendments. The term "coal combustion products" was changed to the more encompassing "Class F". However, there currently exists a variance provided in section 6.1.1. of the rule, so that an additional reference is not necessary.

Comment: That, in section 5.5.1., there should be a cross-reference to a new section -- 5.5.1.c. -- that provides for additional waivers for coal combustion products (Class F).

Response: The agency partially agrees and has made the appropriate amendments. The term "coal combustion products" was changed to the more encompassing "Class F". However, there currently exists a variance provided in section 6.1.1. of the rule, so that an additional reference is not necessary.

Comment: That, in section 5.5.2.a.A., the reference to 60 mil synthetic liner should be for HDPE only.

Response: The agency agrees and has made the appropriate amendments.

Comment: That, in section 5.6.1, clarification needs to be made for Dumpsters, greenboxes, and bins.

Response: The agency agrees and has made the appropriate amendments.

Comment: That, in section 6.1.5.a.A., the requirement for a drainage requirement for coal combustion by-product facilities is unnecessary.

Response: The agency partially agrees. Section 6.1.1. already provides for a waiver, but only if such conditions can be documented.

Comment: That, in Appendix I, units be deleted under the CAS RN column.

Response: The agency disagrees (Federal Requirement). Also, footnotes are provided that clarify the commentor's concerns.

Comment: That, in Appendix III, an attempt be made to expand the list to include the groundwater standards of the Safe Drinking Water Act MCL's.

Response: The agency agrees and has made the appropriate amendments.

Group 2

Comment: Section 2.57, amend definition to conform with Bureau of Public Health Rule.

Response: Fully adopted commentor's amended language to produce a better definition.

Comment: Section 4.7.2.f., insert language to help with labeling and certification of medical waste.

Response: Fully adopted commentor's request for improvement.

Group 3

Comment: Commentor suggests that section 2.126. definition is limited and should be amended.

Response: The agency agrees and has amended the definition to reflect the commentor's suggestions.

Comment: The limits for seismic impact zone in section 2.112. should be reduced from a 250 year period to a 50 year period.

Response: The agency disagrees.

Comment: Section 2.128 should be further clarified.

Response: The agency agrees and has further clarified this definition.

Comment: Section 3.5.4. is to generally upgrade all operating permits to the regulations.

Response: The agency agrees.

Comment: In section 3.6.2., the commentor suggests that it would be appropriate to restrict the agency to a 180-day application review period.

Response: The agency totally disagrees, whereas the agency has no control over the applicant responding to deficiencies in a responsible, timely manner.

Comment: Appears that section 3.7.10.a. needs some guidance for closure, post-closure and corrective action cost estimates.

Response: The agency disagrees.

Comment: Suggests language changes to section 3.18.2.b.

Response: The agency agrees and has made language changes to sections 3.18.2.b.A., C., D., E., and L.

Comment: Commentor made a general comment that there should be an equivalency review procedure in approving a permit application.

Response: The agency disagrees.

Comment: Sections 4.5.4.d.A.(e)(B), (g)(B) and (g)(C) are unnecessarily restrictive.

Response: The agency agrees and has amended the sections.

Comment: Percent of solids in sludge should be reduced to 14% to allow disposal in landfills.

Response: The agency disagrees.

Comment: Sections 6.1.5.a.A.(a), (c), and (C) need to be amended.

Response: The agency agrees and has amended the sections to reflect the commentor's suggestions.

Comment: Section 2.13. allows a loophole as similarly stated below in Group 4.

Response: Agency agrees and definition has been deleted.

Group 4

Comment: There are many new definitions in section 2 which the commentor believes to serve only to confuse rather than clarify. The other commentor believes the definition for transfer station is too

restrictive.

Response: Agency does not agree with the first comment. The agency has incorporated the Code definitions into the rule and added other definitions from the federal rule not presently in the state rule.

Comment: The commentor believes the definition 2.13. opens a recycling loophole.

Response: The agency agrees and this definition has been deleted.

Comment: Section 3.3.1. leaves out facilities specified in the code.

Response: The agency agrees and has amended the rule to include those facilities mentioned in the comment.

Comment: 3.4.1. appears to be an attempt at grandfathering facilities that wish to stack permits.

Response: After careful review of the section, the agency can find no such attempt.

Comment: Bonding and financial assurance should apply to all solid waste facilities.

Response: The section (3.13.1.d.A.) is simply to assure that all SWLF's meet the requirements of federal Subtitle D (applicable only) to landfills. It is not intended to require other types of solid waste facilities in WV to meet the federal financial assurance requirements.

Comment: Commentor is concerned that 3.14 has been weakened considerably.

Response: The agency disagrees.

Comment: Amend section 3.16.4.c.A.

Response: Agency agrees and amended section to reflect commentor's request.

Comment: Commentor believes the revision concerning Class D facilities should not be approved or filed.

Response: The agency totally disagrees.

Comment: The underlined "Transfer, Reissuance" in section 3.18. should be stricken because transfer is covered in 3.19 and reissuance is covered in section 3.20.

Response: The agency agrees that transfer is covered in section 3.19 and has stricken such underline in 3.18, however, the commentor is incorrect about reissuance being covered in 3.20, such underline not stricken.

Comment: Commentor suggests that section 4.5.4.a.G. is contrary to 22-12-2.

Response: The agency disagrees.

Comment: Section 4.6.1.a.Q.(a) opens a loophole for burning.

Response: The agency amended section to allow open burning only of land clearing debris at a SWLF.

Comment: Commentor states that removal of Phase III Monitoring Program compromises the Groundwater Program.

Response: The agency disagrees because several sections in Phase I and II have been revised with numerous added requirements to achieve similar monitoring and in accordance with the stipulated two phase federal program.

Comment: Remove a phrase "unless authorized by the director in writing" from section 4.12.1.

Response: The agency totally agrees, phrase removed.

Comment: The commentor believes there is a change in section 4.12.2.d. that requires only the monthly tonnage report to be sent to local solid waste authorities.

Response: The agency agrees and has added language requiring a copy of the monitoring reports to also be sent to the county or regional solid waste authorities.

APPALACHIAN POWER**FAX Transmission**

From: Jim Lovell
To: Mr. Bill Rheinlander
Company: WV Div. of Envir. Protection

Date: July 24, 1995
Time: 2:48 PM
FAX #: 304-558-0256

Message:

As per our conversation, we are faxing the Company's comments to the proposed changes in the West Virginia Solid Waste Management Regulations.

It is our understanding that faxing the comments will insure their inclusion within the public comment period.

A hard copy of our comments will follow by mail. If you have any questions, please call me at (540) 985-2429. Thank you for your attention in this matter.

(67 pages to follow)

VOICE: 540-985-2429 FAX: 540-985-2568

Appalachian Power Company
PO Box 2021
Roanoke, VA 24022-2121
703 985 2300



VIA FAX

West Virginia Division of Environmental Protection
Office of Waste Management
1356 Hansford Street
Charleston, WV 25301
Attn: Mr. Bill Rheinlander

Re: Comments of American Electric Power and
Affiliated Power Companies
Proposed 47 CSR 38 - Solid Waste Management Regulations

July 24, 1995

Dear Mr. Rheinlander:

On behalf of American Electric Power Service Corporation, Appalachian Power Company, Columbus Southern Power/Ohio Power Companies, and Wheeling Power Company, I offer the attached comments on the West Virginia Division of Environmental Protection's proposed Solid Waste Management Regulations. I would like to offer our appreciation for the opportunity to submit these comments and look forward to a continued good working relationship between our companies and the DEP.

If you have any questions concerning our comments, please contact Mr. James Lovell of my staff at (540) 985-2429.

Sincerely,

A handwritten signature in cursive script that reads "Robert J. Robinson".

Robert J. Robinson
Environmental Affairs Director

Attachment

**Comments of American Electric Power on
the Proposed" Solid Waste Management Regulations"
47 CSR 38**

Introduction:

The American Electric Power family of companies (which include American Electric Power Service Corporation, Appalachian Power Company, Columbus Southern Power/Ohio Power Companies, and Wheeling Power Company) present the following comments to the proposed Solid Waste Management Regulations (47 CSR 38) of the West Virginia Division of Environmental Protection.

General Comments:

The West Virginia Solid Waste Management Regulations (Title 47, Series 38) are being revised to incorporate the changes in the Municipal Solid Waste Regulations in 40 CFR 258. While we agree the requirements of this federal regulation need to be incorporated into solid waste regulations at the state level, we would like to point out that the requirements of the federal municipal regulations were developed by EPA with a particular class of disposal facilities in mind. They were not designed to apply to a facility handling solely coal combustion by-products (CCBP), and, consequently, many of the provisions would be unnecessary, irrelevant and unduly burdensome if applied to coal combustion by-product facilities. This view would also be shared by U.S. EPA, which intends to propose regulations different from the Part 258 requirements and which would separately apply to industrial solid waste disposal facilities.

The Company, as well as the entire electric utility industry, has long held the position that to attempt to regulate CCBP with the entire municipal solid waste regulation package cannot be accepted. We are pleased to see the same exemptions and potential waivers for CCBP landfills and CCBP surface impoundments are maintained in the proposed regulations. However, we believe CCBP landfills should be exempt from the extra requirements of the federal rule concerning the municipal solid waste facilities as well. We also believe some areas of this proposed rule may require clarification with respect to minor word changes as a result of attempting to incorporate the Federal Regulation into the existing Solid Waste Management Rule.

The removal of the word "significant" in the context of adverse impacts to the waters or environment could result in an extremely burdensome situation, especially where reporting changes may be required. Identifiable, but environmentally insignificant changes in leachate can occur due to time and season, or due to the variability of

waste collected. If the proposed rule is interpreted literally, at CCBP landfills, the variability of coal, and the resulting ash, could require constant monitoring and possibly additional needless wastewater treatment facilities to control hypothetical adverse impact solely on the basis of inconsequential changes due to unavoidable, but predictable variability. (Again, this regulatory change may have some environmental protection relevance to municipal landfills, where the waste stream is variable and less predictable, but is unnecessary with regard to CCBP monofills.

Removing the word "significant" could be viewed as eliminating the practical allowance for variability of the waste stream and any increase over background is adverse to the environment. We request the word "significant" be replaced everywhere it was removed within the proposed Solid Waste Management Rules.

Our understanding of the purpose for the changes made to this rule is to enable the State to maintain oversight of the solid waste program within the State. We believe, through our review, that all references to "this rule" means that the references are to the entire Title 47, Series 38 Solid Waste Management Rule. Where specific sections are referenced within the rule, these specific sections are enumerated such as "section ---- of this rule".

Below are additional areas where, through the attempt to incorporate the Federal 40 CFR Part 258 Rules into the existing State rule, some areas are redesignated or modified. The changes below are to clarify the areas where some sections referenced are no longer included in the proposed rule, the subject of the section has changed, or the Company believes an alternate condition to that of the municipal rules should apply to the CCPB facilities.

§ 47-38-2. Definitions

2.29 - In the second sentence of the definition, the proposed change would substitute "must" for "shall." A more appropriate word would be "does", since legitimate beneficial use of CCBPs does not constitute disposal.

2.33 - The definition of "Composite Liner" is overly restrictive as the use of alternative materials, other than 60 mil thick HDPE, can result in equal or improved resistance to leakage at much thinner thicknesses.

2.56 - The definition of "Industrial Solid Waste Landfill" was not completed.

2.90 - The definition of "Persistent Violation" appears to be incomplete.

2.124 - The first sentence of the definition of "Storage or Storage Area" appears to be incomplete.

2.1 - The definition of "Access Road" is included a second time on page 19 of the draft regulations.

e 47-38-3. Solid Waste Permitting Requirements

The section concerning location standards (3.2.) includes the phrase "existing SWLFs" when attempting to describe applicability to the section. The location standards, if applied to existing SWLFs, may cause the landfill to be required to close upon approval of these rules if this phrase remains in the text. We recommend that this phrase be removed from the text in Section 3.2. to allow existing facilities to continue to operate under their current permit. This would be consistent with the regulatory requirement in §1.1.2.b. As an alternative, because of the Department's need to conform state regulations to Part 258 requirement, this provision could be modified to exclude class F facilities [and D and E] operating under a valid permit.

3.2.2.b. and its subsections - This text refers to prohibitions for the placement or siting of SWLFs. We believe these sections will fit better as subsections in the Prohibitions Section (3.1.)

3.2.2.c.G - A reference is made to section 3.2.2.a.A. but this section does not exist. Does this refer to 3.2.2.a.?

3.2.10.a. - The phrase "...incorporated into the self's design..." appears wrong. Is this supposed to read "...incorporated into the SWLF's design..."?

3.4.1.b.a - This section requires that the legal advertisement to be placed in a qualified newspaper without defining what constitutes a "qualified newspaper". We believe that a "qualified newspaper" should be defined as a newspaper with daily or weekly general circulation in the area.

3.6.1. and 3.6.2. - These sections refer to Permit Fees as listed in Appendix III. The Application Fee list is in Appendix IV.

Sections 3.8.4.e., 4.8.4.b., 4.11.2.b., 4.11.3.a. - These sections refer to Appendix I and Appendix II when discussing the monitoring parameters to be measured for groundwater and leachate analysis. CCBP landfills do not contain materials which can leach organics and we request the Appendix I and Appendix II parameter list be modified specifically for CCBP facilities. The parameters requested include: 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.

3.7.6.f. - The reference to solely use USGS datum as a basis for all elevations may be too restrictive. Other universally acceptable systems are also available, such as the National Geodetic Vertical Datum of 1988 and the North American Datum of 1993 for the horizontal coordinate system.

3.7.7. - The Quality Assurance and Quality Control Plans should include plans for "construction and disposal operations including environmental monitoring". The restriction of monitoring well development and provisions for monitoring, along with construction, will miss the operation aspect of a solid waste facility.

3.8.1.1. - The phrase "...specified in sections 3.1.1 and 3.1.2. of this rule..." appears wrong. These sections of this rule do not have distances within them. The references of 3.2.1. and 3.2.2. respectively, refers to distances from surface waters and wetlands and may be better substituted here.

3.8.1.1.G. - The request for additional information on the angle of draw for subsidence of mines indicates that all mines will have such a requirement. Some mines do not have the potential to subside therefore this additional request cannot be fulfilled. If this request is to be part of the rule, we suggest the parenthesis be stricken and the phrase, "as applicable" be added.

3.8.1.1.V. - The references to prohibitions Section 3.1.1 may be better served by referring to Section 3.1. Also the reference to the location standards in Section 3.1.2 may be better served by referring to Section 3.2.

3.8.4. - The requirement in this section to monitor the uppermost significant aquifer and the uppermost aquifer will require the installation, maintenance and monitoring of at least four additional wells at most facilities. Monitoring the uppermost aquifer, when not the significant most aquifer, will only serve as a double check of the leachate detection system. Monitoring the useable aquifer, being most significant and have the highest potential for off-site impact, should be used in the monitoring program.

3.10.2. - The restriction of the drawing size to 24 x 36 is not necessary because of the ability to fold all drawings to 8 1/2 x 11.

3.13 - Under subsection 3.13.1., regarding financial assurance requirements for commercial facilities, there is a note indicating that Section 13 does not apply to non-commercial solid waste facilities. We support an exemption for industrial facilities. However, we urge the Department to include this statement in the text of the rule under §3.13.1.d., the Applicability section to avoid any possible conflict with the text of §3.13.1.d.A. which indicates that the requirements apply "to permittees of all SWLFs." If the Department considers expanding the financial assurance requirement to include industrial facilities, this expansion should be subjected to additional public

comment and should include a reasonable corporate financial test as a compliance option.

3.16.5.d.B. - This section was revised but appears to have a typographic error. The word "revoked" has been repeated in the second line and only one appears to be necessary.

3.18.1.a. - This section was revised but appears to have a typographic error. The word "revoked" has been repeated in the third line and only one appears to be necessary.

3.18.2.b.N. - This section requires a major modification when a change occurs in the WV Code "Solid Waste Management Act," this rule or the counterpart Federal regulation as determined by the Director. We believe additional language, similar to that of Section 3.5.4. "Existing Permits" be added to require notification by the Director that a major modification is required due to the rule or Act changes. Many minor changes to these rules or Act may take place which have no affect on the permit or design of the permitted facility and the need to provide a complete application is not productive to industry or the agency.

e 47-38-4. Landfill Performance Standards

4.5.2.b.A.(a) and 4.5.2.b.A.(b) - These sections repeat, almost word for word, Section 4.5.2.b.A. and are recommended to be deleted.

4.5.2.d.B. - The section discusses run-off from active and all other areas of the landfill but the reference to Section 4.5.2.b.A. refers to run-on design. In place of Section 4.5.2.b.A., we believe the agency means WV Code 22-11 (Water Pollution Control Act).

4.5.4.a.B. - This section needs to be rewritten to assure that it refers to liner requirements for new and lateral expansions. To maintain that thought in this section, the phrase "may remain in operation until November 30, 1992, at which time such landfill shall be closed in conformance with its permit and these regulations." should also be deleted. The existing landfills with alternate liner systems are covered under section 4.5.4.a.D.

4.5.4.a.B.(b) - A reference in this section is made to concentrations measured in the uppermost aquifer for parameters in Appendix IV. Appendix IV is a fee structure. The reference to Appendix I will correctly refer to the list of parameters.

4.5.4.a.B.(c) - The requirement for a 30 cm. depth for a leachate collection system does not take into consideration the many products available to wick the leachate to a collection center that are much less than 30 cm. The advantage of these newer

products over the 30 cm. of porous material is the ability to utilize additional space in the landfill for waste materials instead of the leachate collection system.

4.5.4.b.A.(a) - Using soil mottling as the sole indicator of the seasonal high groundwater table has no technical supporting argument and such mottling occurs due to the presence of oxygen in the ground, with a possible source of the oxygen being groundwater.

4.5.4.c., 4.5.4.d., and 4.5.4.e. - Several references are made within the subparts of these two sections to utilizing both laboratory and field testing for permeability. We recommend the condition to use both methods be changed to either laboratory "or" field testing for permeability.

4.5.4.d.A.(e)(c) - This section requires the leachate piping to be installed perpendicular to the slope with a continuous slope. These are contradictory terms in that a pipe installed perpendicular to the slope will have a 0 slope and not be drainable. We recommend changing perpendicular to the slope to along the slope.

4.5.4.e.A.(d) - The reference to particles greater than 2 inches in dimension is recommended to be changed to deleterious materials without a minimum size restriction. A 1/2 inch stick will puncture a liner while a 3 inch rounded stone will have no adverse impact.

4.5.4.e.B. - The synthetic components of a composite landfill is required to have a permeability rating based on laboratory and field testing. There is no rating of these materials based on permeability testing. This section is recommended to be deleted.

4.5.4.e.C., 4.5.4.e.D. - The construction certification and QA/QC report for the various components of the composite liner system should be approved in one step, instead of separately since installation of the liner is a continuous operation without separating out each component of the composite liner into distinct construction periods.

4.5.a.A.(a) and 4.5.a.A.(b) are believed to be typographical errors and are supposed to be 4.5.5.a.A.(a) and 4.5.5.a.A.(b).

4.5.5.b.C. - The section does not read correctly and is very confusing to us as to what is needed, a permit to inspect structure penetrations?

4.5.5.b.I. - We believe too many words were deleted in the third line of this section. We believe this line is meant to read "... inspection by the director. The log book must be signed..."

4.6.1.a.E. - The fourth line will read better if changed to "... artificial barriers (including fencing), natural barriers, or both, ..."

4.6.1.a.F.(b)(A) - This section contains the same information as that in some following sections (namely 4.6.1.a.F.(b)(B), 4.6.1.a.F.(b)(C), and 4.6.1.a.F.(c)) Duplication for records of random inspections, training of facility personnel, and written notification procedures are duplicated.

4.6.2.c. - The fifth line includes the word "was" that is not needed. The line reads better as "... of the same year of the liner construction..."

4.8.1.g.B. - The third line has too many "rules and" phrases in it. It reads better as "... and the rules and regulations promulgated ..."

4.8.3.a.C. - This part discusses the requirement of tanks to have an overflow prevention system. The addition of the words "on the tank's discharge side" do not appear relevant to the overflow prevention methods discussed within the section and are recommended to be removed.

4.11.1.b.A. - Although WVDEP may need to mirror the federal no filtration requirement [40 CFR 258.53(b)] for its municipal solid waste landfill facilities to ensure program approval, WVDEP does not need to prohibit field filtering at coal combustion by-product disposal facilities. AEP urges WVDEP to exempt coal combustion by-product disposal facilities from this requirement based on CSR Title 46 Series 12 Requirements Governing Groundwater Standards and the reasons stated below.

The U. S. Environmental Protection Agency's (EPA) mandated no filtration approach for municipal solid waste landfill facilities resulted in an immediate concern to industry, environmental professionals and even some state environmental agencies. AEP shares in this concern and believes that such a mandate is inappropriate. In response to this public outcry against the no filtration requirement, EPA indicated a few years ago that the ban could be suspended and the issue opened for public comment. Resolution of this issue is still pending. AEP's position on this matter generally reflects the view described in the attached position paper written by the State of Wisconsin, Department of Natural Resources.

Other states, such as Ohio, share in this position. Ohio EPA believes that field filtration of groundwater samples is necessary under many circumstances when analyzing for metals. Therefore, in Ohio, the no filtration requirement only applies to municipal solid waste landfills.

There are two distinct purposes for groundwater monitoring: first, to facilitate early detection of groundwater contamination, and second, to measure the "true"

concentration of chemicals for determining compliance or the effectiveness of groundwater remediation. The no filtration requirement fails to recognize these goals.

EPA suggests that colloidal transport is a contributing factor in groundwater contamination and that removing the colloid particles from a sample will not result in a representative sample. However, in a typical flow regime, groundwater moves too slowly to mobilize colloids, and therefore colloid particles are generally not mobile. To ensure that colloids are present in groundwater, samples would serve only to contribute random concentrations of chemicals to the sample, resulting in misleading analyses of groundwater.

Colloidal contributions to the sample will result in a more strongly variable sample relative to the dissolved concentrations in the sample. Filtration serves to remove variability so that the underlying portion of the sample will be more accurate for graphical and statistical analyses.

When groundwater concentration data are compared for different wells, data variability due to suspended matter can invalidate certain statistical comparisons. Small differences in the performance of well screens or soil conditions around well screens can produce markedly different concentration data, population distributions and variances.

Therefore, in summary, WVDEP should apply the no filtration requirement exclusively to municipal solid waste landfills and not to coal combustion by-product disposal facilities.

4.11.2.b. - For coal combustion by-product facilities, WVDEP proposes to expand the list of detection monitoring parameters from 30 parameters listed in the current rule to 91 parameters listed in Appendix I. Subjecting coal combustion by-product facilities to these additional monitoring requirements will result in additional operational costs with no added benefits, since coal combustion by-products do not contain any of the organic chemicals listed in Appendix I.

The proposed rule revision (Section 4.11.2.d.) further requires that statistical comparisons be performed semi-annually for the Appendix I parameters. Performing statistical comparisons routinely on 91 parameters will drastically increase the false positive rate.

AEP recommends the following sampling scheme, which is more cost effective, scientifically valid, and equally protective of the environment. AEP recommends that for coal combustion by-product facilities, WVDEP require semi-annual sampling and statistical comparisons for the following indicator parameters: pH, specific conductance, total dissolved solids, sulfate, total alkalinity, and calcium. AEP also recommends that WVDEP retain its present list of 30 parameters for coal combustion

by-product facilities and require that the list of 30 parameters be measured during the initial year that background conditions are being established and annually thereafter during operation of the facility. Therefore, in order to have a more meaningful groundwater monitoring program, WVDEP should only require statistical comparisons on those indicator parameters that reflect the chemical composition of the regulated material.

4.11.1.e.D. - This section places a requirement to measure the rate and direction of groundwater flow each time groundwater is sampled. This is a burden on facility operators and owners and does not provide a useful product. The requirement of determining the rate and direction of groundwater flow at least annually is already listed in Section 4.11.1.c.A. of this rule. Performing this task semiannually or quarterly will be costly and of no practical use. We recommend Section 4.11.1.e.D. be deleted.

4.11.1.e.F. and 4.11.1.e.G. - There are two sections with each of these designations. Both of the former sections and the first of the latter are repeats, almost word for word, of Section 4.11.1.d. and they are recommended to be deleted. The second 4.11.1.e.G has a reference to Section 4.11.2.b. which we believe should be 4.11.2.c. We recommend the deletions of the first three sections and the modification of the one reference in the fourth section.

4.11.1.i.A., 4.11.1.i.B., and 4.11.1.i.C. - These sections are repeats of Sections 4.11.1.f., 4.11.1.f.A., and 4.11.1.f.B., respectively. We recommend deleting Sections 4.11.1.i.A., 4.11.1.i.B., and 4.11.1.i.C.

4.11.2.c. - Several subparts of this section (A, B, and D) refer to 4.11.2.a.C. which does not exist. We believe the replacement of this reference with 4.11.2.b.B. will make the section correct.

4.11.2.d. - This part has several references to Section 3.8.4.a.K..., which should be renamed as 3.8.4.a.J....

4.11.2.d.A. - This section requires that the permittee notify the Director within 14 days of a statistically significant increase finding, place a notice within the operating log book, and then notify the director that the notice was placed into the log book. The Director will be notified twice of the same finding.

4.11.3.d.A. - The tense of the word "has" in the second line would read better if written as "have".

4.11.3.d.B.(a) - The reference to the alternate approved list of parameters as 4.11.2.a.C. should be 4.11.2.b.B.

e 47-38-5. Other Solid Waste Facility Performance Standards

5.5.2.a.A. - The reference to a 60 mil synthetic liner should only apply to HDPE. Other liner materials available and used in and around CCBP landfills do not need, nor are recommended to be this thick. The defined thickness of the synthetic portion of the liner should be dependent on the material type.

5.5.2.b.A. - The phrase "... as provided for in section 1 director 4.11 of this rule ..." in line eight appears to be misstated. We believe the phrase is supposed to be "... as provided in section 4.11 of this rule ..."

e 47-38-6. Closure and Post-Closure Care

6.1.5.a. - The second line will read better if written as "... include the installation of a final..." instead of "... include the install a final ..."

6.1.5.a.A. - The necessity of utilizing a drainage layer on a compacted CCBP landfill is questioned. The cap system for such a landfill need only to reduce the infiltration of stormwater into the deposited ash and therefore the use of a clay cap covered with a soil to promote the growth of vegetation above the compacted ash. The compacted ash will also retard the infiltration of water due to the limited permeability.

6.1.5.e. - The third line in the section is missing the word "unit". It reads the same as the Federal Regulation as "... to close the unit of the SWLF ..."

Attachment 1

Wisconsin Department of Natural Resources
Position Paper on the Field Filtering
of Ground Water Samples



State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Carroll D. Besedny
Secretary

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Box 7921
Madison, Wisconsin 53707
DNR TELEFAX 608-267-3579
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SOLID WASTE MGMT 608-266-2111
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March 9, 1992

Mr. Bruce Weddle, Director
Municipal & Industrial Waste Division
Office of Solid Waste - WH563
U.S. Environmental Protection Agency
401 M Street S.W.
Washington D.C. 20460

Subject: Subtitle D Requirement that Ground Water Samples not be Field
Filtered

Dear Mr. Weddle:

This is a follow up to our discussion at the State/Tribal Implementation Rules (STIR) training held in December for the pilot states. Per your suggestion, we are sending our concerns over the requirement in Subtitle D that ground water samples at solid waste landfills not be field filtered. We in the Bureau of Solid and Hazardous Waste Management, Department of Natural Resources, State of Wisconsin feel that EPA may have made a premature technical decision regarding this issue. We are encouraged to hear that EPA is considering a reevaluation of this requirement and may be recommending a technical correction to Subtitle D. We contacted a number of technical experts, including the two researchers whose work EPA based its decision on, and most agree that the current Subtitle D requirements to not field filter inorganic samples could trigger numerous false positives requiring landfills to begin unwarranted assessment monitoring. This will result in significant unnecessary additional work and costs for states and landfill owners and will not provide better protection of the environment.

The attached position paper presents Wisconsin's technical arguments why we think EPA should allow states flexibility when determining whether or not ground water samples should be field filtered before they are analyzed for inorganic parameters. We hope to convince EPA that there are more than a "handful" of people, including a number of technical experts, who disagree with the decision to not allow field filtering of inorganic ground water samples.

Subtitle D provides flexibility to approved states in numerous areas. Based on the attached position paper we suggest EPA require field filtration of



ground water samples collected from monitoring wells that will be analyzed for inorganic parameters. If this is not a possibility, we then urge EPA to at least provide flexibility in this area for the states.

After reading our position paper if you still have concerns we propose that a conference call be set up. We suggest that the participants include three technical experts, to be agreed upon by ourselves and EPA, yourself, Sylvia Lowrance from EPA, a representative from EPA's technical staff who decided on the no field filtration policy, Lakshmi Sridharan and Jack Connelly from the Wisconsin DNR.

We appreciate EPA offering the opportunity to provide comments on their requirement in Subtitle D to not field filter ground water samples. Please contact me at (608) 266-0520 or Jack Connelly at (608) 267-7574 if you have any questions or would like us to set up the conference call.

Sincerely,

Lakshmi Sridharan

Lakshmi Sridharan, Ph.D, P.E., Chief
Solid Waste Management Section
Bureau of Solid & Hazardous Waste Management

Attachments

cc: Paul Didier - SW/3
Dr. Michael Barcelona
Dr. Robert Puls
Dr. Russell Plumb
Dr. Thomas Stolzenburg
Wisconsin Association of Consulting Engineers
Dave Ullrich/Andy Tschampa - EPA Region V
Contacts in IL, IN, MI, MN, OH (See Attachment 4)

LS:jpe:filtsno.2

POSITION PAPER
ON THE
FIELD FILTERING
OF
GROUND WATER SAMPLES

March, 1992

Prepared by:

**Solid Waste Management Section
Bureau of Solid & Hazardous Waste Management
Wisconsin Department of Natural Resources**

TABLE OF CONTENTS

Introduction	1
What Technical Experts Are Saying	1 - 4
Results Won't Reflect True Ground Water Quality	4 - 5
Variability of Unfiltered Results	5 - 6
Other Considerations	6
EPA's Concerns	6 - 7
Summary	7
Conclusions	8 - 9
Recommendations	9
References	9
Attachment 1:	Dr. Russell Plumb's Position on the Analysis of Total vs. Dissolved Metals
Attachment 2:	Dr. Thomas Stolzenburg's Position on Filtration of Groundwater Samples for Metals Analysis
Attachment 3:	Wisconsin Association of Consulting Engineers' Position on Unfiltered vs. Filtered Groundwater Samples
Attachment 4:	Contacts from Region V States

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
BUREAU OF SOLID AND HAZARDOUS WASTE MANAGEMENT
SOLID WASTE MANAGEMENT SECTION
POSITION PAPER
SUBTITLE D REQUIREMENT THAT GROUND WATER SAMPLES
NOT BE FIELD FILTERED

Introduction

The primary objective of sampling ground water at solid waste landfills is to obtain a sample which is representative of ground water quality. Wisconsin and most of the technical experts we contacted feel the best way to obtain a representative metals sample from a monitoring well is to field filter the sample. In states with significant deposits of fine-grained sediments (i.e. Wisconsin, Michigan, Ohio, New York, etc.) field filtering is especially important. If turbid samples are not field filtered, the analytical results vary considerably depending on how the well was drilled and how the sample was collected. The results reflect metals adsorbed onto the suspended sediment in the turbid sample not metals moving through the aquifer.

When establishing regulations that will be implemented by thousands of landfills across the country it is essential to consider what happens in the real world - what is practically implementable. Producing a clear sample from all monitoring wells is not practical. The state of Wisconsin developed Groundwater Sampling Procedures Guidelines in 1987 and a Groundwater Monitoring Well Requirements rule in 1990. We carefully studied the issue of proper well installation, well development and sampling procedures to produce clear samples. We worked closely with the well drillers and samplers to meet our primary objective of obtaining representative samples. We've concluded that no matter how much regulation we impose, many monitoring wells will continue to produce turbid samples. We therefore consider it vital that field filtration be an option available to us.

The field filtration approach recognizes that many monitoring wells installed in the future will produce turbid samples no matter how much regulation we impose and takes into account that thousands of monitoring wells have already been installed that produce turbid samples (and will continue to be sampled). On the other hand, the no filtration approach relies on drillers and consultants to always take extreme care when drilling and sampling and assumes that monitoring wells in all environments can produce sediment free water. We consider this to be unrealistic.

The following section summarizes the information we obtained from the technical experts we contacted across the country and in Region V.

What the Technical Experts are Saying

We spoke with a number of experts in the field prior to writing this position paper and found that almost everyone we contacted disagreed with Subtitle D's requirement to not allow field filtering of metals samples.

Dr. Russell Plumb Jr. of Lockheed Engineering and Sciences Company is a key technical expert we contacted. Dr. Plumb, who received a Ph.D in Water Chemistry from the University of Wisconsin, has been researching ground water

quality at over 500 landfills across the country for EPA since 1984. Dr. Plumb believes that Subtitle D should recognize that most states have limited or non-existent oversight of sampling at landfills and therefore, the samples collected at these sites will typically be turbid. He feels that analyzing these samples for totals would then result in misleading ground water quality data. Dr. Plumb expects there will be a large increase in false positives if totals are required and is concerned with the significant costs involved with investigating these false positives.

Rather than repeat all of his reasons for not requiring total metals analyses we have included Dr. Plumb's review of EPA's Region VII draft policy statement for analysis of total metals as Attachment 1. Dr. Plumb would be happy to discuss his opinions on this issue if you wish to contact him at (702) 734-3265.

We also contacted Dr. Thomas Stolzenburg, who received a Ph.D in Water Chemistry from the University of Wisconsin and works for Residuals Management Technology Inc. (RMT), a firm that is nationally known and is well respected for its technical expertise. Dr. Stolzenburg has done research in the area of ground water sampling procedures for the Electric Power Research Institute (EPRI) and has been involved in a number of different ground water contamination cases where both total and dissolved samples were collected from monitoring wells for metals analyses. Dr. Stolzenburg feels strongly from his direct experience in this area that samples should be field filtered prior to running metals analyses. Otherwise, the results are dependent on many factors which cannot be controlled such as how much care the sampler takes when collecting the sample. Attachment 2 is a summary of Dr. Stolzenburg's position regarding the filtration of metals and a paper he co-authored on the subject. Dr. Stolzenburg indicated that some of the information in the paper is outdated but that the data gathered on total and dissolved metals provides valuable evidence that total metals data can be extremely variable.

Dr. Stolzenburg also indicated that he considers it prudent to be conservative when looking at potential contamination, but he does not consider the collection of unfiltered samples to be conservative. He feels the results of unfiltered sampling obscure trends and in many cases are unintelligible. Dr. Stolzenburg is well respected for his work in this area and would be happy to discuss these issues further if you wish to contact him at (608) 831-4444.

He considers it wise to sample private wells using unfiltered samples because those drinking the water are possible receptors. We agree and require unfiltered samples from private wells. Note, however, that private wells, unlike many monitoring wells, produce clear samples.

We also contacted the Wisconsin Association of Consulting Engineers (WACE). Members of the WACE have sampled in states that require both filtered and unfiltered samples. Their real life experience has been that the unfiltered samples from monitoring wells provide little if any useful information when sampling for inorganics, while the filtered samples are very useful to them. Attachment 3 is a copy of their letter to EPA opposing the requirement that all ground water samples not be field filtered.

While we recognize that EPA cannot be expected to contact all the experts across the country, we were surprised that EPA did not consult Dr. Puls and Dr. Barcelona, the two researchers whose work EPA used to justify the Subtitle D requirement that inorganic samples not be field filtered. When we contacted Dr. Barcelona and Dr. Puls they indicated to us that they were not contacted by those writing Subtitle D prior to its being published, despite the fact that Dr. Puls is paid by EPA specifically to do research for EPA in the area of groundwater sampling for metals. In fact, Dr. Puls was not contacted until he was asked in mid January 1992 to respond to the comments which have started coming in opposing EPA's no field filtration decision.

Dr. Barcelona agrees with the state of Wisconsin that field filtration of samples from monitoring wells, especially those producing turbid samples, is essential when analyzing for metals. He thinks Subtitle D should provide flexibility so that field filtration is an option. Dr. Barcelona has done extensive research in the area of ground water sampling and would be happy to discuss his feelings should you wish to contact him at (616) 387-5501.

Unlike Dr. Barcelona, Dr. Puls feels ground water samples should not be filtered but feels the key component to obtaining a sample representative of ground water quality is the care with which the sample is obtained. He has very recently determined that by using a very slow rate of pumping (and not using a bailer) a representative sample can be obtained from most monitoring wells. Practically speaking, 80 to 90% of the people sampling monitoring wells in Wisconsin, and probably across the country, use bailers. This practice is currently recognized, especially when used in conjunction with a bottom emptying device, as an excellent way to obtain a representative ground water sample from a monitoring well. After additional research is performed, if the technical experts agree that bailers should not be used and we should require the use of a slow pump system, Wisconsin will be willing to add this requirement to our approvals over time. However, it's not that simple as we will explain below.

Despite our having developed an excellent rule specifying monitoring well installation and development techniques and an excellent set of "Groundwater Sampling Procedures Guidelines," it has been our experience that most samples collected from monitoring wells are turbid. Running total analysis on turbid samples produces misleading results. Knowing how samples are typically collected in the field, even in a state such as ours, which has one of the largest and best solid waste staffs in the country, requiring total analyses is not prudent.

All of the technical experts we contacted indicated they would be more than happy to talk with EPA concerning the problems with using the results from unfiltered samples. All of them indicated they wished EPA had talked with them or other technical experts before publishing a final rule.

After contacting the technical experts across the country we contacted each of the EPA Region V states to determine whether they agree with our concerns with Subtitle D. All of the states indicated that they currently require the collection of dissolved metals from monitoring wells and their data bases for metals are based on the analysis of dissolved samples. All of the states were

concerned that the results of total metals from turbid samples would be misleading, and they all felt EPA should at least provide flexibility to the states to determine whether filtration is appropriate depending on the situation. Each of the state contacts listed in Attachment 4 have had valuable real life experience in this area and would be happy to be contacted.

We took the information from the technical experts, the experiences of other Region V states and our experiences in Wisconsin and summarized our concerns in the following sections.

Results Won't Reflect True Ground Water Quality

To require that all ground water be sampled without field filtration, regardless of the type of environment, would only be prudent if it did not cause a problem with sampling in the environments where colloidal material does not move with ground water. Unfortunately, this is not the case. Monitoring wells that are installed in fine-grained soils, even when extreme care is taken, produce turbid samples. Technical experts agree that the colloidal material in these samples is not representative of what's moved through the aquifer. We have funded studies which indicate no matter how you develop and purge a well completed in fine grained-soils, you will consistently obtain a turbid sample. Dr. Puls has determined that removing a sample from a monitoring well using conventional techniques such as a bailer can cause turbidity even in samples obtained from wells constructed in permeable soils.

Therefore, if we do not filter a sample, especially from fine-grained soils, the results will reflect any metals that are adsorbed onto the colloidal material in the sample. This often includes a significant level of metals that are not moving with ground water, but occur naturally in the soil or were added to the borehole during drilling. The sample results will then trigger a false positive and require the site owner to begin assessment monitoring. This will create a significant workload for our staff and a significant unneeded expense for the many facilities with wells producing turbid samples.

Puls and Barcelona (1989) imply that turbidity in monitoring wells can be prevented by paying more attention to the design, drilling and installation of monitoring wells. Wisconsin has found this not to be as easy as it sounds in the real world. We developed an excellent Monitoring Well Installation Code (effective January 1990) with strict requirements for the drilling, installation, and development of monitoring wells and detailed documentation of these steps. However, the documentation we have received shows that despite requirements such as using tremie pipes, checking the depths of all the components added to the annular space, properly sizing filter packs and well screen slots and spending more time carefully developing these wells (all of which were recommended by Puls and Barcelona), the monitoring wells constructed in fine-grained soils still consistently produce turbid samples. The turbidity in these wells is not due to colloidal material that has moved through the aquifer. Sampling these wells without filtration will not provide us with an accurate picture of what metals are present in ground water.

As was pointed out in an earlier section, Dr. Puls considers the key to producing a sample with limited turbidity is how carefully the sample is

collected. We certainly are encouraged to hear that there is a method of collection that will limit turbidity and if the experience of others bears this out, will add it to our sampling guidelines. But in the real world samples are often not collected with as much care as we would like. We will continue to find significant levels of turbidity in many monitoring wells for many years no matter how we change our rules.

Variability of Unfiltered Results

An additional problem created by not field filtering samples is that the results are extremely variable. The results of metals analyses collected from unfiltered samples is a function of the amount of suspended material present in the sample which in turn is a function of:

1. the amount of fines in the formation adjacent to the screen,
2. the amount of fines remaining in the well after development,
3. the care taken calculating the correct filter pack and screen size,
4. the care taken installing the filter pack and seal,
5. the vigorousness of the person purging and sampling the well,
6. the care taken when purging and sampling and
7. the time between purging and sampling.

These factors tend to vary from one well to another, are difficult to control and are independent of how contaminated the sample is. It is often impossible to interpret trends based on data that is controlled by these factors. The variability from well to well and from sample to sample reflects the variability in the turbidity of the samples, not the differences in the contaminants moving with the ground water.

The following experience of Dr. Thomas Stolzenburg in a real life situation illustrates the difficulty caused by obtaining total metals data. RMT was required to sample for metals at a Superfund site in New York State. Although RMT preferred to analyze filtered samples, New York required that they analyze unfiltered samples to meet EPA requirements. RMT decided to collect both. After a number of years of data collection, New York determined that the data from the unfiltered samples were impossible to interpret because of the considerable variability. The data from the filtered samples, on the other hand, were useful for determining trends in ground water quality. As a result, New York decided to throw out the unfiltered sample results and use the filtered sample results only.

RMT has recently collected filtered and unfiltered background ground water quality data, including metals analyses, from two yet to be constructed facilities. The data from both the facilities were extremely variable for the unfiltered analyses but were quite consistent for the filtered analyses. If

EPA is interested in obtaining the data from any of these sites please let us know.

Other Considerations

We have purposely concentrated on the technical arguments for why total metals should not be required because we hope the decision will be based on the technical merits rather than on politics. However, the additional cost to our program and landfill owners if the current Subtitle D requirements remain as is would be substantial. We would therefore like to address this impact at least briefly.

We have 15 years of ground water data collected from 8,000 sample points at 400 landfills on filtered samples stored on our ground water computer system. This data could no longer be used by Wisconsin or by other states despite the fact that it is an accurate representation of ground water quality at these landfills. Moreover, because we require that each monitoring well at a landfill establish background ground water quality, we would have to require each landfill to go back and reestablish background at all of their wells. Some of our larger facilities have over 100 wells. This would be a major work effort for us and an added expense for the facilities that we do not think is justified.

Of equal or more concern would be the time and expense added by the large increase in false positives. Most of the technical experts we talked with agreed that there would be a large increase in false positives if we required total instead of filtered analyses. As it now stands, Subtitle D would require that the state's staff to investigate situations that are not truly problems and landfill owners to start the expensive assessment monitoring unnecessarily. Wisconsin currently is unable to address all our groundwater contamination problems even though we have one of the largest and most skilled solid waste staff's in the country. We simply cannot afford to spend valuable time investigating sites that are being flagged due to inappropriate analyses. States with smaller, less experienced staffs will be even less able to afford this extra time. In summary, this requirement in Subtitle D which is designed to better protect the public health, will in fact result in considerable confusion which in turn will reduce the amount of protection each state can provide.

EPA's Concerns

It appears that EPA contends that colloidal material moves through aquifers and if you filter a sample before analyzing it, you will remove whatever metals are adsorbed to the colloidal material. We believe EPA's position is based on Dr. Barcelona and Dr. Puls' work. Their work shows that there is some mobility of colloidal material in one very permeable sand and gravel aquifer. Dr. Barcelona and Dr. Puls describe the results of their research as being "preliminary and based on a limited number of samples." Technical experts agree that in certain environments, such as fine-grained soils, movement of colloidal material is very unlikely. In Wisconsin we require the installation of monitoring wells in fine-grained soils at many of our landfills. Unless the samples from these wells are field filtered the results will be misleading.

One likely reason Subtitle D requires no field filtration of ground water samples is to be very conservative. Wisconsin traditionally has been conservative in its solid waste regulations. We started requiring 5 foot thick clay liners with full leachate collection systems and extensive ground water monitoring 15 years ago and have published internationally accepted technical papers on the performance of those landfills (Gordon et. al. 1984, Gordon et. al. 1989 and Gordon et. al. 1990). However, we believe the requirement that ground water samples not be field filtered is not going to protect the human health and the environment but will result in unnecessary costs and the diversion of time and effort to investigate unreal problems (because of false positive results).

We assume that EPA may have decided to require unfiltered sampling in order to get "all" the possible contaminants. However, because many technical experts and those who work in the real world feel that not allowing field filtration will cause more problems than it solves, the decision should be changed.

EPA may have decided on total analyses because it is a less expensive field procedure than collecting dissolved. We agree that the field procedure for filtered analyses costs more but contend that the overall costs will be much higher for unfiltered samples. The variability of data is difficult to interpret and leads to many false positives which in turn require much unnecessary work and expense by the states and landfill owners.

Note that we agree with Subtitle D and EPA that ground water samples collected for VOC analyses and samples collected from private wells for inorganics or VOC analyses should not be filtered.

Summary

In summary, we believe there are enough reasons for EPA to reevaluate the ground water sampling requirement in Subtitle D. The technical experts we contacted made it clear to us that there is not agreement in the monitoring community to not allow field filtering of ground water samples. In fact, most of the experts feel field filtration is appropriate especially if the sample is turbid. They also think total analysis of turbid samples will produce misleading results. Those with experience in the field know that turbid samples will continue to be collected from monitoring wells, especially those in fine-grained soils. Those that favor running total analyses think monitoring wells can be installed, developed and sampled in such a manner that the sample is relatively free of turbidity. We consider this presumption to be unrealistic. Because everyone does not agree with field filtration, EPA may not be willing to require field filtration, but at a minimum Subtitle D should provide flexibility to states to determine whether filtered or unfiltered samples are appropriate depending on the given situation. To assist the monitoring community EPA should sponsor additional research which compares the results of field filtered samples to unfiltered samples and investigates sampling procedures which produce samples with low turbidity. Wisconsin would be more than willing to participate in this research.

Conclusions

Based on our discussions with a number of technical experts across the country and in the Region V states and our own experiences in Wisconsin we have developed the following conclusions:

1. Limited research illustrates that colloidal material moves with ground water in few situations.
2. The research has not shown that requiring total analyses for metals will provide useful information to evaluate contamination at a solid waste landfill.
3. Most technical experts in the field contend that requiring total metals in all situations will result in confusing and misleading data and many false positives requiring significant unnecessary additional work for states and the facilities they regulate.
4. Sampling for total metals does not give an accurate picture of ground water quality if the sample is turbid. The results are instead dependent on how the well was drilled, developed and sampled. Many monitoring wells in Wisconsin and other states are completed in fine-grained soils where it is impossible to produce a clear water sample.
5. Recent studies by Dr. Puls have shown that standard sampling techniques using a bailer even in permeable formations often cause substantial amounts of turbidity. This suggests that total metals run on samples collected in this manner would give misleading information from wells finished in most soils.
6. Very recent research by Dr. Puls indicates that careful sampling can considerably reduce turbidity in samples collected from monitoring wells. Most technical experts with field experience feel that even if a technique exists for obtaining a relatively turbid free sample, that in practice many turbid samples will continue to be collected and we agree based on more than 15 years of experience.
7. Sampling for total metals in highly permeable formations such as fractured bedrock or coarse sand and gravel would likely not give misleading results because of low turbidity. However, this is an unusual situation - the exception, not the norm in many states.
8. All the technical experts we contacted agreed that when analyzing for VOCs an unfiltered sample should be collected.
9. The technical experts also agreed (with one exception) that when analyzing a sample from a private well for inorganic or VOC analyses an unfiltered sample must be collected.
10. Trends are much easier to track using dissolved metals analyses than total. The results are no longer dependent on uncontrollable factors such as drilling, installation and sampling care.

11. The apparent sampling costs are greater when filtering samples because filtration requires more equipment and more time. However, landfill owners and their consultants have been field filtering ground water samples in Wisconsin and other states for many years so the cost to filter would not affect many states.
12. There are considerable hidden costs with collecting unfiltered metals samples. The unfiltered metals samples will result in many false positives which will in turn result in many more sites performing assessment monitoring unnecessarily. The cost of assessment monitoring skyrockets to \$3,000+ per sample.

Recommendations

1. Require that ground water samples collected for VOC analysis not be filtered.
2. Require that ground water samples collected from a private well for inorganic or VOC analysis not be filtered.
3. Not require that all ground water samples at solid waste landfills not be field filtered. Instead, allow flexibility to decide whether filtration is appropriate or not.
4. Develop in laymen terms a position paper which explains to the public and environmental groups why total analyses are not more protective of human health than dissolved analyses.
5. Fund research to determine whether in-line filtering should be required when sampling for metals.
6. Fund research, which includes real life situations, to better define whether filtered or unfiltered samples are appropriate when sampling at solid waste landfills.
7. Fund research, which includes real life situations, to determine what sample collection techniques produce the least amount of turbidity and can be performed consistently in the field.

REFERENCE

Puls, R.W. and M.J. Barcelona. 1989. Filtration of ground water samples for metals analysis. Hazardous Waste & Hazardous Materials. Vol. 6, No. 4: 385-393.



Attachment 1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII
726 MINNESOTA AVENUE
KANSAS CITY, KANSAS 66101

OCT 25 1989

MEMORANDUM

SUBJECT: Review of Total Metals Policy

FROM: William A. Pedicino, Chief *W. A. Pedicino*
Hydrogeology Section,
RCRA Branch, Region VIITO: Joe Dlugosz, Chief
Aquatic and Subsurface Monitoring Branch

This is a written followup on a request by Mark Collins of my staff to have Jane Denne review and comment on the attached draft policy statement for analysis of total metals. If Ms. Denne or any of your staff have questions, please contact me at FTS 757-2922.

Attachment

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10

SEP 24 1990 14:22 FROM AFCC END

TOTAL VS. DISSOLVED METALS

There is much controversy and many differences in opinion that exist on the proper way to examine trace metals in the environment. These differences exist among consultants, laboratories, and even the different regulatory programs. This paper is a brief summary of the policy and guidance established by the RCRA Hydrogeology Section of EPA Region VII in coordination with the Regional Laboratory for its regulated community.

EPA Region VII takes the position that regulatory requirements should be based on total metal. This is currently the basis for Maximum Contamination Levels in drinking water under the Safe Drinking Water Act. Total metals are also the bases for wastewater discharges under the Clean Water Act. We believe total metals should be the bases for RCRA and any further programs for the reasons presented below.

An argument for dissolved metals is the fact that it is usually considered the most toxic form. It is also usually assumed that only the dissolved or colloidal particles are mobile. Colloidal particles are generally considered as particles with diameters less than 10 microns, and dissolved metals are defined as those which will pass through a 0.45 micron filter. The Regional Lab has studied the effect of filter porosity on the removal of metals. They observed that pore sizes from 0.2 micron up to coarse size (Whatman) removed most of the metals studied. Filtration was an efficient removal mechanism.

If toxic metal is present in groundwater, in any form, the potential for toxicity exists. There are many factors which could convert a metal from one form to another. These factors and the potential toxicity are overlooked when only dissolved metal is considered.

Another problem with dissolved metals analysis is logistics. Difficulties are encountered in collection, filtration, and transport of the sample to the laboratory. Contamination of the sample is a real problem.

The Regional Lab analyzed for both total and dissolved metal in about 250 samples in 1986. About half the time, dissolved metals analyses failed to identify the presence of any toxic metals. These resulting losses were too great to provide adequate protection of human health or the environment. For this reason we recommend that samples be analyzed for total metals.

A possible solution to the debate would be to split the sample and analyze both a filtered and unfiltered sample. However, this doubles the analytical costs. If criteria levels are exceeded in the unfiltered sample and this violation is due to background silt collected with the sample, then further studies are warranted. However, since filtration can remove metals that have migrated, as well as those present in the background soil, this does not constitute an acceptable solution to the problem.

**State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES**

Carroll D. Besadny
Secretary

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March 9, 1992

Mr. Bruce Weddle, Director
Municipal & Industrial Waste Division
Office of Solid Waste - WH563
U.S. Environmental Protection Agency
401 M Street S.W.
Washington D.C. 20460

Subject: Subtitle D Requirement that Ground Water Samples not be Field
Filtered

Dear Mr. Weddle:

This is a follow up to our discussion at the State/Tribal Implementation Rules (STIR) training held in December for the pilot states. Per your suggestion, we are sending our concerns over the requirement in Subtitle D that ground water samples at solid waste landfills not be field filtered. We in the Bureau of Solid and Hazardous Waste Management, Department of Natural Resources, State of Wisconsin feel that EPA may have made a premature technical decision regarding this issue. We are encouraged to hear that EPA is considering a reevaluation of this requirement and may be recommending a technical correction to Subtitle D. We contacted a number of technical experts, including the two researchers whose work EPA based its decision on, and most agree that the current Subtitle D requirements to not field filter inorganic samples could trigger numerous false positives requiring landfills to begin unwarranted assessment monitoring. This will result in significant unnecessary additional work and costs for states and landfill owners and will not provide better protection of the environment.

The attached position paper presents Wisconsin's technical arguments why we think EPA should allow states flexibility when determining whether or not ground water samples should be field filtered before they are analyzed for inorganic parameters. We hope to convince EPA that there are more than a "handful" of people, including a number of technical experts, who disagree with the decision to not allow field filtering of inorganic ground water samples.

Subtitle D provides flexibility to approved states in numerous areas. Based on the attached position paper we suggest EPA require field filtration of

ground water samples collected from monitoring wells that will be analyzed for inorganic parameters. If this is not a possibility, we then urge EPA to at least provide flexibility in this area for the states.

After reading our position paper if you still have concerns we propose that a conference call be set up. We suggest that the participants include three technical experts, to be agreed upon by ourselves and EPA, yourself, Sylvia Lowrance from EPA, a representative from EPA's technical staff who decided on the no field filtration policy, Lakshmi Sridharan and Jack Connelly from the Wisconsin DNR.

We appreciate EPA offering the opportunity to provide comments on their requirement in Subtitle D to not field filter ground water samples. Please contact me at (608) 266-0520 or Jack Connelly at (608) 267-7574 if you have any questions or would like us to set up the conference call.

Sincerely,

Lakshmi Sridharan

Lakshmi Sridharan, Ph.D, P.E., Chief
Solid Waste Management Section
Bureau of Solid & Hazardous Waste Management

Attachments

cc: Paul Didier - SW/3
Dr. Michael Barcelona
Dr. Robert Puls
Dr. Russell Plumb
Dr. Thomas Stolzenburg
Wisconsin Association of Consulting Engineers
Dave Ullrich/Andy Tschampa - EPA Region V
Contacts in IL, IN, MI, MN, OH (See Attachment 4)

LS:jpe:filtvsno.2



Environmental Programs Office
1050 E. Flamingo Road, Suite 120, Las Vegas, Nevada 89119

20 November 1989

To: Jane Denne
AMD, EPA

Via: William Engelmann
AMD, EPA

From: Russ Plumb
Lockheed ESC *Russ H Plumb*

Re: Review of Region VII draft policy statement
for analysis of total metals.

I have completed a review of the Region VII draft policy. I believe the subject document contains a number of incomplete or technically weak arguments that need to be more carefully addressed. After pointing out and commenting on these issues, the remainder of this memo will try to provide a detailed discussion of the topic of sample filtration.

Comments on Region VII Draft Policy

¶ 2, line 2-4: This statement that MCL's are based on total concentrations is incorrect. With the exception of iron and possibly mercury, MCL's are based on fresh-water bioassays that utilized dissolved concentrations of the contaminant being evaluated. Bioassays based on total concentrations are not definitive or reproducible.

¶ 2, line 4-5: The fact that the Clean Water Act specifies total concentrations raises the issue of how the data will be used and for what purpose. In the case of the Clean Water Act, the purpose is to control the quantity of material (loading) that can be discharged to a waterway. Since this determination is based on the total mass of material being discharged, and since chemical speciation and mobility are not the issue of concern, measurement of total concentrations is appropriate for this purpose. If the total chemical loading to a ground-water system is the objective of a RCRA

monitoring program, then a requirement for total analyses would be appropriate. However, if the objective of the monitoring program has another purpose that is related to chemical speciation, then the Clean Water requirements are not pertinent to another program.

¶ 2, line 5-7: The purpose of multiple programs is not to use the same approach for simplicity. Each program must utilize data generation programs that permit them to achieve their state objectives.

¶ 3, line 1-2: Dissolved metals are not "usually considered" the most toxic form. Dissolved concentrations of metals are one to three orders of magnitude more toxic than the same total concentration of metals. Thus, any judgments of potential harm to human health or the environment will be exaggerated by one to three orders of magnitude. It is because of this extreme variability of toxicity associated with total concentrations that reproducible and valid criteria could not be developed until bioassay studies began utilizing dissolved concentrations.

¶ 3, line 2-3: I don't know that it is correct to state that only the dissolved (ions) and colloidal particles are assumed to be mobile. It would be more accurate to state that dissolved (ions) and colloidal particles are more mobile than suspended and particulate matter.

¶ 3, line 3-10: Dissolved concentrations have always been operationally defined. Studies from as long ago as the fifties have shown that different pore-size filters will produce different dissolved concentration-total concentration distributions. Furthermore, the distribution will vary with each metal. This situation is obviously complex but it doesn't mean that dissolved concentrations should not be emphasized in a monitoring program. It simply means that a formal operational definition of dissolved concentrations must be established

concentrations, the results demonstrate that the metals (at least half the time) are not adversely affecting human health or the environment.

1 7.

From a technical perspective, the best approach would be to monitor both the dissolved and total concentrations of metals in a sample. As pointed out, this will increase the analytical costs but analytical costs are only a portion of total program costs. Therefore, the analytical costs must be judged in comparison to the alternative approaches. For example, the information in the preceding paragraph suggests that total analyses will produce at least a fifty percent false positive rate. Thus, for the simple situation of 2 sites and a fifty percent false positive rate, a strategy of total analyses would require one trip to site A and one total analysis of sample A, and two trips to site B and two total analyses of Sample B plus one dissolved analysis of sample B. The totals are 3 field trips plus 3 total analyses plus one dissolved analysis. By comparison, a dissolved and total analyses strategy would require 2 field trips plus two total analyses plus two dissolved analyses. A dissolved only strategy would require 2 field trips plus 2 dissolved analyses. Thus, when one considers the high false positive rate that will be obtained with total analyses, a total only approach will have analytical costs similar to a dissolved plus total program and it will also incur higher field collection costs.

Brannon, et al., 1978; Rauret, et al., 1988; Everett and Louma, 1975; and Charters, 1988). This situation results from the fact that there are a large number of factors that influence the distribution of metals between dissolved and particulate form (Eh, pH, temperature, time, concentration, chemical speciation, particle size, presence of other ions, composition of the solid phase, etc.). Each of these factors are more important than and independent of the total concentration. When a total concentration is less than a water quality criterion or MCL, it can be safely concluded that the chemical does not pose an environmental problem. However, the logical converse of this statement is not true. When the total concentration exceeds a criterion or MCL, no definitive statement can be made. Thus, use of total concentration data will increase false positive occurrences (triggering a false response to a problem when no problem actually exists).

There are two other points that can be raised regarding this paragraph. First, the potential toxicity of a situation can be increased if metal mobility is increased. However, this will require a major shift in the Eh or pH regime in the aquifer. Since aquifers have not shown a tendency for seasonal fluctuation that is characteristic of hypolimnetic portions of lakes (and, in fact, these fluctuations would not be expected since the factors that cause fluctuations in surface water, sunlight and wind, are not critical in ground-water systems), the change in toxicity would be a secondary response to a greater problem (i.e., a leaking acid pit that would cause a change in metal toxicity due to a change in pH). Second, I'm not aware of any general situation where particulate matter has migrated through ground water from a waste site and then become a source of potentially toxic metals. The expected case would be for dissolved metals to migrate from

concentrations, the results demonstrate that the metals (at least half the time) are not adversely affecting human health or the environment.

17.

From a technical perspective, the best approach would be to monitor both the dissolved and total concentrations of metals in a sample. As pointed out, this will increase the analytical costs but analytical costs are only a portion of total program costs. Therefore, the analytical costs must be judged in comparison to the alternative approaches. For example, the information in the preceding paragraph suggests that total analyses will produce at least a fifty percent false positive rate. Thus, for the simple situation of 2 sites and a fifty percent false positive rate, a strategy of total analyses would require one trip to site A and one total analysis of sample A, and two trips to site B and two total analyses of sample B plus one dissolved analysis of sample B. The totals are 3 field trips plus 3 total analyses plus one dissolved analysis. By comparison, a dissolved and total analyses strategy would require 2 field trips plus two total analyses plus two dissolved analyses. A dissolved only strategy would require 2 field trips plus 2 dissolved analyses. Thus, when one considers the high false positive rate that will be obtained with total analyses, a total only approach will have analytical costs similar to a dissolved plus total program and it will also incur higher field collection costs.

Relative Monitoring Costs for Different Monitoring Strategies

	Total Strategy	Total + Dissolved Strategy	Dissolved Strategy
Field Trips	3*	2	2
Total Analyses	3*	2	0
Dissolved Analyses	1	2	2

* Includes a 50 percent false positive rate for total strategy

7. The comparison of total concentration data to criteria derived from bioassays of soluble metal concentrations is technically inappropriate and will inflate the rate of false positive judgments (and program costs).

Issues Related to Sample Filtration

1. One issue that is frequently overlooked when a decision is made not to filter field samples is the actual process of sample collection and preservation. Because samples can undergo changes between collection and analysis, a variety of preservation agents are added to the samples. However, since the type of changes vary from chemical to chemical, different preservation agents have been specified for each chemical. The use of these agents requires samples to be split into aliquots with each aliquot being preserved as appropriate. This process can influence the quality and representativeness of data when total analyses are specified for environmental samples. The occurrence, distribution, and size of particulate matter will vary considerably in samples. For the sake of demonstration, a collected sample can be thought of as a homogeneous liquid with a single particle. When the sample is split into two or more aliquots (Figure 1), the particle can only go into one

of the aliquots. When the aliquots are analyzed, the following results will be obtained:

1. Analysis of aliquot A for constituent A will produce a high concentration that is not representative of the original sample (one particle in a smaller volume of liquid);
2. Analysis of aliquot B for constituent B will produce a low concentration that is not representative of the original sample (zero particles in a smaller volume of liquid);
3. Analysis of aliquot C for constituent C will produce a low concentration that is not representative of the original sample (zero particles in a smaller volume of liquid).

By induction, the only situation for which the representativeness of the aliquots will not be distorted is the unlikely event that the number, particle size, and composition of the suspended material is uniform. By comparison, filtered samples would always be uniform in each aliquot and (more) representative of the original sample.

2. If each of the aliquots in the preceding example are considered replicates to be analyzed for the same constituent, it becomes apparent that the total analysis strategy will increase the variability of the sample results. The increased variability will complicate attempts to statistically analyze the data (more sampling and more replicates will be required to detect statistically significant changes in the system being monitored).

3. In addition to the increased data variability, a total analysis strategy will also create data quality problems. For example, a solution must be electrically neutral. Therefore, the sum of the anions must equal the sum of the cations. This condition does not hold when particles are analyzed. Also, for a solution, the sum of the ions can be approximated by the conductivity of the solution. Because of the variable and non-representativeness of total solutions (the analytical results are not derived from an analysis of the same solution), these basic QA/QC checks can not be applied to verify data.

4. One of the arguments for monitoring total concentrations

is that chemicals migrating from a site have become attached to solids by sorption, ion exchange, and/or precipitation and that these substances will be missed if total analysis are not performed. First, how can such particles be differentiated from the universe of native particles that naturally contain the same metals? This concern is further amplified because there is no concurrent sampling to characterize background particles. Second, if the dissolved concentrations have been reduced by association with particulate matter, the toxicity of the metals will be reduced by one to three orders of magnitude and the mobility of the metals will probably be reduced by at least an order of magnitude. Therefore, a total analysis monitoring strategy targets the least toxic and slowest form of the metals that may be present. It would seem to be more prudent to monitor the more toxic and more mobile forms of the metals. Dissolved analyses more closely approximate this need.

5. Results of dissolved sample analyses can be directly compared to water quality criteria to assess potential environmental problems because criteria are based on bioassays utilizing dissolved concentrations. It would be technically inappropriate to compare total concentrations to criteria because of the differences in chemical speciation. In addition, any judgments of environmental harm because concentrations exceed criteria are subject to an exaggeration error of one to three orders of magnitude (which increases the likelihood of costly but unnecessary monitoring activity).

6. Another area where total analyses data complicates the use of data is in models. Models invariably are based on thermodynamic equations for solubility, precipitation, etc. and these equations are based on the use of soluble concentrations of specific ionic species. Total analyses results can not be used with these models because they will violate boundary conditions. Again, by comparison, dissolved concentration results can be used as direct input for these models.

7. The choice between total and dissolved analyses is analogous to the Heisenberg Uncertainty Principle. If total concentrations are measured, the presence of the chemical is confirmed but it is not possible to make any statements regarding the behavior (mobility, toxicity, environmental or human health problems) of the chemical. When dissolved concentrations are

measured, the behavior of the chemical (mobility, toxicity, environmental or human health) can be assessed but the total quantity of material is unknown.

Summary

When one is evaluating alternative approaches to a problem, it is essential that the advantages and disadvantages of each option be considered. Furthermore, the purpose of the program must be explicitly stated in order to compare the collected data with its intended use. Using the information in the draft Region VII policy statement, a matrix as shown in Figure 2 can be prepared. This approach suggests that a total analyses strategy is cost effective and conservatively measures the total concentration of metals in the collected samples while a dissolved strategy is more complicated, removes some of the chemicals and may cause contamination. Without even considering the merits of the arguments presented to support the draft strategy, it is obvious that the conclusion that was reached is either inadequate or biased because it failed to consider the possible disadvantages of a total strategy or the advantages of a dissolved strategy.

A more complete version of the matrix has been presented in Figure 3. This information provides a different assessment of the relative merits of the two monitoring strategies. A total analyses strategy is insensitive to chemical speciation. Consequently, total concentration data can not validly or effectively be used to assess problems such as mobility and toxicity that are critically dependent on specific forms of metals (and other contaminants). Thus, the apparent low cost of a total analyses strategy is more than offset by the lower usability of the data. Furthermore, the argument that a total analyses strategy is conservative will also diminish the apparent economic advantage of a total analyses strategy because of the large number of incorrect and costly false positive responses that will be triggered by analysis of data inappropriate for that purpose. The advantage of a dissolved analyses strategy is the enhanced usability of the data that are generated. In this connection, the cost and added effort associated with filtering samples in the field are not unnecessary expenses and therefore a disadvantage. Rather, the costs of filtration

should be considered essential to the collection of proper data that can be used to assess chemical-species-depended phenomena such as mobility and toxicity.

When developing a monitoring strategy for a program, it is necessary to go beyond the cost of data collection and examine the utility of the data being collected. A consideration of this factor suggests that a dissolved strategy will be superior to a total strategy whenever the conditions being monitored are dependent upon chemical speciation (A question of is a site leaking? relates to chemical mobility which is species dependent; A question of are the conditions toxic is also related to chemical speciation). It is my professional opinion that a monitoring strategy based exclusively on the use of total concentration data as suggested in the Region VII draft policy statement, and the decisions reached through the use of data collected through such a program, will be subject to technical criticism based on the issues discussed in this memo.

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Table 2. Comparison of the Advantages and Disadvantages of a Total Analyses Monitoring Strategy and a Dissolved Analyses Monitoring Strategy Based on Information in the Region VII Draft Policy Statement

	Total Strategy	Dissolved Strategy
Advantages	* Cost effective * Conservatively measures everything.	
Disadvantages		* More complicated to implement * Only measures a portion of the metals present * Potential for contamination

Table 3. Comparison of the Advantages and Disadvantages of a Total Analyses Monitoring Strategy and a Dissolved Analyses Monitoring Strategy Based on Information in the Technical Literature.

	Total Strategy	Dissolved Strategy
Advantages	* Analytically cost effective (?) * Conservatively measures everything	* Results directly comparable to criteria * Results compatible with thermodynamic models * Results provide direct assessment of toxicity and Mobility * Results more representative of G W conditions * Results amenable to QA/QC verification * Directly monitors most toxic and mobile forms of metals
Disadvantages	* Distorts representativeness of samples * Increases variability of results * Higher field costs due to high false positive rate * Results not related to toxicity, mobility, environmental/human health * Results not directly comparable to criteria * Results can not be used in models * Data can not be verified with routine QA/QC methods.	* More complicated to implement * Only measures a portion of the metals present

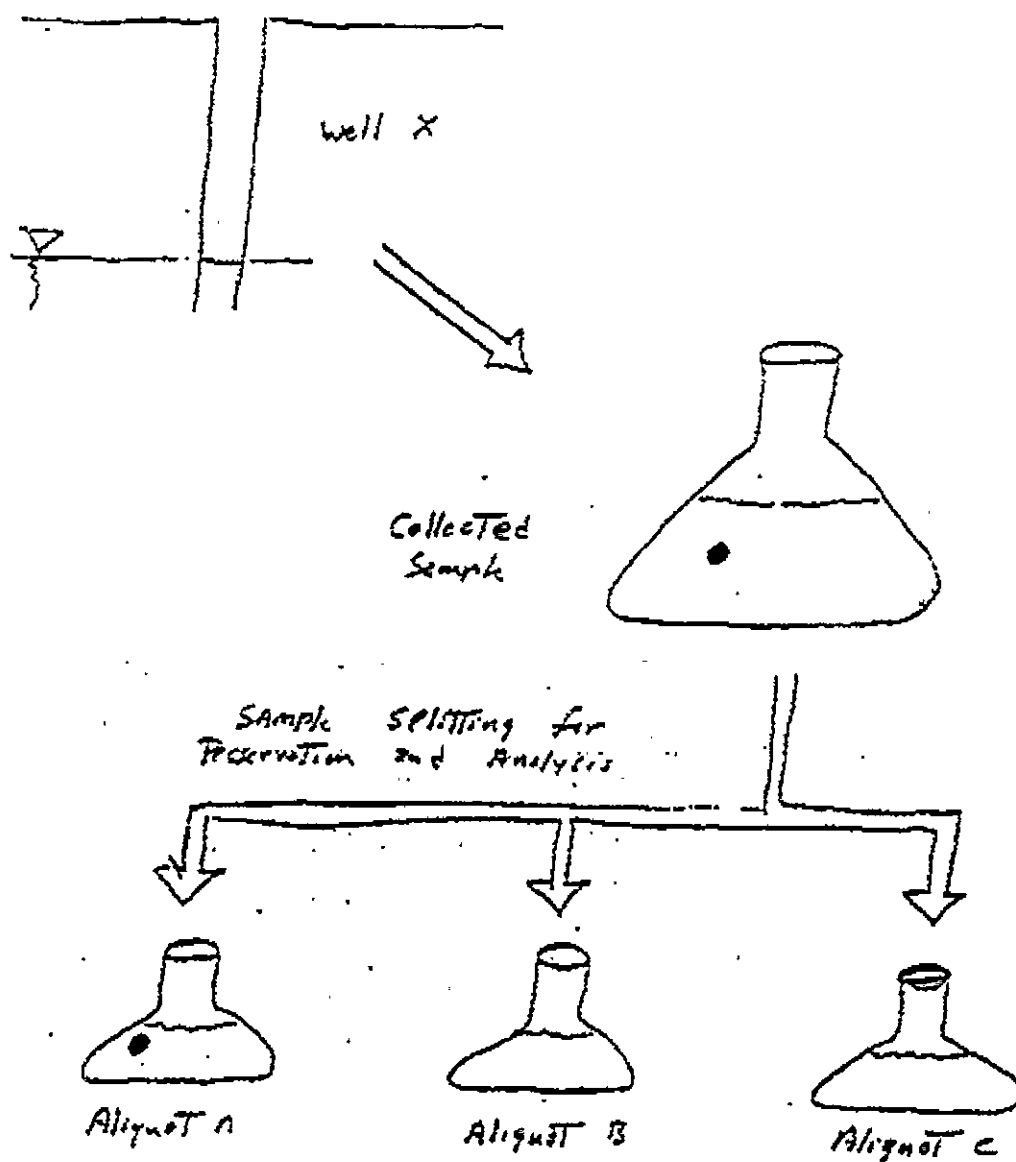


Figure 1. Potential Impact of Sample Splitting and Preservation on Representativeness of "Total Samples"



Attachment 2

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February 19, 1992

Mr. Jack Connelly
Wisconsin Department of Natural Resources
Groundwater Assessment Unit Leader
Solid Waste Management Section
Bureau of Solid and Hazardous Waste
101 South Webster
Madison, WI 53707

RE: Field Filtration of Groundwater Samples

Dear Jack:

In response to your request about the appropriateness of field filtration of groundwater samples for metals, I am enclosing two documents. The first is RMT's recent thinking on the subject. The second is dated from 1986 and should not be viewed as state-of-the-art knowledge. However, the 1986 paper does contain some relevant data.

It is my recollection that the unfiltered metals data presented in the paper, which was originally requested by the NYDHEC at a CERCLA site in New York state, was eventually discarded by that state agency because it was not usable for the reasons stated in the attached documents. In fact, the NYDHEC abandoned the idea of additional unfiltered metals data at this site.

I confess that I was previously unaware of the announcement in the Federal Register (56 FR 9 October 1991) finalizing a revision in groundwater sampling requirements for municipal solid waste landfills, which mandates a change from collecting filtered groundwater samples for metals to collecting unfiltered samples. RMT has considerable expertise among its senior hydrogeologists and environmental chemists in the area of appropriate groundwater sample handling. I trust that our thoughts will be of use to the Department.

Sincerely,

Thomas R. Stolzenburg
Thomas R. Stolzenburg
Senior Water Chemist, Ph.D.

vid

Enclosure

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FILTRATION OF GROUNDWATER SAMPLES FOR METALS ANALYSIS

The disagreement over filtering appears to stem from the fact that some metals are strongly adsorbed to particulate matter, rather than existing primarily in the dissolved state. There is much debate over the extent to which particulates move in aquifers, which type of formations allow particle movement, what the particulates in a monitoring well represent, the feasibility of installing a particulate-free monitoring well, whether a monitoring well should be used to represent drinking water exposure, etc. The best way to sort out these questions is to categorize groundwater sampling by the data quality objective. Although groundwater samples are collected for a wide variety of reasons, for the most part, samples are collected for one of two main purposes:

1. Evaluating the nature and extent of contamination
2. Evaluating human exposure to drinking water contamination

1. Objective - Nature and Extent of Contamination

In general, when establishing the nature and extent of metals contamination at a site over space at one point in time or over a period of time at one location, the preferred sample handling method is to filter groundwater samples (using methods discussed below) through a 0.45 um pore-size filter. The primary reason for filtering is to provide interpretable data over space and time. If filtering is not conducted, then for metals associated with suspended particulate matter, the data will be highly variable, corresponding to the amount of suspended solids collected in each sample. The amount of suspended solids is in turn dependent on the individual sampling technique, the sampling device used, the method used for purging the well, the amount of time between purging and sampling, the well installation methods, the well development method, the type of formation in which the well is screened, etc. It is still unclear to what extent and in what environments metals could be transported

by groundwater in association with particulate matter. However, for monitoring wells screened in fine-grained sediments, which are most susceptible to the occurrence of formation solids in the well itself, the actual transport of solids in these type of formations is less likely because of the fine-grained nature of the formation. Hence, the occurrence of turbidity in a monitoring well is not a sign of the likelihood of solids transport in the formation. Without further research, it is not warranted to assume that filtering biases the assessment of metals mobility in groundwater. In the final analysis, the measured chemical concentrations for unfiltered samples do not accurately reflect the nature and extent of contamination, because of all the other uncontrolled variables that confound data interpretation.

2. Objective - Human Exposure to Drinking Water Contamination

In general, when sampling drinking water directly, the preferred sample handling method is to collect unfiltered samples. This is also true when sampling a point in the aquifer which could be tapped as a drinking water source, if the purpose of the sampling is to evaluate that location as a drinking water source. Field-filtered samples are still preferred in such a location if the purpose is to evaluate the extent of contamination - for all the reasons cited previously. The primary reason for collecting a "total" sample is to evaluate what is or may be available for human consumption. It is important to note that monitoring wells are not always located in formations that would be tapped as a drinking water supply. Monitoring wells located in fine-grained formations that exhibit high turbidity are not representative of typical drinking water supply well locations, and should not be evaluated by measuring unfiltered samples.

3. Filtration Methods

If samples are filtered for metals analysis, then filtration should be accomplished in the field as soon after sample collection as possible. In-line filtration is preferred, but not always practicable. To preserve the same level of chemical integrity as in-line filtration, a filter can be attached directly to a

bailer after sample retrieval. By pressurizing the bailer, an undisturbed filtered sample can be collected. A commercially available system to accomplish this is the Voss pressurized disposable bailer system, which includes a high-capacity barrel-style filter. It is not equivalent to pour the bailer contents out into another vessel prior to filtration.

4. Summary

In general, the groundwater monitoring referred to in the final rule for municipal solid waste landfills is for the purpose of determining or tracking the nature and extent of contamination. Therefore, this type of monitoring falls under objective #1 mentioned above, and the samples should be field-filtered. The advocates of unfiltered samples try to achieve what field filtering accomplishes—a groundwater sample that best represents what chemicals are moving in the aquifer. However, experience clearly demonstrates that unfiltered samples simply cloud the issue, because too many physical factors conspire to yield an unrepresentative sample.



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SAMPLE HANDLING: THE IMPACT OF FILTERING GROUND WATER SAMPLES

By:

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Engineering and Environmental Management Services

INTRODUCTION

The need to protect the quality of the Nation's ground water resources has led to federal, state and local laws and regulations that require ground water monitoring. As a result, ground water monitoring is now being performed by a wide variety of individuals with many different objectives. To help assure that this diverse group collects ground water data that accurately represent ground water chemistry, regulatory agencies (including the USEPA) and various professional groups (e.g., NCASI) have developed manuals that cover nearly all aspects of monitoring well placement and construction; sample collection, handling, and preservation; and analytical procedures. While certain manuals may cover specific subjects in greater detail than others, their overall goal is to provide standardized practices that will minimize chemical alteration of ground water samples. Much of the concern over the chemical alteration of ground water samples is related to filtering. The question of whether to filter or not to filter generates a variety of opinions from regulatory and scientific communities.

In a recently published draft technical enforcement document (USEPA, 1985), the USEPA has implied that the decision to filter or not to filter ground water samples depends on the type of analysis. For example, the Agency notes that "Samples requiring analysis for organics should not be filtered." (USEPA, 1985 p. 4-13). The Agency also notes that transfer of organic samples from one container to another may result in losses of organic materials on to the container's walls and that volatilization of organic compounds must be minimized. These types of losses could occur if ground water samples for organic analysis were filtered.

For samples that will be analyzed for metals, the Agency states that the sample should be split into two portions. One portion of the sample should be filtered through a 0.45 micron glass fiber or membrane filter, transferred into

the appropriate sample container, acidified with nitric acid to a pH of less than 2, and analyzed for dissolved metals. A second sample portion should be transferred directly into the sample container, acidified to a pH of less than 2 with nitric acid, and analyzed for total metals. The Agency goes on to state that "... differences in concentrations between the total and dissolved fractions may be attributed to the original metal content of the particles and any migration of dissolved metals to the particles." (USEPA, 1985, p. 4-17). These "particles" are typically fine-grained materials (e.g., silt and clay) that may be present in a well after evacuation procedures have been completed. Thus, the Agency's position regarding the appropriateness of filtering ground water samples is based on their observation that these particles "... may absorb or adsorb various metal species to effectively lower the dissolved metal content in the well water." (USEPA, 1985, p. 4-13 to 4-17).

Personal communication with regional USEPA and state regulatory personnel showed that many people advocated not filtering ground water samples regardless of the analyses that are to be performed. The personnel contacted supported this position for one or more of the following reasons:

- Samples for organic analyses are not filtered and, since sampling practices for all chemical parameters should be uniform, samples for inorganic analyses should not be filtered.
- Both the National Interim Primary Drinking Water Standards (NPDWS) and the National Interim Secondary Drinking Water Standards (NSDWS) for metals are based on total concentrations of the metals.
- Ground water from water supply wells is not filtered.
- The filter paper and spacers used in filtering and the filter cake that accumulates during filtration could absorb dissolved metal ions.

Some of the personnel contacted also noted that, if the original metal content of the particles is thought to be "high", then this should be demonstrated by collecting and analyzing a "number" of soil or sediment samples at the site.

It is clear that the decision to filter or not to filter ground water samples depends in part on the type of analysis that is to be performed. For example, there is a general consensus that samples for organic analysis should not be filtered. Hydrophobic compounds tend to adsorb to filter paper or the filtering apparatus. Therefore, filtered samples may exhibit dissolved concentrations which are lower than the true dissolved concentrations in the well water. Also, filtering volatile organic samples (e.g., trichloroethylene) will result in the loss of these compounds during the filtering process. Thus, ground water samples that are collected for organic analyses should not be filtered because filtration can produce large errors in the analytical results.

While there is general agreement that samples for organic analysis should not be filtered, published materials overwhelmingly recommend that samples for metal analysis should be filtered prior to acidification. These recommendations are primarily based on two observations. First, particulate matter (e.g., silt and clay) is not transported under most aquifer conditions and metals are transported primarily in the dissolved state. Therefore, metals associated with particulates should not be included in laboratory analyses. Second, acidification of unfiltered ground water samples during the total analysis will dissolve an undetermined portion of the suspended particles. This dissolution brings some unknown percentage of original metal content and/or sorbed metal into solution. Thus, analyzing unfiltered ground water samples would result in higher metal concentrations in aquifer water.

In addition to these observations, the background metal content of soils can vary greatly between locations. Because of this variation, it is impossible to determine what percentage of the differences between total metal concentrations and dissolved metal concentrations is attributable to original metal content and what percentage represents metal ions that sorbed onto the particles. Therefore, differences in total metal analyses and dissolved metal

analyses cannot be used to indicate sorption of dissolved metals by suspended particulates. These differences should also not be used as an indication of the amount of metal that is sorbed onto aquifer materials.

From these two arguments, it becomes clear that, to resolve the questions of filtering ground water samples, it is necessary to consider the effects that filtering has on observed well water concentrations and how filtering is related to monitoring program objectives. This paper will address the effects of filtering and discuss how filtering relates to monitoring program objectives.

DISCUSSION

Filtering Effects

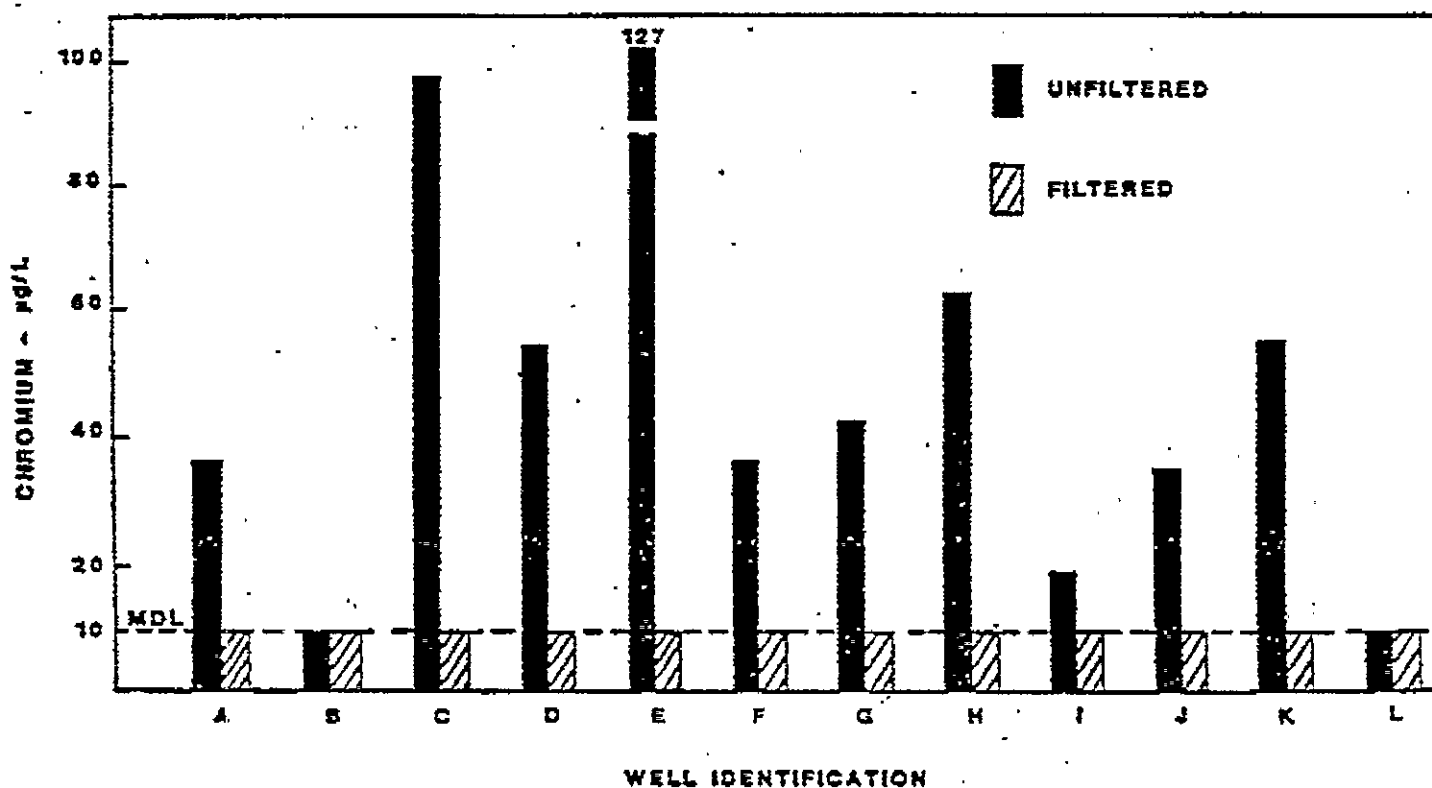
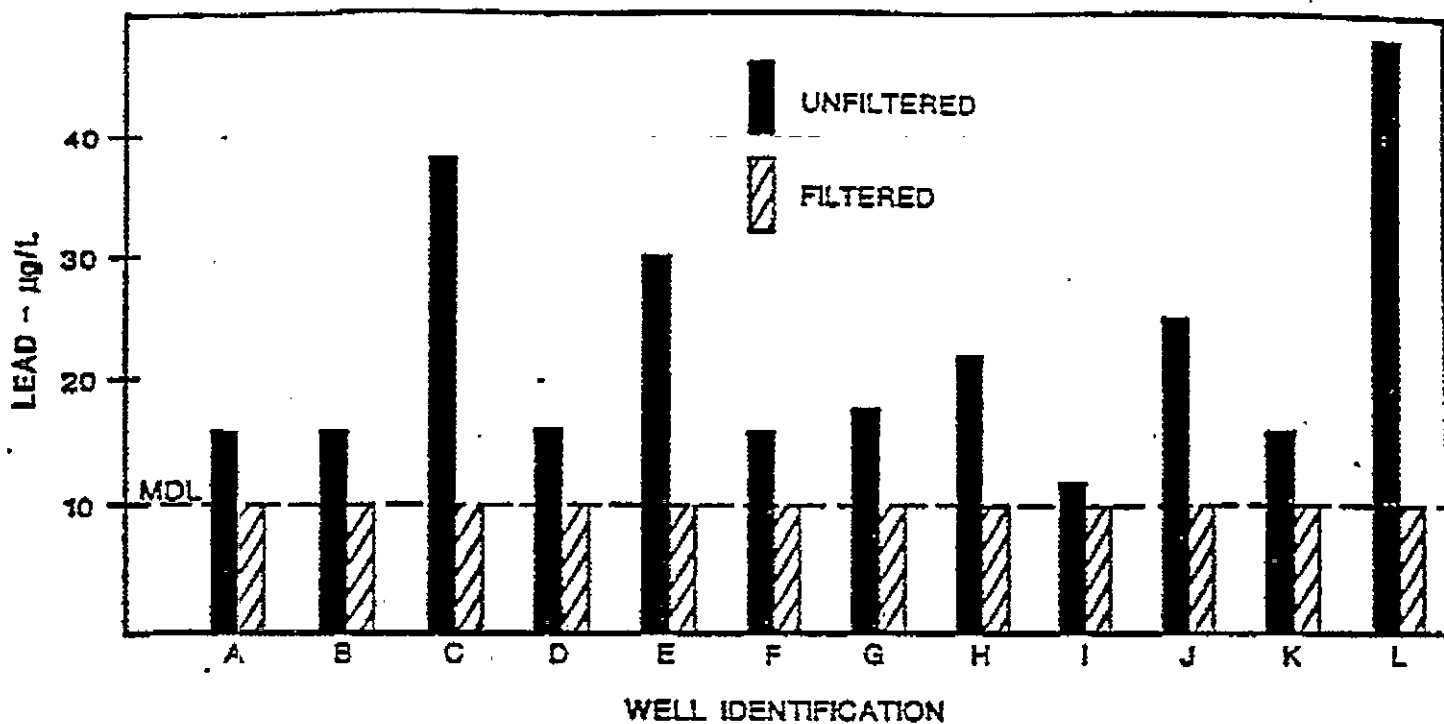
Data from two sites were selected to illustrate how laboratory results can be affected by filtering. Iron concentrations were monitored over time at a land disposal site in the upper Midwest. The concentrations of filtered, coarsely filtered, and unfiltered samples data are shown in Figure 1. Coarsely filtered samples were filtered with a crude apparatus in which a portion of the sample was observed to flow around the filter material, thus allowing some suspended particulates to enter the sample jar. As shown in Figure 1, the total iron concentrations (unfiltered) and the iron concentrations in samples that were coarse filtered were much more variable than the dissolved iron concentrations (filtered). Figure 1 also illustrates that it is difficult to determine whether changes in total metal concentrations are indications of changing water chemistry or indications of variability in the amounts of suspended particles in a well.

The data in Figure 1 show that dissolved metal concentrations may be consistently lower than total concentrations. To evaluate this potential effect, total and dissolved metal concentration data were collected from a site in the Eastern United States.

Ground water samples were collected from water table observation wells that were constructed in clayey soils. All sample collection, preservation and analytical procedures followed USEPA recognized practices. One portion of each sample was transferred directly to a sample container and acidified to a pH of less than 2, using nitric acid. A second portion was filtered through a 0.45 micron filter and then acidified. The unfiltered samples were analyzed for total metal concentrations, and the filtered samples were analyzed for dissolved metal concentrations.

The total and dissolved concentrations for lead and chromium are displayed in Figure 2. The bar graphs in Figure 2 show that the total metal concentrations were generally above the method detection limit (MDL) of 10 ug/l, while dissolved concentrations were below the MDL. Lead concentrations in the unfiltered sample portions ranged from 12 ug/l to 48 ug/l. In contrast, lead concentrations in the filtered sample portions were all below the method detection limit of (MDL) of 10 ug/l. The total and dissolved chromium concentrations showed a similar pattern. This comparison of total and dissolved lead and chromium concentrations indicates that at these wells, lead and chromium are closely associated with suspended particulate matter. Thus, under these conditions, the dissolved lead and chromium concentrations were consistently lower than total lead and chromium concentrations.

The relationship between total and dissolved metal concentrations is not consistent for all inorganic ions. This is illustrated by total and dissolved sodium concentrations which were measured at the same wells at the same time as the lead and chromium concentrations. The sodium concentrations for unfiltered and filtered sample portions are shown in Figure 3. A comparison of total (i.e., unfiltered) and dissolved (i.e., filtered) sodium concentrations shows that the differences between them are small and random. This demonstrates that



2: Unfiltered and filtered concentrations of lead and chromium in water table wells in clayey soil

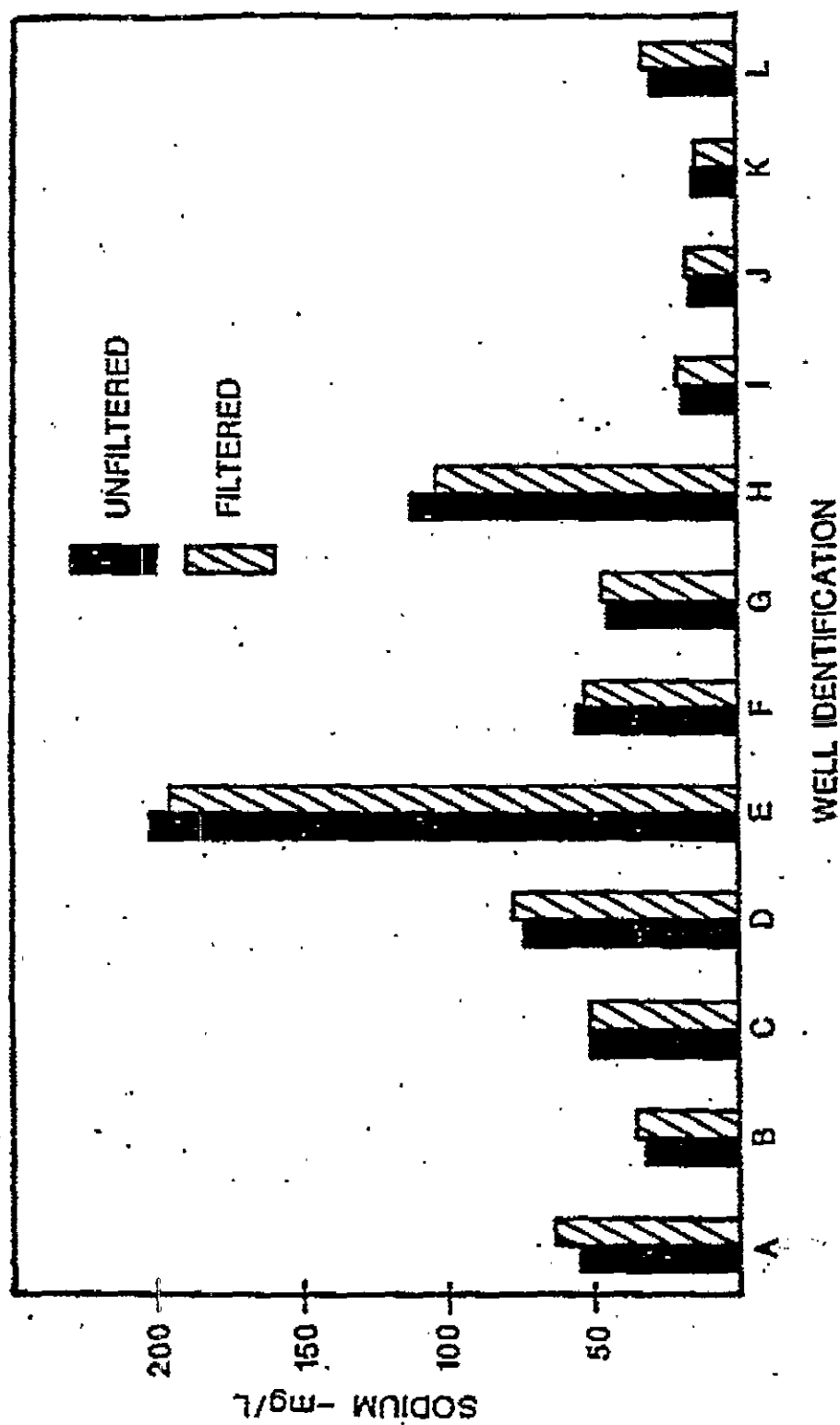


Figure 3: Unfiltered and filtered sodium concentrations in water table wells in clayey soils.

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dissolved metal concentrations are not consistently lower than total concentrations in situations where the inorganic ion is not closely associated with suspended particulate matter.

The preceding data indicate that where an inorganic ion is closely associated with particulate matter, total metal analytical results will typically be higher than dissolved metal analytical results. The data also show that when an inorganic ion is not closely associated with particulate matter, there is no appreciable or consistent difference between total and dissolved concentrations. However, the conclusion that suspended solids lower dissolved metal concentrations in well water cannot be supported by simply noting that total concentrations of certain inorganic ions are higher than the dissolved concentrations of those ions. The amount of lead or cadmium found to be associated with particles could have originally been part of the aquifer solids.

The differences between the total and dissolved concentrations illustrated in Figure 2 are due to:

- . Inclusion of suspended solids in the sample for total analysis.
- . The fraction of the suspended solids dissolved during the total analysis.

By including the particulate fraction in a total analysis, an increased variability in the measurements from time to time and well to well is introduced. The variability in total analysis measurements is due to:

- . Variation in the amount of suspended solids included in each sample.
- . Natural variation in the metal content of aquifer solids.

To illustrate how differences in one of these variables could affect the total metal concentrations, background soil chemistry data (from the same site from which the ground water data in Figures 2 and 3 were collected) were evaluated.

Soil samples were collected from five background locations and were analyzed for compositional concentrations of chromium, lead and sodium. The ranges of concentrations for these three constituents are shown in Table I. These data illustrate how the natural variability of original metal content of aquifer particulate matter, alone, could result in substantial differences between total and dissolved metal concentrations. For example, the lowest soil lead concentration differed from the highest soil lead concentration by a factor of 12.

TABLE I
COMPOSITIONAL CONCENTRATIONS OF CHROMIUM, LEAD,
AND SODIUM FOR BACKGROUND SOIL SAMPLE

<u>Constituent</u>	<u>Concentration</u> (ug/Kg Dry Weight)		<u>Standard Deviation</u>
	<u>Range</u>	<u>Mean</u>	
Chromium	20.4 to 39.1	29.2	7.6
Lead	33 to 400	127	156
Sodium	246 to 1270	475	445

Thus, the data in Table I clearly illustrate that simple comparisons of total and dissolved metal concentrations from a well do not prove that suspended solids lower dissolved concentrations of certain inorganic ions. Further research is needed to address the possibility that suspended particles in the well, filter cakes that accumulate on filter paper, or both, lower dissolved ion concentrations.

Monitoring Program Objectives

The decision on whether or not to filter ground water samples must consider the objectives of the specific monitoring program. Common ground water monitoring program objectives include:

1. Detection of contaminant movement through an aquifer.
2. Hydrogeologic modeling of contaminant movement and contaminant distribution.
3. Evaluating the quality of drinking water.

Examples of the first objective would include plume delineation adjacent to a spill or landfill. In this case, the dissolved constituents within the aquifer must be measured, since they will actually be carried with the ground water flow (USEPA, 1985, p. 4-13). The inclusion of suspended matter in a monitoring well sample can increase the concentration of inorganic parameters (see Figure 2). Accordingly, unless a virtually sediment-free sample can be retrieved, ground water samples should be filtered if the program objective is detection of contaminant migration.

If the objective of the monitoring program is to model or predict the distribution of contaminants within the aquifer, the concentrations on the aquifer solids as well as in the ground water must be known. Ground water contaminant transport models commonly include one or more terms to account for attenuation by aquifer solids. In this case, the concentrations on the aquifer solids as well as the dissolved concentration in the ground water sample should be measured. This is particularly important in fine-grained soils where attenuation processes may be more prevalent than in coarse-grained soils.

To calibrate ground water contaminant transport models, filtered aliquots should be recovered to measure dissolved concentrations. Whether or not unfiltered samples are representative of the amount of metals associated with the aquifer solids plus the pore water is still subject to debate. However, other than physically sampling the aquifer solids and measuring the concentration of contaminants present on these solids, which may be a difficult task, measuring the concentration of an unfiltered aliquot from a well sample may be the only practical alternative for obtaining values representative of

total concentrations (aquifer solids plus pore water). However, the results are semi-quantitative, at best, and should be interpreted with caution.

The quality of ground water recovered for consumptive use is compared to National Interim Primary Drinking Water Standards (PDWS) and National Interim Secondary Drinking Water Standards (SDWS). These standards are based on total concentrations, because water sampled from a water supply well is not typically filtered prior to use. Therefore, if the objective of the monitoring program is to determine the potential effect of a contaminant source on drinking water, ground water samples from monitoring wells should not be filtered. However, it is important that the monitoring well from which the unfiltered sample is retrieved be screened in the same or in a hydrogeologically similar formation. For example, measurement of unfiltered concentrations in a well screened in a silt or clay strata may not be representative of that sampled from the actual drinking water aquifer, because the background chemistry of the solids in the two geologic units may be different.

CONCLUSION

This paper has presented the advantages and disadvantages of filtering ground water samples and some data to demonstrate the impacts of filtering. While it is apparent that there is no universal agreement on this aspect of sample handling procedures, there is a lack of data on some important questions related to filtering. Two fundamental issues where more research is needed are:

- The effect of the filter cake and/or filter paper on dissolved metal cation concentrations.
- The significance of potential sorption of dissolved metal cations onto suspended particles within a well casing.

Regardless of the outcome of this research, it is still important to consider the objectives of a ground water monitoring program before deciding on whether or not samples should be filtered. Inappropriate sample handling techniques can lead to erroneous data interpretation and conclusions.

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Attachment 3

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February 18, 1992

Mr. Bruce Weddle, Director
Municipal and Industrial Waste Division
Office of Solid Waste - WH563
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Re: RCRA Subtitle D Regulations
Unfiltered vs. Filtered Groundwater Samples

Dear Mr. Weddle:

The purpose of this letter is to provide comments from the Wisconsin Association of Consulting Engineer's (WACE) DNR Liaison Committee on an element of the Subtitle D regulations. The committee is composed of individuals from WACE member firms actively involved in solid and hazardous waste engineering. Specifically, it is felt that the regulations for analysis of unfiltered groundwater quality samples in Section 258.53(b) Subtitle D is not technically justified at this time.

In Wisconsin and other states, solid waste regulations require analysis of filtered groundwater samples. The Subtitle D regulation would require an abrupt change in sampling protocols. Such an abrupt change would require very specific details on the research supporting the change and the protocols to be used for purging, sampling and handling. Without these details, an abrupt change in one critical aspect of sampling and handling protocols would result in confusion, poor sampling methods and poor data. This poor data would result in a large commitment to sort out problems. The Subtitle D regulation does not provide the background or research for the change, nor all the methods that would go along with the sampling procedure where no filtering is specified.

The actual change in sampling methods may or may not improve groundwater quality data. Papers available to date regarding the use of 0.45 micron filtering versus other filtering, or not filtering, are still at a preliminary stage. In particular, the suggestion in a paper by Puls and

U.S. Environmental Protection Agency
February 18, 1992
Page 2

Barcelona to sample at low flow rates (presumably with no filtering) is acknowledged to be "preliminary and based on a limited number of samples". (Reference: Puls and Barcelona, 1989. Filtration of Ground Water Samples for Metals Analysis. Hazardous Waste and Hazardous Materials, Volume 6, Number 4, 1989.)

We recognize that there are, in theory, potential problems associated with filtering groundwater samples. Problems may include missing contaminants that may be moving as colloidal suspensions, the questions of whether a 0.45 micron filter separates dissolved versus suspended solids, and the reduction in the 0.45 micron pore size as the filter becomes clogged. However, based on the study by Puls and Barcelona (1989), these conditions appear to result in relatively small absolute differences in water quality. We agree with Puls and Barcelona that additional research should be conducted to resolve these issues. However, the research should not be conducted by changing the sampling and handling protocol at all solid waste sites.

As an example of the potential problems associated with an abrupt change in the sampling protocol to unfiltered samples only, we have included a quick plausible analysis. The attached table lists typical background soil concentrations for selected metals from an EPA publication. This table also includes the volume of sediment in a water sample which would result in exceeding the drinking water standard for that parameter, if no filtering were conducted. For example, with an average chromium concentration of 500 mg/kg in soil, only 0.03 ml of soil would be needed in a 250 ml water sample bottle to exceed the primary drinking water standard for chromium of 0.10 mg/L. This volume of sediment is very small and is not unexpected, especially from monitoring wells in poorly graded fine sands or finer grained soils.

The results of unfiltered samples' analyses exceeding drinking water standards would cause undue anxiety to the public (e.g., especially down-gradient private well users) and, obviously severe headaches for both the regulated community and the regulatory agency in explaining the situation. In some cases, analysis of unfiltered samples may force the regulatory agency to initiate additional assessment, or in the work case, remedial action which is not based on good science. It must be noted that many monitoring wells product water samples containing significant concentrations of soil fines, even after proper development. Residential water supply wells would not be expected to product these fines. Therefore, unfiltered water

U.S. Environmental Protection Agency
February 18, 1992
Page 3

quality samples from a monitoring well would be misleading as far as being indicative of water being supplied to the average home.

WACE member firms are willing to work with the U.S. EPA in developing a standard protocol in evaluating proposed groundwater sampling methods. This process would allow implementation of a sampling and handling protocol that would be based on thorough research and practical application. This would also provide a comparison to analytical data collected at numerous sites over some period of time.

In summary, the Subtitle D regulations for groundwater quality analysis of unfiltered samples are not felt to be technically justified at this time. Subtitle D should be amended to allow state regulatory agencies to decide whether analysis should be performed on either or both unfiltered or filtered samples. Further, EPA should initiate additional research and development so that an appropriate standard for groundwater sampling and handling can be implemented.

Thank you for your consideration.

Sincerely,



Charles R. Anderson, P.E.
Chair, WACE DNR Liaison Committee

CC: Jack Connelly
WACE Solid Waste Committee

01-951/CRA:ab

**UNFILTERED WATER SAMPLE ANALYSES
FOR NATURALLY OCCURRING COMPOUNDS**

	Soils Concentration EPA Common* Range (mg/kg)			Primary Drinking Water Standard (mg/l)	Soil Volume to Equal Drinking + Water Standards for Low, High and Avg Soil Concentrations (ml)		
	Low	High	Avg		Low	High	Avg
Aluminum	10000	300000	155000	NA	NA	NA	NA
Arsenic	1	50	25.5	0.05	6.94	0.14	0.27
Barium	100	3000	1550	2	2.78	0.09	0.18
Cadmium	0.01	0.7	0.355	0.005	69.44	0.99	1.96
Chromium	1	1000	500.5	0.1	13.89	0.01	0.03
Lead	2	200	101	0.015	1.04	0.01	0.02
Mercury	0.01	0.3	0.155	0.002	27.78	0.93	1.79

* U.S. EPA Office of Solid Waste and Emergency Response

Hazardous Waste Land Treatment, SW874 (April, 1983) Page 273 table 6.46

Average value is simple arithmetic average of the published low and high

- + Soil Volume, in milliliters, in a 250ml unfiltered water sample resulting in attaining the Primary Drinking Water Standards for the low, high and average soil concentrations (e.g. 0.27 ml of soil, at a density of 1.8 grams/ml, with an Arsenic concentration of 25.5 mg/kg, digested in a 250 ml water sample, would result in an apparent water concentration of 0.05 mg/L)

Attachment 4

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Allegheny Power System

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July 21, 1995

West Virginia Division of Environmental Protection
Office of Waste Management
1356 Hansford Street
Charleston, WV 25301

RECEIVED

JUL 25 1995

ATTN: Mr. Bill Rheinlander

Division of Environmental Protection
Office of Waste Management

Dear Mr. Rheinlander:

Allegheny Power Service Corporation (APSC), as agent for Monongahela Power Company (MP), is pleased to submit the enclosed comments pertaining to the June 23, 1995 draft of West Virginia Solid Waste Management Regulations (WV47CSR38). Both APSC and MP wish to express our appreciation to the West Virginia Division of Environmental Protection for the opportunity to comment on the proposed revisions. Since no specific directions limited comments to the newly proposed language, APSC has reviewed and commented on the entire regulation package, ranging from typographical errors to requested changes in the proposed regulations. The enclosed comments are listed by the applicable draft provision number and page.

Our primary concern with the proposed amendments to WV47CSR38 relates to those provisions that pertain to specific issue(s) (e.g. groundwater) that are also governed by other sets of regulations within the State. In particular, we have extreme concern that the solid waste regulations properly acknowledge that compliance with groundwater standards are measured using only dissolved metals analyses, and recognize that variances and deviations may be granted by the legislature and director as delineated in the West Virginia Groundwater Protection Act.

If you require further dialogue regarding the enclosed comments, please contact Mr. R. D. Cain at our Cabin Hill office, telephone (412) 838-6814.

Sincerely,



L. D. Myers

RDC/NDP

COMMENTS OF THE
ALLEGHENY POWER SERVICE CORPORATION
AND THE
MONONGAHELA POWER COMPANY
ON THE JUNE 1995 DRAFT
WEST VIRGINIA SOLID WASTE MANAGEMENT REGULATIONS
WV47CSR38

General Comments:

Our primary concern with the proposed amendments to WV47CSR38 relates to those provisions that pertain to specific issue(s) (e.g. groundwater) that are also governed by other sets of regulations within the State. In particular, we have extreme concern that the solid waste regulations properly acknowledge that compliance with groundwater standards are measured using only dissolved metals analyses, and recognize that variances and deviations may be granted by the legislature or director as delineated in the West Virginia Groundwater Protection Act.

What is the series of numbers throughout the document listed as 2XX.X? Are these federal citations that mandate the changes in the state regulations or is it the Division's desire to create a new numbering system in the solid waste regulations? Whatever the reason, it should be clearly noted on the first page as to what these numbers represent.

Specific Comments:

§2.8./page 3

This definition describes an aquifer as a geological formation "capable" of yielding sufficient water. It is suggested that the term "capable" be deleted from the definition or that the definition be reworded as such: "'Aquifer" means a geological formation, group of formations, or portion of a formation yielding significant quantities of groundwater to wells or springs for monitoring purposes." Retaining the word "capable" tends to promote the drilling of dry wells, which serve no useful compliance purpose to the permittee or the Division. Wells are often installed into geological units capable of yielding water, but in practicality have no significant quantity of water to allow for sampling.

§2.28/page 5

The word "and" between the phrases "bed ash," and "boiler slag" needs to be deleted.

§2.36/page 6

Insert the phrase "and industrial" between the words "commercial" and "buildings".

§2.46 "Fault"/page 8

This definition needs to be renumbered to 2.47, because 2.46 already exists for the word "Facility". Changing the numbering for the word "Fault" will result in all subsequent definitions to be increased by one.

§2.56/page 9

This definition, for industrial solid waste landfill, is incomplete.

§2.57/page 9

This definition is unclear in that it states "... transmit pathoga(e)nic organisms of a disposable nature ...". We believe that the phrase "of a disposable nature" should be modifying "equipment, instruments, and utensils" rather than the word "organisms", and that the word "pathoganic" is misspelled. In addition, we are unfamiliar with the term "fomites" and question its spelling.

§2.57.3./page 9

Again, we question the word "fomites". Please refer to the comment above.

§2.57.3./page 9

We are unfamiliar with the term "potologic" and question whether it should read "pathologic".

§2.74 "Mixed Waste Processing Facility"/page 11

This definition is misnumbered because 2.74 already exists for "Mixed Solid Waste". In light of the renumbering noted in comment 2.46/page 8 above, this definition should be numbered as 2.75 and two units need to be added to the existing draft numbers beyond this definition.

§2.76/page 12

Definition 2.76 does not exist. Please note definition renumbering comments in 2.46/page 8 and 2.74/page 11 above.

§2.83/page 12

This definition is incomplete. "WV" needs to be inserted between the words "under" and "Code", and the word "director" needs to be inserted after the phrase "order of the".

§2.89/page 13

This definition is incomplete. The phrase "a permit" needs to be inserted between the words "holding" and "or".

§2.90/page 13

This definition is incomplete and needs additional language.

§2.121/page 17

We believe for clarification purposes, that the term "solid waste disposal impoundments" needs to be included in the definition of "Solid Waste Facility".

§2.76/page 17

This definition is misnumbered. It should be definition 2.122 (of existing draft numbers) but needs to be changed in accordance with the renumbering comments noted earlier.

§2.124/page 18

The word "storage" needs to be inserted between the words "interim" and "of" to be complete. In addition, we also believe that the phrase "with appropriate allowances" should be inserted parenthetically after the phrase "one hundred eighty (180) days" to reflect the additional storage time permitted in the regulations under specific criteria.

§2.1/page 19

This definition needs to be deleted from this page since it already appears on page 2.

§3.2.2/page 21

This provision needs to reflect that the isolation distance is with respect to "natural" wetlands and does not include constructed wetlands designed for the treatment of leachate emanating from the solid waste landfill facility. This can be accomplished by either inserting the word "natural" or the phrase "naturally occurring" between the words "any" and "existing"; or by parenthetically exempting constructed wetlands.

§3.2.3./page 22

This provision needs to have variance capabilities or clarification that piping of streams under landfills or portions thereof is permissible provided that it is demonstrated to the director that this is the most prudent engineering alternative. The topography of West Virginia is such that, for all practical purposes, it would be extremely difficult to site a large solid waste landfill facility without impacting a perennial stream in some manner.

§3.2.5./page 23

This provision should be waivable at the discretion of the director, particularly with respect to secondary and county highways.

§3.2.8.a/page 24

The phrase "capable of being occupied" is too ambiguous. A clear and concise definition may eliminate subjective interpretations. Providing a specific definition for the term "occupied" will fulfill the intent of the regulation.

§3.2.9.a/page 24

The following is a recommended revision to this regulation regarding private water supplies. Although the regulation applies to both public and private water supplies, this suggested revision only applies to private water supplies. The modified revision allows for greater flexibility while providing protection to private water supplies. Our proposed revision reads:

New SWLFs, existing SWLFs and lateral expansions to SWLFs may not be located 1200 feet upgradient and 300 feet downgradient of a private water supply source. A waiver or modification to the isolation distance may be granted by the Director if the following conditions have been met:

1. The owners of the water source within the isolation area have consented, in writing, to the location of the facility.
2. The permittee and the water supply owner have a written agreement containing the following statement; "The permittee will construct, maintain and incur the cost of a permanent alternate water supply of equal quantity and quality if it is mutually agreed upon, or the Director determines, that the existing source is adversely affected by the site."

§3.2.10.a./page 24

The word "self's" in this provision should read "SWLF's".

§3.2.14.a./page 25

The word "of" between the words "under" and "section" needs to be deleted.

§3.5.4./page 28

We recommend a 180-day time period to submit a permit modification, rather than only a 90 day period. The modification submission may require the acquisition and evaluation of hydrologic, geologic, and soils information in addition to changes to the design and construction details. In consideration of the above, a 90 day time period may not be attainable.

§3.6.1./page 28

Appendix III needs to be changed to Appendix IV in this provision, since in the draft Appendix III is a table of MCLs and Appendix IV is the application fee schedule.

§3.6.2./page 28

As identified above, Appendix III needs to be replaced by Appendix IV in this provision.

§3.8.1.1./page 34

This provision either needs to be reworded to properly incorporate the references to sections 3.1.1 and 3.1.2 or needs to replace these with 3.2.4 through 3.2.9 because sections 3.1.1 and 3.1.2 do not contain isolation distances.

§3.8.3./page 36

This provision requires a minimum number of test corings to be distributed over the site. Guidance on the number of borings is useful and appropriate, however, the use of all core borings may not be necessary in obtaining the information needed in a drilling program. Depending on the specific geology and hydrogeology of the site, a portion of the borings could be air rotary and/or split spoon or other approved drilling methods. Therefore, we recommend that this provision allow for other types of drilling techniques to be used when appropriate, and that the phrase "test corings" be replaced by the phrase "test borings".

§3.8.4./page 39

This section discusses the requirements for a groundwater monitoring program assigned to each site. Groundwater monitoring wells are required to yield samples from the uppermost significant aquifer and the uppermost aquifer. As defined, the "uppermost significant aquifer" and the "uppermost aquifer" could be two different aquifers, or in some cases the same aquifer. Therefore, on some sites a minimum of four (4) monitoring wells will be required, while on other sites, a minimum of eight (8) wells may be required. We recommend that this issue of the two distinct aquifers be clarified throughout the regulations because the information requested of them is inconsistent.

§3.8.4.a./page 39

These provisions are acceptable, but as written, are inconsistent with the newly proposed Monitoring Well Design Standards (WV47CSR60). We commented on the proposed monitoring well design standards, and recommended changes to the language consistent with these provisions. Assuming favorable language changes are made to WV47CSR60 before being made final, we recommend that this provision be reworded to simply read: "Groundwater monitoring wells must meet the specifications listed in WV47CSR60". If, however, WV47CSR60 does not become final, then this provision is acceptable as written.

§3.8.4.a.E./page 40

A three-foot concrete apron extending around the outer edge of the borehole is required by this regulation. We recommend that the apron be reduced to a minimum of 1.5 feet. We believe this distance serves the same purpose as the three foot distance. There are numerous wells in place with the 1.5 foot collar which protect the well from surface water infiltration and maintain the integrity of the well.

§3.8.4.a.H./page 40

The requirement to have a survey mark on the top of a well casing for purposes of elevation determinations is not necessary. The mark will not make elevation determinations any more accurate than elevations measured directly from the top of the well casing.

§3.8.4.e./page 43

Reference is made to Appendix I which lists the constituents for analyses required by the monitoring program. Appendix I includes total metals but does not require dissolved metals. It is recommended that Appendix I be revised to delete the reference to total metals and include dissolved metals only for complete analyses of the water samples. If total metals are used to evaluate the quality of the groundwater, artificially high concentrations will request. The total metals concentration will include suspended solids which may be the result of poor sampling techniques and/or well performance. The intent of the sampling is to determine if the site is adversely affecting the surrounding groundwater. Sampling for total metals, without dissolved metals, will not accomplish that intention. Additionally, WV46CSR12 requires that groundwater monitoring constituents must be determined in terms of dissolved concentration rather than total concentrations (with specified exceptions). It is imperative that potential groundwater impacts are determined using dissolved metals because the use of total metals analyses can produce false-positive or artificially high results that can lead to costly liabilities and remediations.

§3.13.1.c./page 53

The second sentence of this provision needs to have the first word capitalized.

§3.13.4.d./page 57

The new phrase "division's for" added to this provision does not make sense, and appears to be misplaced or misworded.

§3.13.7.a.A./page 60

The word "the" in the last sentence of this provision should be deleted.

§3.13.14.a.A.(a)/page 68

A closing parentheses needs to be added at the end of this provision.

§3.14.2./pages 70-71

Appendix III needs to be changed to Appendix IV in this provision since Appendix IV contains the application fee schedule.

§3.16.5.c.A.(c)/page 83

The phrase "these regulations" needs to be deleted from this provision.

§3.16.5.d.B./page 83

The word "revoked" is repeated (duplicated).

§3.18.1.a./page 86

The word "revoked" is repeated (duplicated).

§3.18.3.b.B./page 88

The word "these" between "or" and "this" needs to be deleted.

§3.27.2./page 94

The words "suspend" and "revoke" should be added between the words "deny" and "modify" in this provision.

§4.1./page 94

The notation "W. Va. Code" should be deleted in this provision.

§4.4./page 95

The word "must" was stricken in the last sentence of this provision, but should be retained for the sentence to make sense.

§4.2.b.A.(a) and 4.5.2.b.A.(b)/page 99

The purpose of these two provisions is not understood because, although worded differently, they are redundant of the leading provision 4.5.2.b.A.

§4.5.2.c.a.(i)(C)/page 102

We request that this provision be deleted. The justification to limit the size of the drainage area for a sedimentation structure is unclear assuming the structure is properly designed and constructed.

§4.5.2.c.A.(i)(F)/page 102

We request that this provision be modified to reflect that exceedances of the 25-foot restriction does not preclude the construction of such a structure (if needed) but rather subjects the structure to the dam safety rules. This can be accomplished by adding the phrase "if the structure is not to be considered a dam" at the end of the existing language.

§4.5.4.a.B.(b)/page 109

Appendix III should replace Appendix IV in this provision.

§4.5.5.a.A./page 117

This provision's title should read "Subgrade Preparation" rather than "Subbase Preparation".

§4.5.5.a.B./page 118

This provision's title should read "Subbase Preparation" rather than "Subgrade Preparation".

§4.5.5.b.C./page 118

The word "penetration" should be replaced with the word "penetrate".

§4.5.5.b.I./page 120

This provision is not complete and does not make sense. The new language and the stricken language do not make complete sentences.

§4.5.5.b.I.(b)/page 120

This provision requires detailed weather conditions to be recorded on a daily basis at the site. Compliance with this provision will require the installation of a weather station (e.g. rain gauge, wind sock, etc.) at the site. We question the necessity and value of the extensive information that must be recorded and request that it be reduced to practical and useful information relevant to the proper construction of a solid waste landfill facility.

§4.6.1.a.G./page 125

This provision should be deleted because it is repetitive of 4.6.1.a.E. on page 124 of the draft.

§4.6.2.c./page 127

The word "of" in the first sentence of this provision should be replaced by the word "that".

§4.7.2.f.B.(e)/page 129

The word "maintained" needs to be capitalized.

§4.8.1.d./page 130

The phrase "as provided in section 4.8.1.g of" does not need to be stricken from the second sentence in this provision as indicated in the draft.

§4.8.3.a.C./page 134

Clarify why tanks must be equipped with an overflow prevention system located on the discharge side. It seems that an overflow prevention system would be more appropriately located at the influent side of a tank.

§4.8.4.a./page 136

This provision requires the daily monitoring of the flow rate from the leachate collection and detection systems. We believe that semi-monthly monitoring will meet the intention of this provision and request an appropriate change in the language.

§4.8.4.b./page 137

The phrase "or as specified in the permit" should be added to the end of this provision. Based on waste leachate or site history, the list of analyzed constituents required in the permit could be reduced from Appendix I.

§4.11.1.b.A./page 139

This provision restricts the field-filtering of groundwater sampling prior to laboratory analysis which negates the determination of dissolved concentrations. This provision is contrary to the requirements of WV46CSR12 requiring dissolved metals analyses for compliance purposes (with specified exceptions). This conflict must be reconciled by allowing field filtering of groundwater samples for dissolved metals analyses.

§4.11.1.e.D./page 140

The direction of groundwater flow can be determined using the groundwater elevations collected during the sampling event, but the determination of the groundwater rate usually requires aquifer testing. We believe that determining the rate of groundwater flow once a year is sufficient as opposed to the more frequent requirement of each sampling event. We, therefore, request that this provision be deleted and that the existing requirement of annual groundwater flow and rate determinations be maintained. Moreover, we believe that this is an unnecessary requirement because groundwater rate and flow direction is seldom, if ever, subject to change in established, stable areas like solid waste landfill facilities.

§4.11.1.e.G./page 140

This provision references section 4.11.1.g.L, but no such provision exists.

§4.11.1.e.F. and 4.11.1.e.G./page 140

These two provisions appear twice, by provision number only, on page 140. The second occurrence of these two provisions should be numbered, 4.11.1.e.H. and 4.11.1.e.I., respectively.

§4.11.1.g./page 141

We object to the use of the word "hazardous" in this provision, as its use denotes adverse public stigma that is not appropriate to associate with a Subtitle D (i.e. nonhazardous) facility. We, therefore, request that the word "hazardous" be deleted from this provision.

§4.11.1.i.C. - 4.11.1.i.E./page 143

These provisions, although worded differently, are repetitive of provisions 4.11.1.h.A. - 4.11.1.h.D. on page 142 of the draft.

§4.11.1.i.G./page 144

Replacing the word "that" with the word "for" may clarify this provision.

§4.11.2.c.A./page 146

This provision references provision 4.11.2.a.C which does not appear in the draft.

§4.11.2.c.B./page 146

This provision references section 4.11.2.a.C which does not appear in the draft. Also, it is unclear why four independent samples from each well must be collected and analyzed. This sampling procedure is excessive and, therefore, we request either deletion of the provision or explanation as to its significance. Our experience has revealed that many of our monitoring wells do not have sufficient volume to withdraw four complete samples at one time. In addition, we do not believe that quadruple replicates will account for any temporal variability that may be associated with the monitoring network.

§4.11.2.d./page 147

The insertion of the phrase "of any constituents" after the phrase "one or more" and the deletion of the duplicated word "at" will make this provision clear.

§4.11.2.d.B./page 147

After a statistically significant increase is noted from one of the constituents in a groundwater sample, this provision requires that all of the monitoring wells be resampled for all of the constituents. We recommend that this provision be reworded to replace the word "all" with the word "appropriate". We believe this would be a more efficient and effective approach rather than resampling the entire monitoring network for all constituents, particularly if only one or two

wells out of an entire network of several dozen wells are in question.

§4.11.2.d.D./page 148

We request that the thirty (30) day time frame listed in this provision be extended to ninety (90) days. Developing a Phase II assessment program is a time consuming and costly process. Based on experience gained through the numerous groundwater monitoring programs we are currently involved with, we do not believe that a Phase II assessment program that is acceptable to the WVDEP can be developed in 30 days. By providing sufficient time to develop an adequate program initially, delays obtaining regulatory approvals will be avoided and the actual assessment can commence on a more timely basis.

§4.11.3.b. and 4.11.3.b.A./page 148

We recommend that the constituents requiring analyses under a Phase II assessment program be limited to only those constituents causing the specific impacts that triggered the need for an advance assessment and, those constituents that are closely related or termed "indicator parameters". We object to analyses of all Appendix II constituents based on cost alone, not to mention the relevance of the information (e.g. coal combustion by-product facilities do not have organics in their leachates).

§4.11.3.d.B.(d)/page 151

This provision references Appendix I, yet all related provisions in this section reference Appendix II. Is the reference to Appendix I correct or should it be changed?

§4.11.5./page 156

This provision must be coordinated with the Groundwater Protection Act's variance rule, and we request that language be added to accomplish this coordination. Corrective action must not be required if the permittee has requested and received variances from the Groundwater Protection Standards or deviations from background conditions.

§4.11.5.c.D./page 157

The parenthetical "s" at the end of the word "remedy" should be "(ies)".

§4.11.6.c.A./ page 158

The parenthetical "s" at the end of the word "remedy" should be "(ies)", the word "certainly" should be changed to "certainty", and the first "the" following "certainly (certainty)" should be changed to "that" to make this provision read clearly.

§4.11.6.c.C. and 4.11.6.c.E./page 159

The parenthetical "s" at the end of the word "remedy" in both of these provisions should be "(ies)".

§4.11.6.e./page 161

We request that an additional subprovision, numbered 4.11.6.e.E., be added under this provision. The new subprovision should read:

4.11.6.e.E. Remediation may not be required if the Director grants a deviation from background conditions and/or the legislature grants variances from the standards in accordance with the West Virginia Groundwater Protection Act.

§4.11.7.g./page 165

We believe that the word "permittee" between the words "the" and "determines" should be changed to "director".

§4.12.2.b.A./page 166

We request that the date of the fifteenth listed in this provision be changed to the twentieth. The twentieth of the month of reporting is the date we currently have in our existing permits. As a result, the preparation of our monitoring reports (from analytical data entry to automated printing) is centered around the date of the twentieth, and any change would result in significant costs. In addition, the reference to "November" should be changed to "October" to maintain the time table for the month of reporting as one month beyond the quarter of sampling.

§4.12.3./page 166

We request clarification of this provision since the intended dates of reporting can be interpreted two ways. As written, a permittee has thirteen months to generate an annual operation report. For example, preparation of an annual operation report today (1995) would mean reporting 1994 information by January 31, 1996. If this is the intent of the Division, we have no comment to the provision. However, we assumed that the intent of the provision is to submit an annual operation report by the end of January following the year being reported (i.e. in the example above, having the 1994 report submitted by January 31, 1995). If this truly is the intent of the provision, then we must recommend that the date be changed to September 30. The preparation of the annual operation report requires the development of topographic maps from aerial photographs. Since the optimum time frame for aerial photography in this part of the country is the beginning of April, meeting a January 31 deadline is not possible. Furthermore, once the photographs are taken, it takes another eight to twelve weeks to convert the information over to topographic maps making September a reasonable deadline given the argument outlined.

§4.13.2.c.G./page 169

The phrase "director, and" should be inserted between the words "the" and "must" to make the provision clear.

§5.1.3.a.P./page 173

The word "the" is repeated twice after the phrase "initial operation," and one should be deleted.

§5.1.4.a.A./page 173

The reference to "EP" between the words "the" and "Toxicity" should be deleted.

§5.4.2.e./page 180

This provision is partially deleted, but what remains is incomplete. Corrections or full deletion is necessary to clarify the intent.

§5.5.1./page 181

The phrase "and the requirements of the subsections of section 6 of this rule that are listed in section 5.5.1.c." needs to be added to this provision if the draft as proposed becomes final. In addition, a new provision -- 5.5.1.c. -- will need to be created to cover the waivable subsections of section 6 of the rule. These additional waivable items are being requested because they deal with requirements for operational records or gas management, which in turn are waivable requirements for coal combustion byproduct disposal facilities.

§5.5.1.b./page 181

Assuming that this draft is made final, the reference to section 4.5.2.c.A.(c) needs to be changed to 4.5.2.c.A.(e) because of numbering changes caused by the newly proposed language.

§5.5.1.c. [NEW PROVISION]

We recommend the addition of this new provision because of the issues raised in 5.5.1. above. This new provision should read:

The following requirements of section 6 of this rule which may be waived or modified by the director for coal combustion by-product facilities: 6.1.5.a.A.(a), 6.1.5.d, 6.1.5.e, 6.1.7.a, 6.3.4.c, and 6.3.7 of this rule.

§5.5.2.a.H./page 183

The word "be" between the words "not" and "subject" should be deleted.

§5.5.2.b.A./page 183

The phrase "1 director" between the word "section" and the phrase "4.11 of this rule" should be deleted. In addition, we request that the following statement be inserted into this provision in order to maintain coordination between the solid waste rules and the groundwater protection rules:

Groundwater remediation and/or facility closure will not be required if the Director grants a deviation from background conditions and/or the legislature grants variances from the groundwater protection standards in accordance with the West Virginia Groundwater Protection Act.

§6.1.5.a./page 189

The word "install" should be replaced by the phrase "installation of" to make this provision clear.

§6.1.5.a.A.(a)/page 189

This should be a waivable provision for coal combustion by-product facilities because it deals with gas management. Please refer to 5.5.1 and 5.5.1.c. above.

§6.1.5.a.G./page 191

The word "chief" should be deleted at the end of the provision.

§6.1.5.c./page 191

The word "portion" should be made plural.

§6.1.5.d./page 191

This should be a waivable provision for coal combustion by-product facilities because it is a requirement for operating records. Please refer to 5.5.1 and 5.5.1.c. above.

§6.1.5.e./page 192

This should be a waivable provision for coal combustion by-product facilities because it is a requirement for operating records. Please refer to 5.5.1 and 5.5.1.c. above. Please also note that this provision is repetitive of 6.1.5.d on page 191 of the draft.

§6.1.7.a./page 192

This should be a waivable provision for coal combustion by-product facilities because it is a requirement for operating records. Please refer to 5.5.1 and 5.5.1.c. above.

§6.3.4.c./page 194

This should be a waivable provision for coal combustion by-product facilities because it deals with gas management. Please refer to 5.5.1 and 5.5.1.c. above.

§6.3.7. and 6.3.7.a./page 195

These should be waivable provisions for coal combustion by-product facilities because they are requirements for operating records. Please refer to 5.5.1 and 5.5.1.c. above. Please also note that these provisions are redundant of 6.1.5.d on page 191 and 6.1.7.a. on page 192 of the draft, respectively.

§7.1.5./page 198

The word "the" needs to be inserted between the words "with" and "division".

Appendix I/pages 200- 202

To add clarity to Appendix I delete the units under the CAS RN column in the Appendix for bicarbonates, COD, pH, specific conductance, and TOC; add another footnote after footnote 3 on page 201 of the draft; or add a new column to the Appendix titled UNITS and list units for all the constituents.

Appendix III/pages 217 and 218

In an attempt to meld the groundwater standards with the solid waste regulations, this Appendix should be expanded to include the groundwater standards as well as the Safe Drinking Water Act MCLs.



WEST VIRGINIA MANUFACTURERS ASSOCIATION

2001 Quarrier Street, Charleston, WV 25311
Telephone: (304) 342-2123
FAX: (304) 342-4552

July 24, 1995

RECEIVED

JUL 25 1995

Mr. Bill Rheinlander
W.V. Division of Environmental Protection
Office of Waste Management
1356 Hansford Street
Charleston, West Virginia 25301

Division of Environmental Protection
Office of Waste Management

Re: Comments on Proposed Solid
Waste Management Regulations

Dear Mr. Rheinlander:

Enclosed please find for filing the comments of the West Virginia Manufacturers Association regarding the Division of Environmental Protection's Proposed Solid Waste Regulations, filed June 23, 1995.

Thank you for granting the West Virginia Manufacturers Association the opportunity to comment on these proposed rules. Please contact me at your convenience should you wish to discuss any of these comments.

Very truly yours,

Robert L. Foster
Chairman, Environmental, Safety &
Health Committee

WASTE MANAGEMENT
DIVISION

SS. WJ SO H 67 706
Board of Director Members

3M Company
Ashland Chemical Inc.
BASF Corporation
Capitol Cement Corporation
Corning Incorporated
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The Dean Company
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Elkem Metals Company

Employers Service Corporation
Haltom Paperboard Co.
Helm Tobacco Company
Kanawha Manufacturing Co.
Koppers Industries, Inc.
Marble King, Inc.

Miles Inc.
Monsanto Company
P&WC Aircraft Services, Inc.
PPG Industries, Inc.
Ravenswood Aluminum Corp.
Rhone-Poulenc Ag Company

TERRADON Corporation
U.S. Silica Company
Union Carbide Corporation
W.M. Cramer Lumber Co.
Weirton Steel Corporation
Wheeling-Pittsburgh Steel Corp.

COMMENTS OF
THE WEST VIRGINIA
MANUFACTURERS ASSOCIATION

REGARDING 47 CSR 38

"SOLID WASTE MANAGEMENT REGULATIONS"

Submitted to:

Bill Rheinlander
Office of Waste Management
Division of Environmental
Protection
1356 Hansford Street
Charleston, WV 25301

July 24, 1995

WV - DEP
WASTE MANAGEMENT

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RECEIVED

COMMENTS OF
THE WEST VIRGINIA MANUFACTURERS ASSOCIATION
REGARDING THE PROPOSED SOLID WASTE MANAGEMENT REGULATIONS

I. INTRODUCTION

On June 23, 1995, the West Virginia Division of Environmental Protection ("DEP") filed with the Secretary of State proposed amendments to a legislative rule pertaining to solid waste management as authorized pursuant to W. Va. Code §22-1-3, W. Va. Code §22-1-3a, and the West Virginia Solid Waste Management Act, at W. Va. Code §22-15-1, et seq. ("the Act.") The rule is proposed for inclusion in the Code of State Regulations at Title 47, Series 38.

The West Virginia Manufacturers Association ("WVMA") represents over 200 members composed of a broad cross-section of diverse industrial concerns in West Virginia. Because many of its members are subject to the Act, the WVMA has historically been extensively involved in the development of these regulations. In this active and supportive role, the WVMA offers these comments.

II. COMMENTS

A. General Comment

The proposed solid waste regulations are overbroad because they would regulate facilities that are not solid waste facilities managing discarded materials. Under the rules, the term "solid waste" expressly excludes "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 substitute for raw material feedstock."

47 CSR 38.2.117.7. Consequently, any substance that is being legitimately reused or recycled without being discarded is not a solid waste and should not be the subject of specific regulation within the proposed rule.

Examples of recycling and reuse by industry are abundant, as one company's by-product becomes another company's raw material or fuel. Tires can be burned in place of coal, used as a leachate layer in a landfill, or used in rubberized asphalt. Vegetable oil or used motor oil can be burned as a fuel source. In all these cases virgin materials used for the same purpose would not be specifically regulated, and neither should the reused substances. It is not until a substance is discarded that it should be regulated as solid waste. Otherwise, recycling, reuse and waste minimization will be discouraged rather than fostered.

This is not to suggest that reuse of materials is unregulated, because they are regulated to the same extent virgin materials are regulated. Air emissions are regulated by the Office of Air Quality. Wastewater discharges are regulated under NPDES permits, and any residue which has no further use is properly the subject of solid waste regulation. Activities which may impact groundwater are also subject to regulation. These environmental programs exist to regulate the waste produced by production processes regardless of the material that is used in the process. There is no reason that these rules should impose additional controls on reused substances that are not applicable to virgin materials, or that would only discourage recycling activities.

The OWM should abandon the concept that any material which is a by-product of some process or which has previously been used for any purpose is a solid waste. It is only a solid waste if it is being discarded. It makes no difference whether the reused substance costs less than equivalent virgin material, or even if the secondary user is paid to accept the substance. The crucial question is whether the substance may yet serve a legitimately useful purpose. In this regard, the WVMA supports the provisions in the proposed rule which recognize beneficial uses. If it will be effectively reused in some way, it is not a solid waste and should not be regulated as such. Therefore, the WVMA urges the DEP to abstain from regulating beneficial reusers and to recognize the distinction between recycling/reuse activities of useful substances versus the regulated recycling of solid wastes.

B. Specific Comments

1. Section 2.121. (page 17): Definition of Solid Waste Facility

This proposed section would define the term "solid waste facility" to include both incinerators and resource recovery facilities. As drafted, this proposed regulatory definition does not comport with its authorizing statutory counterpart, as statute does not deem incinerators and resource recovery facilities to be solid waste facilities. (See W. Va. Code §22-15-2(30).) Thus, in order to comply with the Act, the WVMA urges the deletion of the terms "incinerators" and "resource recovery facilities" from this section. Also, the WVMA notes a typographical error in that the

numbering of the definitions of "solid waste landfill facility" and "solid waste facility operator" needs to be adjusted.

2. Section 2.104. (page 15); Resource Recovery Facility

This proposed section defines the term "Resource Recovery Facility," but should be deleted as there exists no statutory authority under the Act to develop such a definition. In fact, the definition of this term was deleted from the Act pursuant to legislative amendments thereto.

3. Sections 3.16.2. and 5.1. (pages 77-78 and 171-174); Incinerators

The requirements for incinerators now found in proposed Sections 3.16.2 and 5.1 are in need of clarification and revision with respect to their application to industrial incinerators. Such incinerators are already covered by West Virginia Office of Air Quality ("OAQ") regulations and permits. The proposed regulations would require both a DEP permit for storage facilities and support areas related to incinerators, and a permit from the OAQ. The proposed regulations are not clear, however, as to how and when such facilities are to obtain such permits from DEP. Moreover, the requirement for a storage permit has no specific statutory basis. W. Va. Code §22-15-10 (the permitting section of the Act) does not refer to a permit requirement for the simple storage of solid waste. Furthermore, the definition of a "solid waste facility" as set forth in the Act at §22-15-2(30) does not refer to storage of solid waste. At a minimum, the proposed regulations should be amended to make clear that a certain amount of temporary storage

(e.g., for a period of up to 90 days or less) can take place without a permit. The WVMA suggests that the rule be amended to include performance standards for storage areas at solid waste facilities, but that no permit be required for storage activities. In the alternative, however, if a permit must actually be obtained, the proposed regulations should be amended to clarify the permit application requirements. Such an approach would be consistent with the storage permit requirements of DEP's hazardous waste rules. To address this concern, the WVMA suggests that, at a minimum, the following change be made to the proposed regulations:

3.16.2.b.B. A permit from the West Virginia Division of Environmental Protection for solid waste storage areas and support facilities for all areas where solid waste will be stored prior to destruction for a period greater than ninety (90) days from initial date of storage of any quantity of such waste.

4. Section 5.1.2. (page 171); Incinerator Location Standards

In order to eliminate any question about the impact of the location criteria on existing incinerators, the phrase "for new incinerators" should be inserted in the title of Section 5.1.2., so that it reads "Location Criteria for New Incinerators, which are constructed after May 1, 1990."

5. Section 3.16.2.a.A. (page 77); Permit Information

In order to avoid an appearance of conflict with other more specific provisions in the proposed regulations concerning permit information, the WVMA suggests that the words "Where applicable" be inserted before the word "All" in this section.

6. Section 2.93. (page 13); Petroleum - Contaminated Soils

The WVMA strongly supports the provisions in the rule which defines petroleum-contaminated soil to recognize a de minimis level (100 ppm hydrocarbon or less.) However, the WVMA suggests that the definition of "petroleum-contaminated soil" be changed to clarify that soil containing 100 ppm hydrocarbon or less is not a solid waste. This could be done by adding the following sentence to section 2.93:

Petroleum-contaminated soils that contain 100 parts per million total petroleum hydrocarbons or fewer are not solid wastes and are not regulated under this title.

7. Sections 3.1. (pages 19-21); Location Prohibitions and Throughout

There is a continuing concern about the subjective nature of the siting prohibitions listed in this section of the proposed rules. Particularly, this deals with the phrase "adverse impact" upon various environmental locations. This phrase is simply not capable of application since there are no objective tests for what constitutes "adverse." Accordingly, the WVMA urges the elimination of this highly subjective prohibition in favor of the specific location standards now set forth in Section 3.2 of the proposed rules. In addition, those few objective provisions contained in Section 3.1 should be adopted and moved into Section 3.2 in order to preserve those valid points, including those provisions dealing with the migration and concentration of explosive gases, emissions which would exceed limitations established by the OAQ, and facilities which have a reasonable probability of causing a

violation of surface or groundwater quality standards. All other provisions contained in Section 3.1 should be eliminated. If the provisions are to be retained at all (and, again, the WVMA urges their deletion in their entirety), precise definitions should be supplied which allow for clear, objective meaning as to what will constitute an "adverse impact" upon various environmental locations, as opposed to relying on the application of unstated or subjective interpretative meanings. For example, at what level will adverse impact attach? A 95% confidence level? 90%? 99%? Also, does any impact constitute an "adverse" impact? Without objective criteria, these provisions are arbitrary and capricious and, in potential application, unconstitutional.

In addition, numerous sections of this rule, by incorporating statutes or other regulations, place a permittee in a certain "parallel jeopardy" in that one incident of noncompliance could be enforced under two or more regulatory programs, thereby subjecting the permittee to a plurality of fines for the same act or omission which constitute noncompliance. (This comment also applies to, among others, section 3.15.1 (page 77) regarding water pollution control requirements.) The DEP should clarify that it is not intending to impose double liability for a single violation by making a violation of surface water quality standards a violation of a solid waste permit as well.

8. Section 3.8.4. (page 39); Hydrologic Information and Throughout

A typographical error appears in this section. The words "to intersect" appearing in the third line should be deleted.

Additionally, this section imposes more stringent requirements on permittees with respect to the installation of monitoring wells than the parallel federal program to be incorporated by this proposed rule. With respect to Class F solid waste facilities, which are not governed by those federal rules, such standards and requirements should be limited and tailored to the specific type of wastes going to any particular permittee's facility. Given the consistency of the waste streams placed in Class F solid waste facilities, the imposition of the general performance standards and monitoring requirements as may be imposed on commercial solid waste facilities is overburdensome and inappropriate regulation when applied to industrial permittees. The rules should contain language allowing case-by-case determinations for Class F sites.

9. Section 3.8.4.a.G. (page 40); Groundwater Monitoring Wells

This proposed section should be amended to provide for the acceptability of surface mount wells located in traffic areas (e.g., roads, parking lots, etc.) As the placement of such wells is quite common throughout the State, it is not apparent why all well tops must be 2-3 feet above the elevation of the ground surface. Thus, the WVMA urges the addition of the following language at the beginning of this sub-section: "except in the case of a surface mount well."

10. Section 3.8.4.a.I. (page 40); Groundwater Monitoring Wells

This proposed subsection requires that wells be secured from tampering, vandalism or damage. As drafted, however, this section

would only allow for lockable outer wells. The WVMA recommends this section being amended to permit other devices, such as expanding pipe plug locks, which may, in fact, be more convenient and more secure.

11. Section 3.2.10. (page 24); Location Standards

This section employs the use of the term "unmonitorable." However, the term is left undefined within the proposed rule and, thereby, is extremely vague and references to it should, therefore, be deleted. There is no federal counterpart to this term and no justification for including it as a more stringent requirement for the state rules.

12. Section 3.2.14.a. (page 25); Location Standards for Air Criteria

This sub-section crosses jurisdictional boundaries. The Office of Waste Management should not be regulating air emissions. That is the job of the Office of Air Quality. This section should be qualified with the phrase "as required by applicable rules or permit of the Office of Air Quality".

13. Section 5.6.1.a. (page 186); Dumpsters and Green Boxes

In an effort to improve clarity within the proposed rule, the WVMA suggests deleting from the section title the words "Green Boxes" and "Bins," as the rest of the section makes no mention of these terms and speaks only to dumpsters. Moreover, this would eliminate the possible confusion that this section may encompass newspaper or can collection areas and efforts in offices and other places -- activities which should only be encouraged.

Additionally, this section should be amended to make clear that only owners of dumpsters are required to notify the director of their use, as opposed to the owner of the property upon which dumpsters are placed. Also, the phrase "and any other information as required by the Chief" which appears in this section should be deleted as it is unneeded compared to the relative simplicity of what this section is attempting to achieve.

14. Section 4.13.2.c.E. (page 168-169); Asbestos Facility Standards

This proposed regulation requires any active portion of an asbestos disposal area to be fenced. However, the federal rules dealing with asbestos, found in 40 C.F.R. §61.156, require fencing unless a natural barrier adequately deters access by the general public, and then permits either warning signs and fencing to be installed and maintained, or requires that warning signs be displayed at all entrances and intervals of 100 meters or less among the property line of the site or along the perimeter of the sections of the site where asbestos-waste material is deposited. Specification for warning signs are included in the federal rules. There is no 50-foot wide buffer zone required in the federal rules. Accordingly, the WVMA urges the revision of this section to be consistent with the federal regulations cited above. This could easily be accomplished by incorporation by reference, thus eliminating inconsistencies between the two programs and avoiding confusion in the regulated community. Moreover, since the labeling and certain other aspects of the federal rules are mandatory, any active waste disposal site for asbestos must comply with those

requirements. It is, therefore, very important that no inconsistencies be perpetuated in the state regulations which would require duplication problems for the owners or operators of disposal facilities. This duplication could easily be avoided via the incorporation of the federal rules by reference. There is no basis for departure or more stringent state requirements.

15. Section 3.5.3. (page 28); Closure Permit Renewals

Due to the expected stability of conditions at closed industrial landfills, slight amendment to this section appears appropriate to limit the administrative attention which needs to be given to closure permits at such facilities (which must be kept in effect until all post-closure activities have ceased.) The WVMA proposes that this section be modified to read as follows:

3.5.3. 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. In the case of closure permits for industrial solid waste facilities where no changes in the conditions of the permit are requested or required, permits may be automatically renewed every five (5) years through the termination of post-closure obligations, following the issuance of public notice pursuant to Section 3.21 and a thirty (30) day comment period. In such instances, no renewal application will be required. The permittee must, however, file a request with the Chief for such automatic renewal processing no later than 90 days before the expiration date of the current permit.

16. Section 2.136. (page 19); Wetlands

In an effort to import specificity and precision into the regulations, the definition of the term "wetlands" should be amended by inserting the words "naturally occurring" in between the

words "those" and "areas" which appear in the first line of this section.

17. Section 1.1. (page 1); Bonding Exemption

Under statute and the proposed regulations, the requirements of bonding do not apply to Class F facilities. The words "where applicable" should be inserted in between the comma which appears after the word "assurance" and the word "installation," thereby appropriately limiting this section.

18. Section 3.5.2. (page 28); Permit Conditions Classification

This section requires that facility permits for water and solid waste purposes be issued in only one document. This section should be amended in order to clarify and identify which conditions within such single document are based on Article 22-11 (water) (complying with Article 22-12 also) and which are based on Article 22-15 (waste). This is important both for purposes of enforcement and permit review and modification. For example, if there is a single change in a permit which would constitute a minor modification under 47 C.S.R. 10 (NPDES regulations), it should not be within the Chief's discretion to require a major modification of the permit under the solid waste rules. Moreover, modification of this section in this fashion would clarify and narrow enforcement actions in that any enforcement order would have to specify which provision(s) of which regulation or statute was violated, and thereafter limit DEP to take action under only one article. This could be achieved by adding the following language at the end of

this section: "The permit shall identify those conditions based on Article 22-11 and those based on Article 22-15."

19. Section 3.6.2. (page 28-29); Incompleteness Penalties

This section imposes a penalty fee of ten percent of the application fee as listed in Appendix IV of the proposed regulations if refileing of an application is necessary due to incompleteness. As it stands, the rule gives no meaning for the term "incompleteness." The WVMA suggests that at least the word "substantial" be inserted in between the words "to" and "administrative" in this definition in order to avoid unreasonable application of this provision.

20. Section 3.7.6.g. (page 30); Survey Grids

A typographical error appears in this section. The word "is" should be deleted and replaced with the word "are" thereby conforming the phrase to the plural.

21. Section 3.7.13. (page 32-33); Waste Reduction

The provisions in Sections 3.7.13.e., f., g. and h. should be deleted. Such "market information" requests provide no environmental or regulatory benefit and are beyond the jurisdiction of the Act. Moreover, this section references itself at line 5, making very little sense by so doing.

22. Section 3.15. (page 77); Water Pollution Control Requirements

Please see comment number 15 above dealing with single permit documents.

23. Section 3.16.3.a.C. (page 79); Bonded Lands

Again, in an effort to clearly define applicability, the term "any applicable" should be substituted for the word "a" appearing in the second line of this sub-section.

24. Section 3.18.2.b.O. (page 88); "Other" Similar Modifications

This section should be deleted in its entirety as it lacks any significant meaning whatsoever, and will be, and has been in the past, used inconsistently and arbitrarily. All causes for major modification should be specifically listed. "Minor modification" should be defined as every modification that is not a listed major modification.

25. Section 4.5. (pages 98-123); Design Criteria

This section should be amended by deleting the word "minimum" from the section title as it imports no substantive meaning to the regulation. Moreover, subsection 4.5.4.e.B(h) should be amended, in order to allow for flexibility and economy, by inserting the following language after the parenthetical phrase "(5 degrees C)": "unless enclosures, heaters, etc., in conformance with the manufacturer's recommendations, are employed." Subsection 4.5.4.e.C. should also be amended to allow for flexibility of design, by adding at the end of this subsection, the following sentence: "This requirement will be waived for facilities placing the clay component and synthetic component concurrently."

26. Section 4.5.1. (page 98); Minimum Design Capacity

This section should be amended by adding the following at the beginning of the first sentence: "Except for Class F solid waste

facilities." This will make it clear that Class F provisions are those set out in other sections of the rules.

27. Section 4.6.1.a. (pages 123-126); Plans of Operation

Section 4.6.1.a.A. should be amended to include, at the end of that sub-section, and before the semi-colon, the phrase "consistent with good engineering practices for the wastes managed." Sub-section 4.6.1.a.D. should also be amended to allow for the reasonable compaction and covering of putrescible materials. This sub-section should be amended by deleting the word "immediately" and by inserting the phrase "within 24 hours of placement to deter the unauthorized dumping of solid waste." Additionally, sub-section 4.6.1.a.F. should be amended to maintain precision in definition by inserting the word "regulated" immediately before the first appearance of the term "hazardous waste" in this section.

28. Section 4.6.1.a.f. (page 124); Hazardous Waste Exclusion

This proposed section establishes the requirements and procedures for the exclusion of hazardous waste at solid waste facilities. However, given the consistency of wastestreams and users of Class F solid waste facilities, this proposed section should be amended to establish an exemption of its requirements to such facilities. This could be effected by adding the following language after the appearance of the word "Waste" in the section heading: "At Commercial Solid Waste Facilities."

29. Section 4.6.2.b.A. (page 126); Daily Cover

This section, dealing with daily cover, should be amended so as to relax the daily cover requirements at Class F solid waste facilities when no putrescible wastes are disposed of. This could be accomplished by inserting the following sentence at the end of this section: "Where no putrescible wastes are disposed, daily cover requirements for Class F solid waste facilities may be waived or varied by the Chief."

30. Sections 4.6.2.b.D.(a). and 4.6.2.b.D.(b). (page 127); Cover Material

These sub-sections should be amended in order to maintain uniformity within the regulations by inserting the words "where appropriate" at the end of each sub-section respectively.

31. Section 4.7.1. (page 127-128); Acceptable Wastes

This section should be amended by adding a new sub-section, which thereby includes "manufacturing waste" as a listed acceptable waste at Class F solid waste facilities. This section should further be amended by inserting "rags and adsorbents/absorbents" as listed acceptable wastes at such facilities.

32. Section 4.7.2.c. (page 129); Sludges

This section, which prohibits unstabilized sewage sludge or sludges that have not been dewatered from being deposited in landfills, should be amended by adding the following phrase after the word "dewatered" and before the semi-colon: "or which contain less than twenty percent solids by weight."

33. Section 4.8.1.a. (page 130); Leachate Removal

For specificity and clarity, this section should be amended by inserting the term "on-site" in between the words "all" and "collection" which appear in the first line of this section.

34. Section 4.8.2.a. (page 132); Leachate Storage

Similarly, the WVMA urges the insertion of the term "on-site" in between the words "leachate" and "before" which appear in the second line of this section.

35. Section 4.8.3.a.A. (page 133); Tanks

For clarity, the WVMA suggests the insertion of the following phrase in between the words "Tanks" and "may" which appear in the first line of this section: "used for storage or processing of solid waste."

36. Section 4.8.3.b.A. (page 134); Underground Tanks

For clarity in the regulations, the phrase "for storing or treating solid waste" should be inserted in between the words "systems" and "including" which appear in the first line of this section.

37. Section 5.1.3.a.M. (page 172); Air Emissions

To provide specificity, the words "air pollution control" should be inserted after the word "state" and the word "management" should be deleted.

38. Section 5.4. (pages 177-180); Construction/Demolition Waste

This proposed section should be modified to encourage the disposal/use of construction/demolition debris at industrial solid

waste landfills as, among other things, structural fill or riprap, by setting forth a permit by rule for such uses.

39. Section 5.5.2.b.C. (page 184); Corrective Action Program

This section would require the implementation of a corrective action program upon evidence of groundwater contamination. This section cross-references the corrective measures assessment provisions found in proposed Section 4.11.5. However, Section 4.11.5 speaks to such measures in the context of municipal solid waste facilities. Given the restricted use of industrial solid waste facilities and the fundamentally different type and nature of the wastestreams deposited therein, the corrective action program imposed as a result of evidence of groundwater contamination should be specifically tailored to the type of wastestream involved. As Section 4.11.5 of the proposed regulations is keyed to municipal solid waste facilities, simple cross-referencing of its applicability to industrial solid waste facilities is somewhat confusing. Based on this, the WVMA urges that this section be amended to reflect this distinction between industrial and municipal solid waste facility applicability by inserting the words "where applicable" in between the words "require" and "a" appearing in the second to last line of this section, and by adding the phrase ", appropriate to the type and extent of contamination" at the end.

40. Section 6.1.5.a.A.(c). (page 190); Drainage Layer

In order to provide for flexibility of design, this section should be amended by adding the following parenthetical language

immediately following the semi-colon which appears after the word "cap" in this section's third line: "(In the case of Class F solid waste facilities the Chief may, at his discretion, approve the use of a synthetic drainage net in lieu of the one foot (1 foot) drainage layer)".

41. Section 6.1.1.b. (page 187); Closure of Existing Landfills

This proposed section, which incorporates its federal counterpart, should be amended to note that it is only applicable to commercial solid waste landfills (as opposed to industrial facilities) as is made clear in the federal rules. To this end, the WVMA suggests adding the word "commercial" in between "Existing" and "SWLFs" appearing in the first line of this section.

42. Section 6.1.8. (page 193); Closure Approval

For clarity in application, this section, dealing with closure approval, should be amended by adding the phrase "where applicable" at the end of the second sentence in this section.

43. Section 6.3. (page 193); Post-Closure Care

The post-closure care period for Class F facilities should be limited to ten years. Statutory requirements for 30-year post-closure care applies only to commercial facilities. (See W. Va. Code §22-15-12(b).) Because most solid waste disposed of in Class F facilities is homogenous, any potential long-term problems will be known well before the "post-closure" period for a particular facility even begins. Consequently, the Chief should have the authority to require a shorter post-closure period for industrial solid waste facilities. This can be accomplished by substituting

the word "modified" for the word "extended" which appears in the fourth line of this section, and including language which recognizes that Class F and Class D facilities are eligible for ten-year post-closure release if groundwater quality standards are being met.

44. Section 6.4.3. (page 196); Bond Release Eligibility

For clarity, this proposed section, dealing with eligibility for bond release, should be amended to specify its inapplicability to Class F solid waste facilities.

45. Section 6.5. (page 196); Bond Forfeiture

Similarly, this section title should be amended to reflect its inapplicability to Class F solid waste facilities.

46. Section 6.6. (page 197); Bond Release

This section title should also be amended to reflect that it is not applicable to Class F solid waste facilities.

47. Section 2.55. (page 8-9); "Industrial Solid Waste."

The word "are" appearing in the fourth line of this subsection and which is struck-through should be reinstated, and the word "is" as underscored should be deleted.

48. Section 2.56. (page 9); "Industrial Solid Waste Landfill."

This sub-section begins to define the term "industrial solid waste landfill" but is incomplete.

49. Section 3.18.2.b.N. (page 88); Change in Code or Regulation

This section should be deleted in its entirety as permittees should not be required to go through major permit modification or

reissuance as a result of legislative or administrative action amending statute or regulation. As proposed, this section is overreaching and potentially unconstitutional in application as it would authorize, and even require, the Director of the DEP to require permittees to implement major permit modification and/or reissuance for any trivial changes and regardless of when the change occurs. The WVMA urges that if such modifications are appropriate that they be made by minor permit modification initiated by the Director, and that such changes allow time for compliance if immediate compliance is not feasible.

50. Section 5.5.1. (page 181); Waivers and Modifications

A typographical error appears in this section at line nine. The word "are" should be deleted and replaced by the words "is a." Additionally, the word "grounds" should be in the singular.

51. Section 5.5.1.b. (page 181); Waivers and Modification

A typographical error appears in this proposed sub-section. The word "which" appearing in the second line should be deleted.

III. CONCLUSION

In these comments, the WVMA offers its position on major concerns presented by DEP's proposed solid waste management regulations. Because not all of the multitude of issues and provisions in these rules have been fully resolved, the WVMA presents these comments and offers its full cooperation and assistance in refining the current regulatory proposal.

Respectfully submitted this 24th day of July, 1995.

West Virginia Manufacturers Association

Karen S. Price, President
West Virginia Manufacturers Association
2001 Quarrier Street
Charleston, West Virginia 25311
Telephone: (304) 342-2123

Prepared by:
Edward J. George, Esquire
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Charleston, West Virginia 25326



STATE OF WEST VIRGINIA
DEPARTMENT OF HEALTH AND HUMAN RESOURCES

Gaston Caperton
Governor

July 21, 1995

Gretchen O. Lewis
Secretary

Office of Waste Management, DEP
Mr. Bill Rheinlander
1356 Hansford Street
Charleston, WV 25301

COMMENTS ON PROPOSED SOLID WASTE RULE CHANGES

I would like to make the following comments and suggestions concerning the proposed changes in the solid waste rule 47 CSR 38.

The following are definitions and excerpts taken from the Infectious Medical Waste Rule, 64 CSR 56, which may conflict with the proposed changes in the Solid Waste Rule, 47 CSR 38. I would like to suggest that the definitions in the Infectious Medical Waste Rule be utilized in the proposed Solid Waste Rule in section 2.57 for the following reasons:

1. The definition of Infectious Medical Waste was established with the passage of State statute in §20-5J-3 (5) which was passed on February 23, 1991. §20-5J is the legislation that created the Infectious Medical Waste Program.

2. The expanded definition of Infectious Medical Waste in 64 CSR 56 is equivalent to the one used by the United States Public Health Service's Centers for Disease Control and is universally recognized.

3. Use of a different definitions will cause confusion and conflict between medical facilities and landfills. The medical community has already been educated and understands this definition. Education has been provided to DEP inspectors on this definition.

4. Inclusion of these proposed additions could result in the classification of all waste from medical facilities as infectious. This would have a profound increase in the cost of health care in West Virginia. Instead of the average 2.2 pounds per bed per day, in hospitals, we would probably see 25 pounds which is a ten fold increase in Infectious Waste disposal costs.

5. These definitions are the same as those used in the previous version of the Solid Waste Rules. Why are they being changed? The Federal Government does not have a Rule governing regulated medical waste making West Virginia's Infectious Medical Waste Rule the most stringent.

BUREAU OF PUBLIC HEALTH
Office of Environmental Health Services
815 Quarrier Street, Suite 418
Charleston, West Virginia 25301-2616
Telephone (304) 558-2981 FAX (304) 558-0691

Comments
Page Two
July 21, 1995

DEFINITIONS FROM 64 CSR 56

3.9. Infectious Medical Waste.

3.9.1. Infectious medical waste is medical waste which is capable of producing an infectious disease. Medical waste shall be considered capable of producing an infectious disease if it has been, or is likely to have been, contaminated by an organism likely to be pathogenic to healthy humans, if such organism is not routinely and freely available in the community, and such Organism has a significant probability of being present in sufficient quantities and with sufficient virulence to transmit disease.

3.9.2. For the purposes of this rule, infectious medical waste includes the following materials:

3.9.2.1. Cultures and stock of microorganisms and biologicals;

3.4. **Cultures and Stocks of Microorganisms and Biologicals** - Discarded cultures, stocks, specimens, vaccines and associated items likely to have been contaminated by an infectious agent, discarded etiologic agents, and wastes from the production of biologicals and antibiotics likely to have been contaminated by an infectious agent.

3.9.2.2. Blood and blood products;

3.2. **Blood and Blood Products** - Liquid waste human blood and blood products in a free-flowing or unabsorbed state.

3.9.2.3. Pathological wastes;

3.18. **Pathological Waste** - Human pathological wastes, including tissues, organs, body parts, and containers of body fluids, exclusive of those fixed in formaldehyde or another fixative.

3.9.2.4. Sharps;

3.21. **Sharps** - Discarded articles that may cause punctures or cuts and that have been used in animal or human patient care or treatment, or in pharmacies or medical, research or industrial laboratories, including, but not limited to, hypodermic needles, syringes with attached needles, scalpel blades, lancets and broken glassware.

Comments
Page Three
July 21, 1995

3.9.2.5. Animal carcasses, body parts, bedding and related wastes;

3.1. Animal Carcasses, Body Parts, Bedding and Related Wastes - Contaminated animal carcasses, body parts, and bedding of animals that are known to have been exposed to infectious agents during research, production of biologicals, testing of pharmaceuticals, or for any other reason.

3.9.2.6. Isolation wastes;

3.11. Isolation Wastes - Wastes generated from the care of a patient who has or is suspected of having any disease listed as Class IV in "Classification of Etiologic Agents on the Basis of Hazard," published by the United States Centers for Disease Control.

3.9.2.7. Any residue or contaminated soil, water, or other debris resulting from the cleanup of a spill of any infectious medical waste; and

3.9.2.8. Waste contaminated by or mixed with infectious medical waste.

Following is the section of 64 CSR 56 which relates to section 4.7.2.f of the proposed solid waste rule. I would suggest that as a minimum section 4.7.2.f.B.(d) be modified where it reads this rule to say **Title 64, C.S.R. Series 56 §10** otherwise in my opinion the solid waste rule would permit the disposal of infectious waste treated in accordance with Title 47, C.S.R. Series 38 which has no treatment requirements for infectious waste.

SECTION OF 64 CSR 56 RELATED TO SECTION 4.7.2.f

6.3.2. Recognizable treated noninfectious medical waste shall be labeled prior to being transported off-site. Treated medical waste that will pass through a screen with a one-half inch ($\frac{1}{2}$ ") grid shall be considered not recognizable. The label shall be sized and attached in the manner required by Section 6.3.1 of this rule for infectious medical waste. The following information shall be included on the label:

6.3.2.1. The name, address and business telephone number of the generator;

Comments
Page Four
July 21, 1995

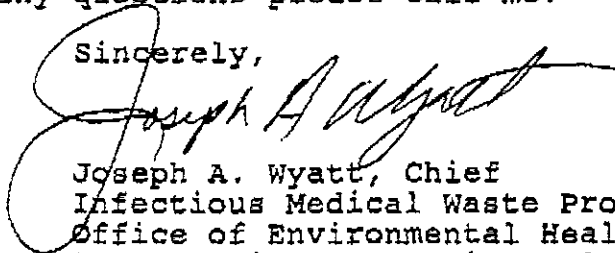
6.3.2.2. The name, address, and business telephone number of the facility at which the waste was rendered noninfectious;

6.3.2.3. The weight of the treated noninfectious medical waste and the method of treatment;

6.3.2.4. A signed and dated certification by the facility at which the waste was rendered noninfectious which states: "I hereby certify under penalty of law that this waste has been rendered noninfectious in accordance with procedures required by **Infectious Medical Waste, 64 CSR 56.**"

Should you have any questions please call me.

Sincerely,

A handwritten signature in cursive script, appearing to read "Joseph A. Wyatt", is written over the typed name and title.

Joseph A. Wyatt, Chief
Infectious Medical Waste Program
Office of Environmental Health Services
815 Quarrier St., Suite 418
Charleston, WV 25301-2616



**Charleston Area
Medical Center**

Memorial Division

3200 MacCorkle Avenue, S.E.
Charleston, West Virginia 25304
(304)348-5432

July 24, 1995

Office of Waste Management, DEP
ATTN: Bill Rheinlander
1356 Hansford Street
Charleston, WV 25301

Dear Mr. Rheinlander:

The following are comments submitted regarding proposed amendment to the "Solid Waste Management Regulations" - sections 2.57-2.58 Infectious Medical Waste.

1. No federal standards currently regulate medical waste. The West Virginia Department of Health is the recognized agency for regulating medical waste management practices. The definition of Infectious Medical Waste in the state of West Virginia was established by the legislature in 1991 as part of state Health Department regulations. All generators of infectious medical waste in our state have developed programs based on the established definitions.
2. The changes proposed by the Solid Waste rules will cause unnecessary confusion for the generators, transporters of infectious medical waste as well as landfill operators.
3. Costs resulting from expansion of the definitions will be significant as the proposed changes will substantially increase the volumes of waste being classified as infectious.

The proposed changes to definitions of section 2.57-2.58 of the "Solid Waste Management Regulations" are unnecessary, duplicative and will cause considerable confusion and difficulty in compliance. In addition, these changes will not improve infectious waste management practices in the state or provide additional benefit to the community. It is recommended that these changes not be made, but instead the definitions established under Infectious Medical Waste Rule, 64 CSR 56 be adopted.

Sincerely,

Lillian D. Morris
Safety Director



STATE OF WEST VIRGINIA
DEPARTMENT OF HEALTH AND HUMAN RESOURCES

Gaston Caperton
Governor

July 21, 1995

Gretchen O. Lewis
Secretary

Office of Waste Management, DEP
Mr. Bill Rheinlander
1356 Hansford Street
Charleston, WV 25301

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2. The expanded definition of Infectious Medical Waste in 64 CSR 56 is equivalent to the one used by the United States Public Health Service's Centers for Disease Control and is universally recognized.

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4. Inclusion of these proposed additions could result in the classification of all waste from medical facilities as infectious. This would have a profound increase in the cost of health care in West Virginia. Instead of the average 2.2 pounds per bed per day, in hospitals, we would probably see 25 pounds which is a ten fold increase in Infectious Waste disposal costs.

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3.21. **Sharps** - Discarded articles that may cause punctures or cuts and that have been used in animal or human patient care or treatment, or in pharmacies or medical, research or industrial laboratories, including, but not limited to, hypodermic needles, syringes with attached needles, scalpel blades, lancets and broken glassware.

Comments
Page Three
July 21, 1995

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SECTION OF 64 CSR 56 RELATED TO SECTION 4.7.2.f

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Comments
Page Four
July 21, 1995

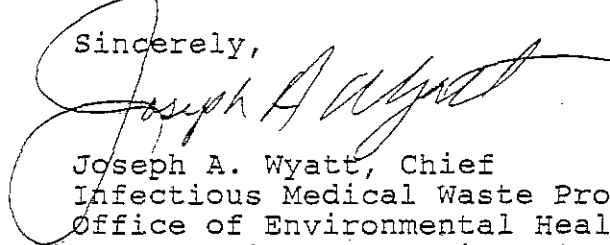
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6.3.2.3. The weight of the treated noninfectious medical waste and the method of treatment;

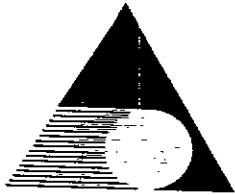
6.3.2.4. A signed and dated certification by the facility at which the waste was rendered noninfectious which states: "I hereby certify under penalty of law that this waste has been rendered noninfectious in accordance with procedures required by **Infectious Medical Waste**, 64 CSR 56."

Should you have any questions please call me.

Sincerely,

A handwritten signature in dark ink, appearing to read "Joseph A. Wyatt", is written over the typed name and title.

Joseph A. Wyatt, Chief
Infectious Medical Waste Program
Office of Environmental Health Services
815 Quarrier St., Suite 418
Charleston, WV 25301-2616



ALMES & ASSOCIATES, INC.
CONSULTING ENGINEERS

RALEIGH COUNTY AIRPORT INDUSTRIAL PARK, 124 PHILPOTT LANE, BEAVER, WV 25813-9502
TELE: 304/255-0491 FAX: 304/255-4232

July 24, 1995

A-Solid Waste

Mr. Bill Rheinlander
Public Information Officer
WEST VIRGINIA DIVISION OF
ENVIRONMENTAL PROTECTION
1356 Hansford Street
Charleston, WV 25301

Response to Public Notification Regarding
Proposed Title 47
Legislative Rule Changes
Bureau of Environment
Series 38
Solid Waste Management Rule

Dear Mr. Rheinlander:

Almes & Associates, Inc., Consulting Engineers (ALMES) is pleased to submit for the agency's consideration our comments regarding the proposed change to the subject Solid Waste Management Rules. Having played an active role in West Virginia's program since 1988, ALMES has been involved in the design, permitting and construction of active and closed solid waste facilities for a number of clients and sites in West Virginia. Our comments are based on inconsistencies that still exist in the regulations, as well as, our effort to offer input into the regulatory process. Throughout the regulations we regularly encounter a number of technical issues that the regulations require, that result in a standardized approach to facility development that in many instances limits the design, permitting and operating efficiency for the facility.

From an engineering standpoint the rules have encroached into the designer's role in developing a facility to suit site specific conditions. Consequently, we are forced to request a waiver or modification that should, in our opinion, be a technical decision. In this regard we have provided for two additional conditions for your consideration. The most important item is a technical equivalency standard and the other is a beneficial use provision. We bring this to your attention as we have the occurrence to technically justify a "modification and gain approval at one site but the comparable technical justification was not sufficient to justify the same modification at another site. This is technically difficult to justify or explain. In our opinion, the equivalency standard has worked in other neighboring states and would appear to give the WVDEP a better means to justify the changes.

We understand that the proposed regulations indicate that the existing permitting requirements remain valid and a modification is necessary to change the requirements. It would appear the word "minor" modification should be used to clarify the distinction, especially for existing facilities that

have an approved permit. Instead of this be going to a major modification which in a sense would appear to be unnecessary as long as they were technically in compliance with the new regulations.

Our experience indicates that we are not able to determine with any degree of accuracy the distinction between major modification and minor modification. In an attempt to make this area more consistent, and less subjective, we have offered some alternative qualifiers to better delineate and distinguish the difference between a major and minor modification.

The suggested listed of comments are offered for your consideration:

Comment on Item 258.15B3 Section 2.1 26- Structural Fill

The definition presented is limited and should be amended to remove the optimum moisture content requirement and the percent compaction. The density and moisture relationship should be determined by design and some structural fills, which are granular by nature, are independent of moisture content and the optimum moisture content and Standard Proctor do not directly apply. Consequently the language should be revised to reflect that the material be compacted in horizontal lifts to achieve the required design dry density and in-situ strength.

Comment on Item 2.112. Seismic Impact Zone

For your information, the limits for the seismic impact zone using a 250 year period will affect more of the West Virginia area, principally the most southern, eastern and western facilities. In fact it appears that at least one third 6 to 8 of the existing facilities could be impacted by this limitation. We recognize that this is may be a federal requirement; however, due to the limited seismic risk in most of West Virginia, it would appear that the 50 year period would be adequate for limiting the development of solid waste facilities. This is the same standard that dams and coal waste facilities are evaluated on in West Virginia. The approximate limits of the 0.05g and 0.1 g are included for your review and consideration. One existing facility located in Mercer county would be affected by the 50 year period limit.

Comment on Item 3.128 - Transfer Station

The definition for a transfer station should be further clarified. In practice several waste transferring activities, are misconstrued as "non-permitted activities." With the closure of the number of facilities, transfer stations are often given serious consideration due to economic concern. However, it has been our experience that if there was a differentiation between any transfer of waste from one business entity to another entity, except for the purpose of disposal at an approved facility, it would be considered a transfer station. The existing definition should reflect the commercial distinction of this transfer.

Comment on Item 3.1 3.14 - Ground Water Quality

The intent to remove statistically significant language as an impact on surface or ground water quality is noted. However, there needs to be some quantitative means to evaluate the impact because the word "adverse" impact is too broad.



Comment on Item 3.5.4 - Existing Permits

We understand this rule provision is to generally upgrade all operating permits to the current regulations. However, it would appear that the Division may need to develop a list of changes unless the notification by the Director delineates all the specific areas where there are deficiencies, depending on a site by site basis.

Comment on Item 3.6.2 Application Review Time

Although there are no provisions for establishing an agency review time frame, it would appear appropriate to consider including a time frame or schedule for tracking applications. It would appear that a 180 day review period is appropriate.

Comment on Item No. 3.7.10.A Closure Cost Estimates

Currently, closure, post-closure and corrective action cost estimates for the sites may have been provided as part of the PSC Certificate of Need filing. As you are aware a bond is required for 30-year post closure and funding of these are in escrow as mandated by the PSC. It would appear some guidance is required for the closure, post-closure and corrective action cost estimates required by this section.

Comment on Major Modification Qualifiers

Suggested language changes:

- 3.18.2.b.A. The aerial limits of the waste disposal unit will be increased over the permitted area except as provided in section 3.18.2.a.A. of this rule;
- 3.18.2.b.C. The efficiency or performance of the leachate management system will be decreased;
- 3.18.2.b.D. 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 negatively affected;
- 3.18.2.b.G. A change in the longitude and latitude of the center of the permitted area will occur;
- 3.18.2.b.I. The permitted disposal area boundary will be increased;
- 3.18.2.b.L. The permit is to be transferred to a new permittee;



General Comments

Equivalency review procedure.

In approving a permit application under this article, the Division may authorize, in writing, alternatives to the design requirements in this article only if, and only to the extent that, specific sections in this article expressly state that alternatives may be authorized under this section.

A person requesting an alternative under this section shall submit a request to the Division, in writing. The request shall:

- (1) Identify the specific regulation for which an equivalency alternative is being sought.
- (2) Demonstrate, through supporting technical documentation, justification and quality control procedures, that the requested alternative to the design requirements in a section of the regulations will, for the life of operations at the facility, achieve the performance standards in that section, and will do so in a manner that is equivalent or superior to the design requirements in that section.

No equivalency alternative will be approved unless the application affirmatively demonstrates that the following conditions are met:

- (1) The request is complete and accurate and the requirements of this section have been complied with.
- (2) The proposed alternative will, for the life of operations at the facility, achieve the performance standards in the section of regulations for which the alternative to the design requirements in that section is sought, and will do so in a manner that is equivalent or superior to the design requirements in that section.
- (3) The proposed alternative will not cause pollution to the air, water or other natural resources of the Commonwealth, and will not harm or endanger public health, safety or welfare.

In Lieu of approving an equivalency alternative for the entire facility, the Division may approve an equivalency alternative for part of a site by providing a demonstration operation.

Leachate Piping

Based on our technical evaluations, using the current technology EPA HELP model for leachate generation quantities, we have determined that the 100 foot spacing for piping is too stringent and that 200 to 250 foot maximum intervals is more appropriate with no slopes on piping required. This spacing has been used for a number of sites and other areas active sites and leachate management has been handled effectively with this spacing. The actual pipe spacing should be



designed on a site by site basis, considering slope, drainage material, and pipe perforations to keep the leachate head above the liner system below the generally accepted level of 12 inches.

Sludge Disposal

From our experience with dealing with solid waste disposal facilities current technology/dewatering yields a process where the sludge is from 14 percent solids to a maximum of potentially 20 or 22 percent with the addition of lime as a stabilizer. It would appear that the solid waste regulations have to recognize that dewatered sludge should be to the best of available technology.

Final Landfill Cap System for Old Landfill Sites

As written, the final landfill cap system is to be placed directly on the waste mass. However, from the operating regulations there is a 6" daily cover requirement and a 12" minimum intermediate cover requirement. Therefore, the appropriate section language needs to be revised to be consistent. The gas and the drainage layers referenced in the final cap system, as written in the rule are not included in the EPA Subtitle D requirements. Will all final cap systems be required to meet these standards or will minimum Subtitle "D" caps be acceptable for consideration by the Division for closed facilities?

Final Cap System Comments for New Sites

- 6.1.5.a.A.(a) **Gas Management Layer.** A one (1) foot layer of a material with a high hydraulic conductivity must be placed directly on the intermediate cover (or remove daily/intermediate cover requirement) to facilitate landfill gas control; A geocomposite drainage blanket having a permeability of at least 1×10^{-3} cm/sec may be used in lieu of the 1 foot layer of high hydraulic conductivity.
- 6.1.5.a.A.(c) **Drainage Layer.** A one (1) foot drainage layer that is more permeable than 1×10^{-3} cm/s and capable of transmitting flow and preventing erosion must be placed over the cap; A geocomposite drainage blanket having a permeability of at least 1×10^{-3} cm/sec may be used in lieu of the 1 foot drainage layer.
- 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 earthen material or a layer of synthetic material acceptable to the Director.

Beneficial use.

This section applies only to constituents of processed municipal waste that are used or proposed to be used for a particular beneficial purpose in lieu of an available commercial product, including a raw material or a finished product. This section does not apply to municipal waste processing or disposal facilities.



No person or municipality may make a beneficial use of processed municipal waste unless the person has first requested and received written approval from the Division under this section. Municipal waste subject to an approved beneficial use does not require a permit for processing or disposal under this article.

A request for approval of beneficial use shall be on forms provided by the Division. The request shall be complete, and shall:

- (1) Chemically and physically characterize the material and identify the quantity, quality and source of material to be used.
- (2) Describe the proposed method of application or use of the material.
- (3) Demonstrate that the intended use will not adversely affect the public health, safety, welfare and the environment.

If the Division approves a beneficial use request, it will:

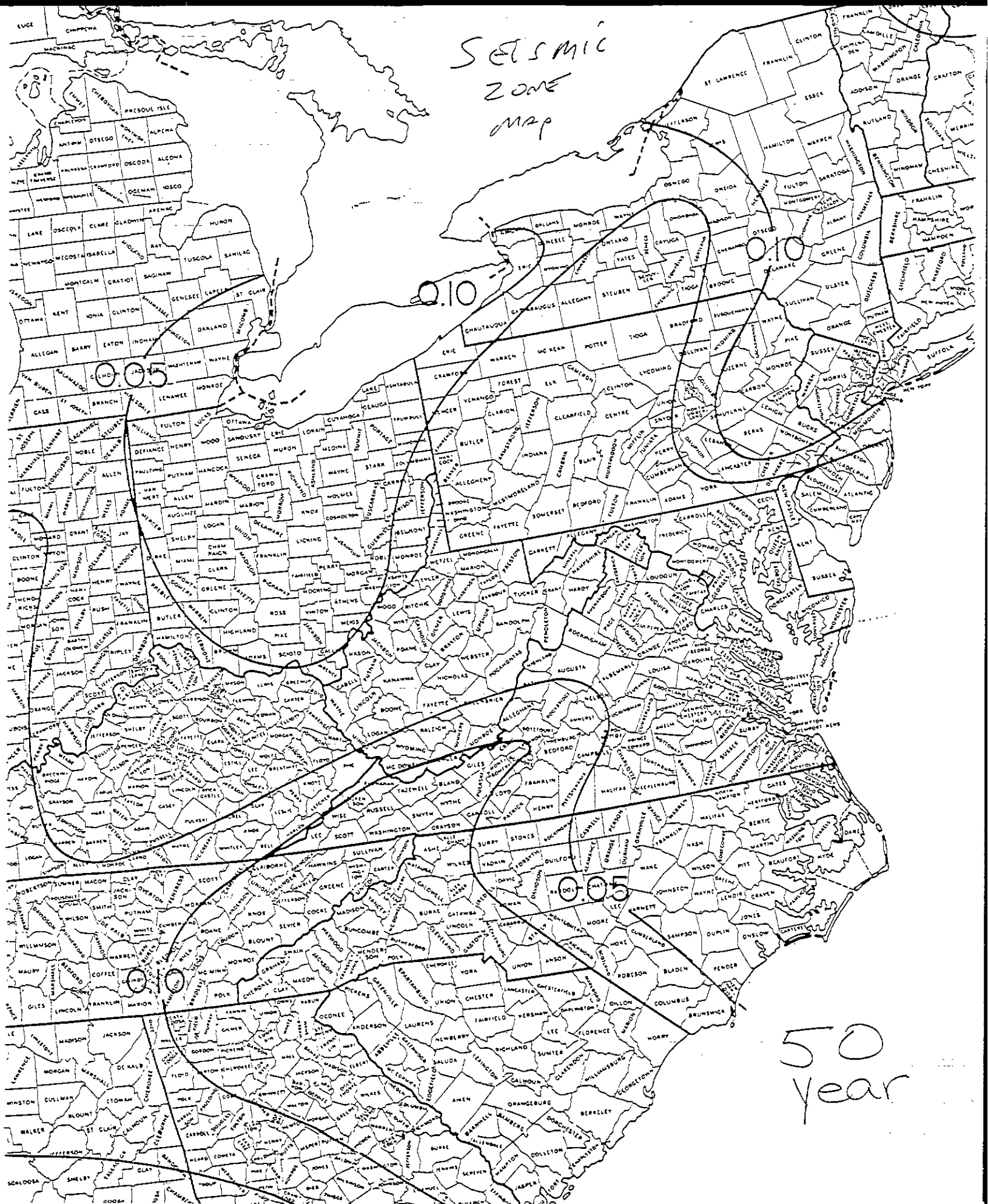
- (1) Approve the beneficial use by issuing an order conditioning the beneficial use on measures the Division deems necessary to protect public health, public safety and the environment.
- (2) Limit the material to be used as to type, source or amount.

The Division may revoke its approval if the beneficial use is being conducted in a manner inconsistent with the approved request, or if the beneficial use is causing, or is likely to cause, harm to the public health, safety, welfare or environment.

If there are any questions regarding our comments, please feel free to contact Charles Gillian or Joseph Sulesky at (304) 255-0491.



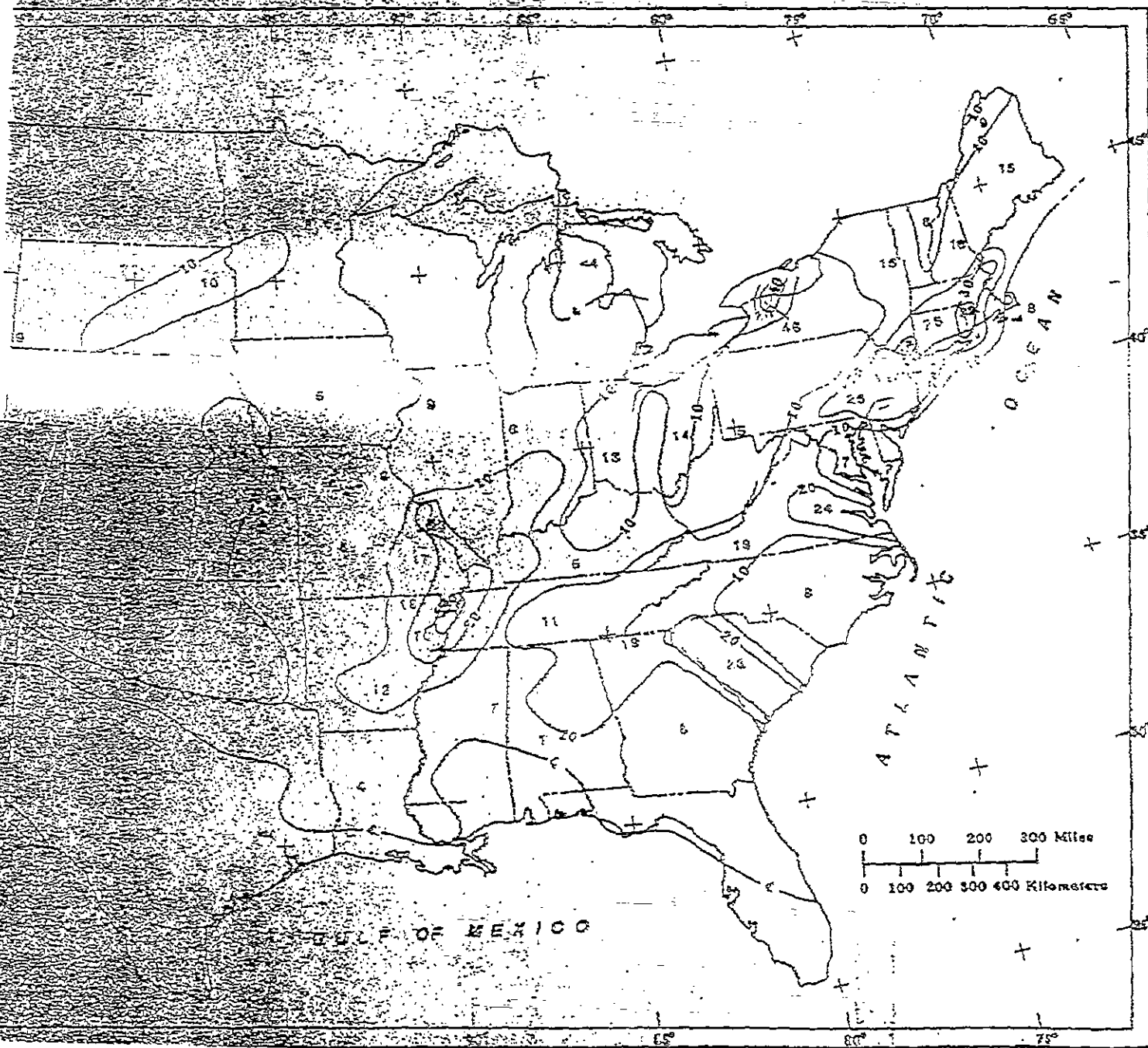
SEISMIC ZONE MAP



50
Year

Seismicity
2005 May

OPEN-FILE REPORT NO. 82-1033



USGS
Mapping, 1982

250
year

Tom Degen
HC 75 Box 324
Chloe, WV 25235

WV DEP/Office of Waste Management
1356 Hansford Street
Charleston, WV 25301
Attn: Bill Rheinlander

Comments on Title 47 Series 38 Solid Waste Management Regulations revisions

Dear Bill,

The Calhoun County Solid Waste Authority, of which I am Secretary, sent a letter to Bill Rheinlander on April 23, 1993 requesting that it be sent "... any public notices concerning solid waste." Although the authority has received many notices, most of them concerning Class D landfill applications, it has yet to be sent notices of draft regulations that are put out for public comment.

I would like to remind you that the authority's request was the result of a notice the DEP placed in the *Solid Waste Reporter* inviting any person or group interested in being on a mailing list to receive all solid waste public notices. Aside from the fact that our authority made this request as a result of the DEP's invitation, I know that you are aware of my interest in solid waste management in the West Virginia. In light of these facts, I find it inexcusable that our authority is consistently ignored when regulations concerning solid waste are put out for public comment.

This travesty has been perpetuated again this year when our Authority was not notified ^{that} of the 47CSR38 Solid Waste Management Regulations revisions were put out for public comment. I received a copy of the proposed rule the afternoon of July 22, two days before the hearing. I am quite certain that you can appreciate the impossibility of preparing adequate comments on a 235 page rule in two days. I am submitting these hastily prepared comments today, however, you may be assured that I will give this rule the attention it merits by the time it comes before the Legislative Rule Making Committee. Now that that is off my chest, here are my comments.

SECTION 2. DEFINITIONS

There are many new definitions, however many of them serve only to confuse rather than clarify. For instance, there is a definition of "Disposal" at 2.41, and a definition of "Solid Waste Disposal" at 2.118. They are not the same, so how can the rule be applied? Similarly, there is a definition of "Applicant" at 2.6, a definition of "Permittee" at 2.89 (which does not make any sense) and a definition of "Person, Persons, or Applicant" at 2.91. Again, they are quite different, and which one is used will have a great effect on the application of section 3.14 Background Investigation Disclosure Statement. There are definitions of "Facility", "Solid Waste Facility", "Approved Solid Waste Facility", "Landfill", "Industrial Solid Waste Landfill" (which does not make any sense, by the way), and "Solid Waste Landfill Facility". This latter

definition, "Solid Waste Landfill Facility" is used in place of Solid Waste Facility in numerous places throughout the rule. I find that "Solid Waste Landfill Facility" excludes "Industrial Solid Waste Landfill" thereby exempting ^{INDUSTRIAL} ~~Solid Waste Landfill~~ ^{SOLID WASTE} Facility from regulation every time "Solid Waste Landfill Facility" is used in place of "Solid Waste Facility". It seems that the intent of the WV Code is undermined by such a substitution.

ANDFILL

The definition of "Beneficial Use" at 2.13 serves only to open a "recycling loophole" that the legislature closed when it removed similar language from "Commercial Solid Waste Facility" and from the end of the definition of "Solid Waste". The definition of "Solid Waste" at 2.117 is NOT the definition found in §22-15-2 of the Solid Waste Management Act in that it contains the very language that the legislature removed. I refer of course, to 2.117.7. It would appear that the DEP is intent on circumventing the will of the legislature on this issue. The definition of "Solid Waste" at 2.117 also is contrary to the definition of "Solid Waste" at §22-15-2(27), in that it includes agricultural operations, and limits the application of the definition to sludges only from wastewater treatment plants, which excludes a host of sludges that the Code's definition includes. Which brings me to the definition of "Sludge" at 2.116. First, it limits the application of the definition to sludges only from wastewater treatment plants, then it goes on to exclude the treated effluent from wastewater treatment plants, thereby negating its own meaning. I could spend a lot more time on the definitions, but that will come later; suffice it to say that between not making grammatical sense, conflicting with each other, and not being true to the legislative intent, the whole section is unacceptable.

SECTION 3. SOLID WASTE FACILITY PERMITTING REQUIREMENTS

3.3.3.1. leaves out Sewage Sludge Processing Facilities, Yard Waste Composting Facilities, and Mixed Waste Processing Facilities, each of which the Code specifies as requiring a Solid Waste Facility Permit.

3.4.1. appears to be an attempt at grandfathering in facilities that wish to "stack" permits. That this is contrary to the intent of the Code has been documented in an Attorney General's Opinion signed by Dawn E. Warfield and dated 9/15/93.

3.13. is titled "Bonding and Financial Assurance for *Solid Waste Facilities* (emph. added), yet 3.13.1.d.A. says that the requirements apply to *Solid Waste Landfill Facilities* (emph. added). The two definitions are different, and only *Solid Waste Facilities* appears in the WV Code, therefore it should be the one used.

3.14. Background Investigation Disclosure Statement.

I find much in this section that worries me; I will surely look more closely into this, but on first reading, it seems that this section has been weakened considerably. Sections 3.14.5.a, d, e, f, h, and i from the old (existing) rule should not be dropped, nor should 3.14.6. or 3.14.11.e and f. When 3.14.11.e and f are dropped, it shifts the onus from the applicant to the agency, which is clearly contrary to the intent of the Code. 3.14.25 from the existing rule has been stricken, which guts the whole section by not allowing the director to refuse to grant a permit based on the information obtained.

3.16.4. Requirements for Recycling Facilities.

3.16.4.c.A. should say "Comply with the *applicable* prohibitions and location standards listed under sections 3.1 of this rule." I say that because 3.1.5.a.A., B., C., and D. apply only to *Solid Waste Landfill Facilities*, therefore they cannot apply to recycling facilities. The reference to section 3.2 should be dropped because section 3.2 applies to *landfills*, therefore it cannot apply to recycling facilities.

Section 3.16.5. Requirements For Construction/Demolition Landfills.

My major concern with these revisions is that by removing the size and time limits that were on D-2 and D-3 facilities, there is now going to be a tremendous incentive for large, continuously operating facilities to cloak themselves as "noncommercial", in order to escape the more stringent permit requirements for a Class D-1 facility. That more stringent application process includes such things as prohibitions (47-38- 3.1), location standards (47-38- 3.2), pre-siting requirements (47-38- 3.4), public comment and hearings (47-38- 3.22-3.26), and appeals (47-38- 3.29). These requirements are all mandated by the legislature because the legislature finds that inadequately controlled disposal of solid waste results in a public nuisance, a clear and present danger to the citizens of West Virginia, and the degradation of the state's environmental quality (22-15-1.b.). The existing rule is far more protective of the public health and safety and the environment than this revision because there is a size and time limit on the Class D-2 and Class D-3 facilities that precludes large, continuously operating facilities from trying to evade the legislatively mandated permitting requirements. Section 3.16.5.c.A.(d) of the Series 38 rule provides the chief with enough discretionary power to modify the requirements for a particular facility without throwing the door open to every half baked justification of why a facility is "non-commercial."

The proposed revision for Class D facilities is also very unclear and contradictory. For example:

No definition is given for "General Permit", "Individual Permit", or the type of facility that is to be regulated under this "general permit." There is a definition of Class D Solid Waste Facility, which means any solid waste facility for the disposal of only construction/demolition waste, and there is a definition for a Class D-1 Solid Waste Facility, but no definition of the new type of facility that is being created.

In this proposed revision, the definition of "Class D Solid Waste Facility" (Section 2.10., pg 2) contains the following addition: "... and shall not include the legitimate beneficial reuse of clean waste concrete/masonry substances for the purpose of structural fill or roadbase material." This is practically identical to the language that the legislature removed from the definition of "Commercial solid waste facility" in 1993 to plug a recycling loophole. This language is just as inappropriate here as it was in "Commercial solid waste facility", and should be deleted.

There is no definition or explanation of "best management practices." Whatever they may be, are they to be substituted for the requirements of the solid waste management regulations that were promulgated at the request of the legislature in order to "... establish a comprehensive program of controlling all phases of solid waste management."?

Section 3.16.5.d.B.(a) of the proposed revision provides that any interested person may petition the chief to require any person authorized by general permit to apply for an individual permit. Cases are listed where an individual permit may be required, one of which is that the permittee is not in compliance with the conditions of the general permit. However, Section 5.4.3.a. provides that 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. The upshot of this is that it is impossible for "any person" to know what is happening at the facility, thereby rendering 3.16.5.d.B.(a) worthless.

Section 3.17.3. provides that the chief shall send fact sheets to any other person on request, yet 3.16.5.d.B.(d). does not provide for public notification until the permit is issued. There is no mechanism for "any other person" to be aware of an application in order for them to request a fact sheet! This is inexcusable; currently, a Class D-2 facility with a two acre, 180 day limit has to notify the public prior to permit issuance, but now an undefined Class D facility with no size or time limitation needs no public notification or hearing prior to permit issuance at all!

Section 5.4.3. of the proposed revision is Class D-2 Requirements. The definition of Class D-2 facility was stricken, as were most other references to that type of facility. I have to assume that 5.4.3. is requirements for the undefined Class D facility that operates under an undefined "general permit". In any case, the facilities regulated under 5.4.3. are exempted from the requirements of Section 4 of the rule, which is Landfill Performance Standards. This is a broad area of regulation that is simply dismissed. Such things as Minimum Design Criteria, Operational Requirements, Acceptable Wastes, Leachate Management, Monitoring, Reporting and Assessment Fees are included in Section 4. West Virginia Code §22-15-11. imposes a solid waste assessment fee on "... the disposal of solid waste at any (emphasis added) solid waste disposal facility in this state ..." It does not appear that the division has the authority to ignore the provisions of the Code and dismiss a class of facilities from the requirement of paying the assessment fees. Besides, at a time when the monies from the assessment fees are declining and impacting on the various programs that they fund, such as enforcement/inspection activities, the Solid Waste Management Board, the local solid waste authorities, and recycling grants, why would the division want to exempt a class of facilities from the fees?

In summary, the Legislature has stated that the purpose of the Solid Waste Management Act is to establish a program of controlling all phases of solid waste management because it finds that inadequately controlled disposal of solid waste results in a public nuisance, a clear and present danger to the citizens of West Virginia, and the degradation of the state's environmental quality [22-15-1.(a) and (b)]. While it is understandable that the division would regulate small, temporary

facilities in a more lax fashion than larger, continuously operating facilities, there is an abdication of responsibility in exempting facilities with no such limitations from the basic requirements of the series 38 regulations through the use of an undefined permit and undefined practices. Of great concern to me is that this revision shifts the burden of requiring adequate regulation onto "any other person" who may be lucky enough to learn of the application process and request the chief to issue an "individual permit." The current rule requires the "individual permit" of any Class D facility that will be larger than two acres and be in operation for longer than one year, but does allow the chief discretionary power in Section 3.16.5.c.A.(d) to modify requirements for a particular facility.

This revision concerning Class D facilities should not be approved or filed. The existing rule is more protective of the public health and safety and the environment, it is more reflective of the legislative intent and I have heard of no outcry concerning this aspect of the rule that would justify the revision.

Section 3.18. Permit Modification, Transfer, Reissuance, suspension, and Revocation.

The underlined "Transfer, Reissuance" should be stricken, Transfer is covered in 3.19, and Reissuance is covered in 3.20.

Section 4.5.4.a.G. Relative Point of Compliance.

This entire section is contrary to the non-degradation policy set forth in §22-12-2 The Groundwater Protection Act, and should be stricken.

The underlined portion at the end of Section 4.6.1.a.F.(b)(A) that starts with "unless" detracts from the provisions of the subsection. If it has to be there, at least have the other steps approved by the director in writing.

Section 4.6.1.a.Q.(a) opens an enormous loophole. "Agricultural wastes" is not defined clearly enough to prohibit the burning of manure, dead animals, pesticide and herbicide contaminated articles, tractors, etc. "Debris from emergency clean-up operations" is similarly flawed.

The removal of the Phase III Monitoring Program (4.11.4. in the current rule) severely compromises the entire Groundwater Monitoring Program. I cannot believe that the "Feds" would require that to be dropped to obtain primacy of the solid waste program.

Section 4.12. Reporting.

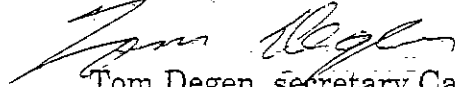
The phrase "unless authorized by the director in writing." that appears in 4.12.1.

cripples the intent of the section. Without logs, one has no idea what's going on at the facility, there cannot be any good reason to authorize not keeping them.

The change in 4.12.2.d. that requires only the monthly tonnage report to be sent to the local solid waste authority has the effect of keeping vital information from the solid waste authority and undermines local control, and therefore the intent of the legislature. The change should be stricken.

Thank you for this opportunity to comment on these regulations.

Sincerely,



Tom Degen, secretary Calhoun Co. Solid Waste Authority
member B.O.D. WV Environmental Council

cc: Norm Steenstra, Citizens Action Group
Ken Hechler, Secretary of State
Senator Don Macnaughtan
Senator David Grubb
Delegate Brian Gallagher
Jim Kotcon, legislative chair Sierra Club
Tom Michael, Esq.
Wendy Radcliff, Environmental Advocate DEP
Larry Harless, Esq.
Beth Little, President WV Environmental Council

Richard Cooke

Transfer Station

The definition of transfer station as
currently written is too restrictive.
The definition should be reduced in scope
to allow it ~~to~~ focus on only large scale
facilities. Consideration should be given to
a permit by rule as an interim
transition measure for small haulers.

Leonard Tyne

AMENDMENTS MADE TO PROPOSED RULE

~~2-15-~~ 2.28. "Coal Combustion By-Products" means the residuals, including fly ash, bottom ash, bed ash, and boiler slag flue gas emission control waste 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~~ must be calculated on a dry gas basis corrected to seven percent (7%) oxygen.

~~2-14-~~ 2.29. "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~~ does not include the legitimate beneficial use of coal combustion by-products.

2.31. "Commercial Solid Waste" means all types of solid waste generated by stores, offices, restaurants, warehouses, and other nonmanufacturing activities, excluding residential wastes.

~~2-19-~~ 2.36. "Construction/Demolition Waste" means waste building materials, packaging, and grubbing waste, and rubble resulting from construction, remodeling, repair and demolition operations on houses, commercial and industrial buildings, and ~~other structures and pavements, and other structures~~ 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~~ does not include asbestos waste.

~~2-27-~~ 2.57. "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-~~ 2.58. "Infectious Medical Waste" means infectious medical waste which is capable of producing an infectious disease. Medical waste is considered capable of producing an infectious disease if it has been, or is likely to have been, contaminated by an organism likely to be pathogenic to healthy humans, if such organism is not routinely and freely available in the community, and such organism has a significant probability of being present in sufficient quantities and with sufficient virulence to transmit disease. For the purposes of this rule, infectious medical waste includes the following materials: with infectious characteristics including animal waste, bulk human blood and blood products, laboratory waste, pathological waste, and sharps.

~~2-28-1-~~ 2.58.1. "Animal Carcasses, Body Parts, Bedding and Related Waste" means contaminated animal carcasses, body parts, and the bedding of animals that are known to 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, or for any other reason.

2-28-2- 2.58.2. "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- 2.58.3- "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;

-----2-58-4- "Cultures and Stocks of Microorganisms and Biologicals means discarded cultures, stocks, specimens, vaccines and associated items likely to have been contaminated by an infectious agent, discarded etiologic agents, and wastes from the production of biologicals and antibiotics likely to have been contaminated by an infectious agent."

-----2-28-4- 2.58.5. "Pathological Wastes" means human pathological wastes, including tissues, organs, and body parts, and containers of free-flowing or unabsorbed body fluids exclusive of those fixed in formaldehyde or another fixative.

2-28-5- 2.58.6. "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 pharmacies or medical, research, or industrial laboratories, including, but not limited to, and of having been exposed to infectious agents. The term "sharps" includes hypodermic needles, syringes with attached needles, and scalpel blades lancets and broken glassware.

2.58.7. "Isolation Wastes" means wastes generated from the care of a patient who has or is suspected of having any disease listed as Class IV in "Classification of Etiologic Agents on the Basis of Hazard" published by the United States Centers for Disease Control.

2.58.8. "Other Infectious Wastes" includes, but is not limited to any residue or contaminated soil, water, or other debris resulting from the cleanup of a spill of any infectious medical waste, and waste contaminated by or mixed with infectious medical waste.

2-40- 2.90. "Permittee" or "Operator" shall means any person holding or ~~executing~~ a permit or who is otherwise authorized to conduct solid waste activities under the Act.

2-41- 2.91. "Persistent Violation" means any violation of the Act, these regulations this rule, any permit term or condition, or any order of the chief or the director issued pursuant to the Act or these regulations this rule which is identified during two or more consecutive inspections performed by the chief or the director.

2-56- 2.121. "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, solid waste disposal surface impoundments, transfer stations, incinerators, ~~resource recovery facilities~~, recycling facilities, materials recovery facilities, mixed waste processing facilities, sewage sludge processing facilities, composting facilities and other such facilities not herein specified, but not including land upon which sewage sludge is applied in accordance with WV Code §22-15-20(b). Such facility is deemed to be situated, for purposes of this rule, in the county where the majority of the spatial area of such facility is located: Provided, That a salvage yard, licensed and regulated pursuant to the terms of WV Code §17-23-1 et seq., is not a solid waste facility.

2-42- 2.92. "Person," or "Persons," or "Applicant" means:

2-42-1- 2.92.1. 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- 2.92.2. The State of West Virginia;

2-42-3- 2.92.3. Any governmental agency, including federal facilities;

2-42-4- 2.92.4. Any political subdivision of this State, including county commission, municipal corporation, industry, sanitary district, public service district, drainage district, soil conservation district, or watershed improvement district;

2-42-5- 2.92.5. Any partnership, trust, or estate;

2-42-6- 2.92.6. Any person or individual;

2-42-7- 2.92.7. Any group of persons or individuals acting individually or as a group; or

2-42-8- 2.92.8. Any legal entity whatever.

2.124. "Storage" or "Storage Area" means the interim storage of solid waste, at a permitted solid waste facility on a temporary basis. Any storage that exceeds one hundred eighty (180) days, without the prior written approval of the director, in such a manner, constitutes illegal disposal of such solid waste (i.e., staging areas).

2.126. "Structural Fill" means an engineered/designed and controlled homogeneous fill with a projected spread in lifts not exceeding twelve (12) inches and compacted with proper power equipment. The material must be compacted in horizontal lifts to achieve the required design dry density and in-situ strength.

2.58.6. "Other Infectious Wastes" includes, but is not limited to any residue or contaminated soil, water, or other debris resulting from the cleanup of a spill of any infectious medical waste, and waste contaminated by or mixed with infectious medical waste.

2-39- 2.84. "Open Dump" means any solid waste disposal which does not have a permit under W.Va Code §22-15, 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 or is in violation of state law; or where solid waste is disposed in a manner that does not protect the environment.

2.126. "Storage" or "Storage Area" means the interim storage of solid waste, at a permitted solid waste facility on a temporary basis. Any storage that exceeds one hundred eighty (180) days, without the prior written approval of the director, in such a manner, constitutes illegal disposal of such solid waste (i.e., staging areas).

2.128. "Structural Fill" means an engineered/designed and controlled homogeneous fill with a projected spread in lifts not exceeding twelve (12) inches and compacted with proper power equipment. The material must be compacted in horizontal lifts to achieve the required design dry density and in-situ strength.

2-59- 2.130. "Transfer Station" means a combination of permanent structures, machinery, or devices at a place or facility where solid waste is taken from collection vehicles, often compacted, and prepared for shipment placed in other transportation units for movement to another solid waste management facility. Provided that, when solid waste is collected in a container including rollovers, greenboxes or bins which are temporarily positioned (not more than five days) at a specific location for transport by a transportation unit, such shall not be considered a transfer station. Leachate must be properly managed under either described activity.

2-63- 2.137. "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, forks, brooks, ponds (except farm ponds, industrial settling basins and ponds and water treatment facilities), impounding reservoirs, springs, wells, watercourses, and natural wetlands.

258.12(a)(1)

2-64- 2.138. "Wetlands" means those naturally occurring areas, as defined under 40 CFR 232.2(r) 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.

258.12

3.1.1. Natural Wetlands. A significant adverse impact upon natural wetlands, as defined in section 2 of this rule;

258.12(a)(iii), and (iv)

3.1.2. Endangered or Threatened Species. A significant adverse impact upon, or jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of a

critical habitat of any animal or plant protected under the Endangered Species Act of 1973, and violates any requirement under the Marine Protection, Research and Sanctuaries Act of 1972 for the protection of a marine sanctuary, unless specifically approved by the United States Fish and Wildlife Service;

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

3.1.4. Groundwater. A statistically significant adverse impact upon groundwater quality;

258.27(a)

3.1.5.a.A. Permittees of SWLFs must not: Cause a discharge of pollutants into waters of the state, including natural wetlands, that violates any requirement of the Clean Water Act, as amended or applicable portions of Chapter 22, Article 11, of the Code of West Virginia, including, but not limited to, the National Pollutant Discharge Elimination System (NPDES) requirements, pursuant to section 402; of the Clean Water Act, or as reflected in Chapter 22, Article 11, of the Code of West Virginia, as amended.

258.27(b)

3.1.5.a.B. Cause the discharge of a non-point source of pollution to waters of the state, including natural wetlands, that violates any requirements of an area-wide or state-wide water quality management plan that has been approved under section 208 or 319 of the Clean Water Act, or as reflected in Chapter 22, Article 11, of the Code of West Virginia, as amended.

258.12(a)

3.2.2. Location Standards for Natural Wetlands.

No SWLF may be located within three hundred (300) feet of any natural wetlands, unless the permittee can make the following demonstrations to the director (facility drainage or sedimentation control structures are exempt from this distance calculation):

258.12(a)(1)

3.2.2.a. Where applicable under section 404 of the Clean Water Act or applicable wetland laws under Chapter 22, Article 11, or any rules promulgated thereunder, the presumption that a practicable alternative to the proposed landfill is available which does not involve natural wetlands is clearly rebutted:

258.12(a)(3)

3.2.2.c. The SWLF must not cause or contribute to significant degradation of natural wetlands, and the permittee must also demonstrate the integrity of the SWLF and its ability to protect ecological resources by addressing the following factors:

258.12(a)(3)(v)

3.2.2.c.E. The potential effects of catastrophic releases of waste or the leachate thereof, to the natural wetlands and the resulting impacts on the environment; and

258.12(a)(4)

3.2.2.c.G. To the extent required under section 404 of the Clean Water Act or applicable state natural wetlands laws as reflected in Chapter 22, Article 11, of the Code of West Virginia, as amended, steps must have been taken to attempt to achieve no net loss of natural wetlands (as defined by acreage and function) by first avoiding impacts to natural wetlands to the maximum extent practicable as required by section 3.2.2.a of this rule, then minimizing unavoidable impacts to the maximum extent practicable, and finally offsetting remaining unavoidable wetland impacts through all appropriate and practicable compensatory mitigation actions (e.g., restoration of existing degraded natural wetlands or creation of man-made natural wetlands).

3.2.5. Location Standards for Highways and Public Parks.

New SWLFs and lateral expansions must not be located 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 or federal aid secondary, or county 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;

3.2.8. Location Standards for Dwellings.

3.2.8.a. Permittees of new SWLFs, and lateral expansions must not be located w within five hundred (500) feet of a dwelling that is, or will be occupied, at the time of initial facility siting, unless written permission is received from the owner of the dwelling;

3.2.9. Location Standards for Wells.

3.2.9.a. Permittees of new SWLFs, existing SWLFs, and lateral expansions cannot be located within twelve hundred (1,200) feet of any public or private water supply well in existence at the time of initial facility siting;

258.15)

3.2.10. Location Standards for Unstable Areas.

258.15)(a)(Part 1)

3.2.10.a. Permittees of new SWLFs, existing SWLFs, and lateral expansions cannot be located within one thousand (1,000) feet of any area considered by the director to be unstable ~~unmiterale~~ due to extreme geologic and hydrologic conditions (e.g., immaturely to maturely developed karst terrain, solution cavities), unless the permittee can demonstrate that engineering measures have been incorporated into the SWLF's design to ensure that the integrity of the structural components of the SWLF will not be disrupted, and

3.2.11.a. Permittees of new SWLFs, and lateral expansions cannot be located above deep- underground mine workings or within the critical angle of draw of such workings, unless otherwise approved by the director in writing.

3.2.12.a. Permittees of new SWLFs, and lateral expansions cannot be located within previously surface mined areas, unless otherwise approved by the director in writing.

3.2.14.a. All permittees must ensure that violations of the applicable requirements developed under a State Implementation Plan (SIP) promulgated pursuant to section 110 of the Clean Air Act, as amended or as reflected in the rules promulgated by the Office of Air Quality, do not occur.

3.3.1.g. Sewage Sludge Processing Facility;

3.3.1.h. Yard Waste Composting Facility;

3.3.1.i. Mixed Waste Processing Facility; and/or

3.4.1.b.A. A certification of publication of the legal advertisement required under section 3.4.1.a of these regulations this rule from the a qualified newspaper, as defined in WV Code §59-3-1 in which such advertisement was published;

3.6.2. A fee equal to ten percent (10%) of the application fee listed in Appendix III of these regulations IV to this rule must accompany an permit application for any renewal, modification, transfer or other permitting functions refiled or that requires additional information due to substantial administrative or technical incompleteness.

3.7.7. Quality Assurance and Quality Control Plans. The application shall must include quality assurance and quality control (Q.A./Q.C.) plans to be implemented to assure conformity of the solid waste facility construction, environmental monitoring, and monitoring well development, and provisions for monitoring within applicable standards.

3.7.12. Facility Expansion. In an application for an expansion of an existing facility, the effectiveness of the existing design and operation shall must be discussed. An evaluation of relevant monitoring data and a discussion of all plan modifications and remedial actions shall must 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 must also be noted and discussed.

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

3.8.1.1.G. Underground and or surface mines (for underground mines, also indicate the subsidence angle of draw, as applicable);

258.51(a)

3.8.4. Hydrologic Information. The permittee must install a groundwater monitoring system that consists of a sufficient number of wells (minimum of four {4}) monitoring wells must shall be drilled to intersect be installed at appropriate locations and depths, to yield groundwater samples from the uppermost significant aquifer or the uppermost aquifer at all landfill sites. Monitoring wells -- one (1) upgradient and three (3) downgradient -- shall must 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 must be plugged from the bottom of the hole to the uppermost significant aquifer with a sodium bentonite grout, then properly screened and cased.

258.54(a)

3.8.4.e. Groundwater Quality Analyses. The method of sampling; date and results of the analyses of the water sampled from each groundwater monitoring well at the site shall must be provided in the application. All sampling procedures must be included in the application and approved by the chief director. Analyses for the constituents listed in Appendix I, the facility permit, or an order by the director 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, free 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(s) specified by the chief director in writing must be conducted.

3.9.1.b. Land Use Zoning. The application shall must provide a review of 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 natural wetlands are designated.

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, existing 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.c.A. The physical environment including the regional and local topography, geology, surface water drainage features, hydrogeologic conditions, air, natural 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 natural wetlands;

3.12.1. General.

The application ~~shall~~ must 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 natural wetlands.

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 or within surface waters or natural wetlands. It is the responsibility of the applicant or property owner to obtain any such permits.

3.13.1.a. The ~~chief~~ director 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 or other form of financial assurance, as applicable, in accordance with these regulations this rule and the bond or other form of financial assurance is approved by the director.

258.70(a)

3.13.1.d.A. The requirements of this section apply to permittees of all SWLFs, except as provided in section 3.13.1. The requirements of this section are effective on the date specified in 40 CFR Part 258 Section 70(b), as amended. If a state or federal government entity should become a permittee in the State of West Virginia, they will be exempt from the requirements of this section, since their debts and liabilities are the debts and liabilities of the state or the United States.

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~~ an applicant's unqualified obligation to reimburse the issuer for monies paid under the letter of credit.

3.14.6.b. 3.14.9. All signatures shall must 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 must be typed, stamped, or legibly printed beneath each signature. all signatures must be notarized.

3.14.8.d.A. 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

3.16.2.a. General Requirements. The applicant must submit the following information to the ~~chief~~ director in order to obtain a permit for a resource recovery, industrial, or municipal solid waste incinerator facility: Provided: That the installation, establishment or construction of a

new municipal or commercial solid waste facility utilizing incineration technology for the purpose of solid waste incineration is prohibited, per Chapter 22, Article 15, Section 19 of the Code of WV, with the single exception of pilot projects.

3.16.4.c.A. Comply with the applicable prohibitions and location standards listed under section 3.1 of this rule;

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 this rule. A landowner using construction/demolition waste material to improve the grade of the 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 natural 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.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.

3.18. Permit Modification, Reissuance, Suspension, and Revocation.

3.18.1. Actions by the Chief Director.

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

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

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

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

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

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

3.18.2.b.N. A significant change in the WV Code "Solid Waste Management Act", this rule or the counterpart federal regulations that results in a similar modification, as determined by the director.

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

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.

4.5.4.b.A.(a) Soil mottling shall indicate the presence of a The location of the seasonal high groundwater table may be inferred by such indicators as soil mottling, soil gleying and iron and manganese concentrations.

~~-----4.5.4.d.A.(e)(B)~~ The distance between pipes in the piping system must may not exceed one hundred (100) feet on center unless otherwise approved by the director;

4.5.4.d.A.(e)(C) The pipes ~~shall~~ must be installed nearly perpendicular to the slope with continuous positive slope;

4.5.4.e.A.(d) Be free of particles greater than two (2) inches in any dimension, and must also be free of debris, rock, plant materials, and other foreign materials;

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, unless otherwise approved by the director 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.f.A.(g)(B) The distance between pipes in the piping system must may not exceed one hundred (100) feet on center unless otherwise approved by the director;

4.5.4.f.A.(g)(C) The pipes ~~shall~~ must be installed nearly perpendicular to the slope with continuous positive slope;

4.5.5.a.A. Subgrade Preparation

4.5.5.a.A.(a) ~~4.5.5.a.A.~~ Site preparation, including clearing, and grubbing;

4.5.5.a.A.(b) ~~4.5.5.a.B.~~ Excavation and contouring of the subgrade to required elevations;

4.5.5.a.B. Subbase Preparation

4.5.5.b.C. Inspections of locations where inlet/outlet structures or penetration that penetrate through the liner to insure ensure the protection of, and the compatibility of those structures with respect to the liner system;

258.25

4.6.1.a.E. Permittees of all SWLFs Access to the facility must be restricted must control public access and prevent unauthorized vehicular traffic through the use of artificial barriers, including fencing, natural barriers, both, or other methods approved in writing by the chief director, as appropriate to protect human health and the environment;

4.6.1.a.F.(b)(A) 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 division authorities if a regulated hazardous waste is found at the facility unless the permittee takes other steps approved by the director in writing to ensure that incoming loads do not contain regulated hazardous wastes or PCB wastes;

258.25

4.6.1.a.G. Effective means must be taken to limit and control public access and prevent illegal dumping of wastes at the active disposal area to minimize exposure of the public to hazards;

258.24(b)

4.6.1.a.Q.(a) All open burning of solid waste, except for the infrequent burning of land clearing debris, diseased trees, or debris from emergency clean-up operations, except as approved by the Office of Air Quality is prohibited at all SWLFs.

4.6.2.a.B. Daily Cell Height. Daily cell height shall must not exceed eight (8) feet in the vertical dimension except in the middle area of the daily cell to divert stormwater. The vertical dimension of the middle area of the daily cell must not exceed eleven (11) feet.

4.7.2.c. Unstabilized sewage sludge or sludges that have not been dewatered, or contain less than 20% solids by weight;

4.8.1.d. Except as otherwise provided in sections 4.8.1.e through 4.8.1.f of these regulations this rule, leachate must be collected, treated, and then directly discharged into a POTW or other treatment facility permitted by the division Department. In addition, the operator must operate a leachate treatment facility as provided in section 4.8.1.g of these regulations this rule within three (3) years following the detection of leachate in the collection or handling system, unless otherwise approved by the director. 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.

4.8.4.b. On a quarterly basis, the chemical composition of the leachate flowing into the leachate treatment system shall must be determined through the analysis of the leachate for the following parameters listed in

Appendix I, or as specified by the facility permit, or order of the director.
+ 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 must be conducted.

4.11.2.b. At a minimum, a Phase I detection monitoring program for commercial solid waste facilities shall include the following monitoring parameters listed in Appendix I, or as specified in the facility permit, or order of the director.+ 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.

258.54(c) (Part 1)

4.11.2.d. Unless otherwise directed by the director, if the permittee determines pursuant to this rule, that there is a statistically significant increase over background for one or more any of the constituents listed in Appendix I to this rule, or in the alternative list approved in accordance with section 4.11.2.b.B., Phase I parameter at the boundary specified under sections 3.8.4.a.J, the permittee must:

258.54(c)(1) (Part 1)

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. Within 14 days of this finding, place a notice in the operating record indicating which constituents have shown statistically significant changes from background levels, and notify the director that this notice was placed in the operating record;

4.11.2.d.B. Within a thirty-day period, repeat the sampling of the groundwater in all appropriate monitoring wells as approved by the director, and determine the concentration of all constituents designated under section 4.11.2.b of this rule 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

258.54(c)(2)

4.11.2.d.D. If the repeat sampling confirms that a statistically significant increase over background levels has occurred, establish a Phase II assessment monitoring program meeting the requirements of section 4.11.3 of these regulations within ninety 90 thirty (30) days of confirmation, except as provided for in section 4.11.2.e.

258.58(q)

4.11.7.g. When, upon completion of the certification, the director determines that the corrective action remedy has been completed in accordance with the requirements under section 4.11.7.e, the permittee must be released from the requirements for financial assurance for corrective action under section 3.7.10.a.

4.12.1. Daily Logs. Accurate, complete and true 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:

4.12.2.b.A. The ground and surfacewater sampling analysis monitoring reports and accompanying report of determining whether there was 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 and Phase II monitoring programs, as required in section 4.11 of these regulations this rule shall must be submitted with the monthly solid waste reports due before the twentieth fifteenth day of April, July, October November, and January.

4.12.2.d. Reporting and Recordkeeping.

A copy of this the monthly tonnage and the monitoring reports shall must 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 all of these reports required by this section must be kept on file at the solid waste facility.

4.12.3. Annual Operational Report. An annual solid waste facility operational report must is to be submitted for the current previous calendar year to the chief director before January 31 of the following year.

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 must be fenced, or a waiver from the director must be obtained. Provided; That a natural barrier exists on the site that adequately deters access by the general public. The fence shall must be of the six (6) feet high chain link type with three (3) strands of barbed wire on top. The fence shall must completely encompass encircle the disposal area and internal buffer zone and maintain access control through locked gates.

4.13.2.c.G. A plat of the area, surveyed and clearly marked as containing asbestos waste shall must be provided to the ~~chief~~ or the director upon request and shall must be contained and specifically noted in the deed notation as required by section 6.2.6 of these regulations this rule.

5.1.2.a.B.(a) A significant adverse impact upon natural 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

5.5.1.b. The following requirements of section 4 of this rule these regulations which may be waived or modified by the director ~~chief~~ for Class F 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 this rule these regulations.

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 HDPE 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.

5.6.1. Green Boxes, Bins, roll-offs 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.a.~~ 5.6.1.b. Each person who causes to be placed a green box, bin, roll-off or dumpster at places other than approved solid waste facilities shall be are responsible for maintenance, prevention of litter, and open dump control, and leachate management at the site of the dumpster.

6.1.5.a.A.(a) Gas Management Layer. A one (1) foot layer of a material with a high hydraulic conductivity or a geocomposite drainage layer having a permeability of at least 1×10^{-3} cm/sec may be used in lieu of the one (1) foot drainage layer shall must be placed directly on the intermediate cover refuse mass to facilitate landfill gas control;

6.1.5.a.A.(c) Drainage Layer. A one (1) foot drainage layer that is more permeable than 1×10^{-3} cm/s or a geocomposite drainage layer haveing a permeability of at least 1×10^{-3} cm/sec may be used in lieu of the one (1) foot drainage layer, and capable of transmitting flow and preventing erosion shall must be placed over the cap. and

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 earthen material or a layer of synthetic material acceptable to the chief director.

In addition to the above, the following parameters should be analyzed:

Temperature, hardness, total dissolved solids, total suspended solids, (BOD-5day), flouride, nitrite, hexavalent chromium and calcium.

AMENDMENTS MADE TO PROPOSED RULE

2-15- 2.28. "Coal Combustion By-Products" means the residuals, including fly ash, bottom ash, bed ash, and boiler slag flue gas emission control waste 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~~ must be calculated on a dry gas basis corrected to seven percent (7%) oxygen.

2-14- 2.29. "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~~ does not include the legitimate beneficial use of coal combustion by-products.

2.31. "Commercial Solid Waste" means all types of solid waste generated by stores, offices, restaurants, warehouses, and other nonmanufacturing activities, excluding residential wastes.

2-18- 2.36. "Construction/Demolition Waste" means waste building materials, packaging, and grubbing waste, and rubble resulting from construction, remodeling, repair and demolition operations on houses, commercial and industrial buildings, and other structures and pavements, and other structures 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~~ does not include asbestos waste.

2-27- 2.57. "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- 2.58. "Infectious Medical Waste" means infectious medical waste which is capable of producing an infectious disease. Medical waste is considered capable of producing an infectious disease if it has been, or is likely to have been, contaminated by an organism likely to be pathogenic to healthy humans, if such organism is not routinely and freely available in the community, and such organism has a significant probability of being present in sufficient quantities and with sufficient virulence to transmit disease. For the purposes of this rule, infectious medical waste includes the following materials: with infectious characteristics including animal waste, bulk human blood and blood products, laboratory waste, pathological waste, and sharps.

2-28-1- 2.58.1. "Animal Carcasses, Body Parts, Bedding and Related Waste" means contaminated animal carcasses, body parts, and the bedding of animals that are known to 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, or for any other reason.

2-28-2. 2.58.2. "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. 2.58.3. "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;

-----2-58-4. "Cultures and Stocks of Microorganisms and Biologicals means discarded cultures, stocks, specimens, vaccines and associated items likely to have been contaminated by an infectious agent, discarded etiologic agents, and wastes from the production of biologicals and antibiotics likely to have been contaminated by an infectious agent."

-----2-28-4. 2.58.5. "Pathological Wastes" means human pathological wastes, including tissues, organs, and body parts, and containers of free-flowing or unabsorbed body fluids exclusive of those fixed in formaldehyde or another fixative.

2-28-5. 2.58.6. "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 pharmacies or medical, research, or industrial laboratories, including, but not limited to, and of having been exposed to infectious agents. The term "sharps" includes hypodermic needles, syringes with attached needles, and scalpel blades lancets and broken glassware.

2.58.7. "Isolation Wastes" means wastes generated from the care of a patient who has or is suspected of having any disease listed as Class IV in "Classification of Etiologic Agents on the Basis of Hazard" published by the United States Centers for Disease Control.

2.58.8. "Other Infectious Wastes" includes, but is not limited to any residue or contaminated soil, water, or other debris resulting from the cleanup of a spill of any infectious medical waste, and waste contaminated by or mixed with infectious medical waste.

2-40. 2.90. "Permittee" or "Operator" shall means any person holding or executing a permit or who is otherwise authorized to conduct solid waste activities under the Act.

2-41. 2.91. "Persistent Violation" means any violation of the Act, these regulations this rule, any permit term or condition, or any order of the chief or the director issued pursuant to the Act or these regulations this rule which is identified during two or more consecutive inspections performed by the chief or the director.

2-56. 2.121. "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, solid waste disposal surface impoundments, transfer stations, incinerators, resource recovery facilities, recycling facilities, materials recovery facilities, mixed waste processing facilities, sewage sludge processing facilities, composting facilities and other such facilities not herein specified, but not including land upon which sewage sludge is applied in accordance with WV Code §22-15-20(b). Such facility is deemed to be situated, for purposes of this rule, in the county where the majority of the spatial area of such facility is located: Provided, That a salvage yard, licensed and regulated pursuant to the terms of WV Code §17-23-1 et seq., is not a solid waste facility.

2-42- 2.92. "Person," or "Persons," or "Applicant" means:

2-42-1- 2.92.1. 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- 2.92.2. The State of West Virginia;

2-42-3- 2.92.3. Any governmental agency, including federal facilities;

2-42-4- 2.92.4. Any political subdivision of this State, including county commission, municipal corporation, industry, sanitary district, public service district, drainage district, soil conservation district, or watershed improvement district;

2-42-5- 2.92.5. Any partnership, trust, or estate;

2-42-6- 2.92.6. Any person or individual;

2-42-7- 2.92.7. Any group of persons or individuals acting individually or as a group; or

2-42-8- 2.92.8. Any legal entity whatever.

2.124. "Storage" or "Storage Area" means the interim storage of solid waste, at a permitted solid waste facility on a temporary basis. Any storage that exceeds one hundred eighty (180) days, without the prior written approval of the director, in such a manner, constitutes illegal disposal of such solid waste (i.e., staging areas).

2.126. "Structural Fill" means an engineered/designed and controlled homogeneous fill with a projected spread in lifts not exceeding twelve (12) inches and compacted with proper power equipment. The material must be compacted in horizontal lifts to achieve the required design dry density and in-situ strength.

2.58.6. "Other Infectious Wastes" includes, but is not limited to any residue or contaminated soil, water, or other debris resulting from the cleanup of a spill of any infectious medical waste, and waste contaminated by or mixed with infectious medical waste.

2-39- 2.84. "Open Dump" means any solid waste disposal which does not have a permit under W.Va Code §22-15, 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 or is in violation of state law; or where solid waste is disposed in a manner that does not protect the environment.

2.126. "Storage" or "Storage Area" means the interim storage of solid waste, at a permitted solid waste facility on a temporary basis. Any storage that exceeds one hundred eighty (180) days, without the prior written approval of the director, in such a manner, constitutes illegal disposal of such solid waste (i.e., staging areas).

2.128. "Structural Fill" means an engineered/designed and controlled homogeneous fill with a projected spread in lifts not exceeding twelve (12) inches and compacted with proper power equipment. The material must be compacted in horizontal lifts to achieve the required design dry density and in-situ strength.

2-59- 2.130. "Transfer Station" means a combination of permanent structures, machinery, or devices at a place or facility where solid waste is taken from collection vehicles, often compacted, and prepared for shipment placed in other transportation units for movement to another solid waste management facility. Provided that, when solid waste is collected in a container including rollovers, greenboxes or bins which are temporarily positioned (not more than five days) at a specific location for transport by a transportation unit, such shall not be considered a transfer station. Leachate must be properly managed under either described activity.

2-63- 2.137. "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, forks, brooks, ponds (except farm ponds, industrial settling basins and ponds and water treatment facilities), impounding reservoirs, springs, wells, watercourses, and natural wetlands.

258.12(a)(1)

2-64- 2.138. "Wetlands" means those naturally occurring areas, as defined under 40 CFR 232.2(r) 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.

258.12

3.1.1. Natural Wetlands. A significant adverse impact upon natural wetlands, as defined in section 2 of this rule;

258.12(a)(iii), and (iv)

3.1.2. Endangered or Threatened Species. A significant adverse impact upon, or jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of a

critical habitat of any animal or plant protected under the Endangered Species Act of 1973, and violates any requirement under the Marine Protection, Research and Sanctuaries Act of 1972 for the protection of a marine sanctuary, unless specifically approved by the United States Fish and Wildlife Service;

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

3.1.4. Groundwater. A statistically significant adverse impact upon groundwater quality;

258.27(a)

3.1.5.a.A. Permittees of SWLFs must not: Cause a discharge of pollutants into waters of the state, including natural wetlands, that violates any requirement of the Clean Water Act, as amended or applicable portions of Chapter 22, Article 11, of the Code of West Virginia, including, but not limited to, the National Pollutant Discharge Elimination System (NPDES) requirements, pursuant to Section 402, of the Clean Water Act, or as reflected in Chapter 22, Article 11, of the Code of West Virginia, as amended.

258.27(b)

3.1.5.a.B. Cause the discharge of a non-point source of pollution to waters of the state, including natural wetlands, that violates any requirements of an area-wide or state-wide water quality management plan that has been approved under Section 208 or 319 of the Clean Water Act, or as reflected in Chapter 22, Article 11, of the Code of West Virginia, as amended.

258.12(a)

3.2.2. Location Standards for Natural Wetlands.

No SWLF may be located within three hundred (300) feet of any natural wetlands, unless the permittee can make the following demonstrations to the director (facility drainage or sedimentation control structures are exempt from this distance calculation):

258.12(a)(1)

3.2.2.a. Where applicable under section 404 of the Clean Water Act or applicable wetland laws under Chapter 22, Article 11, or any rules promulgated thereunder, the presumption that a practicable alternative to the proposed landfill is available which does not involve natural wetlands is clearly rebutted:

258.12(a)(3)

3.2.2.c. The SWLF must not cause or contribute to significant degradation of natural wetlands, and the permittee must also demonstrate the integrity of the SWLF and its ability to protect ecological resources by addressing the following factors:

258.12(a)(3)(v)

3.2.2.c.E. The potential effects of catastrophic releases of waste or the leachate thereof, to the natural wetlands and the resulting impacts on the environment; and

258.12(a)(4)

3.2.2.c.G. To the extent required under section 404 of the Clean Water Act or applicable state natural wetlands laws as reflected in Chapter 22, Article 11, of the Code of West Virginia, as amended, steps must have been taken to attempt to achieve no net loss of natural wetlands (as defined by acreage and function) by first avoiding impacts to natural wetlands to the maximum extent practicable as required by section 3.2.2.a of this rule, then minimizing unavoidable impacts to the maximum extent practicable, and finally offsetting remaining unavoidable wetland impacts through all appropriate and practicable compensatory mitigation actions (e.g., restoration of existing degraded natural wetlands or creation of man-made natural wetlands).

3.2.5. Location Standards for Highways and Public Parks.

New SWLFs and lateral expansions must not be located 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 or federal aid secondary, or county 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;

3.2.8. Location Standards for Dwellings.

3.2.8.a. Permittees of new SWLFs, and lateral expansions must not be located within five hundred (500) feet of a dwelling that is, or will be occupied, at the time of initial facility siting, unless written permission is received from the owner of the dwelling;

3.2.9. Location Standards for Wells.

3.2.9.a. Permittees of new SWLFs, existing SWLFs, and lateral expansions cannot be located within twelve hundred (1,200) feet of any public or private water supply well in existence at the time of initial facility siting;

258.15)

3.2.10. Location Standards for Unstable Areas.

258.15)(a)(Part 1)

3.2.10.a. Permittees of new SWLFs, existing SWLFs, and lateral expansions cannot be located within one thousand (1,000) feet of any area considered by the director to be unstable unmitigable due to extreme geologic and hydrologic conditions (e.g., immaturely to maturely developed karst terrain, solution cavities), unless the permittee can demonstrate that engineering measures have been incorporated into the SWLF's design to ensure that the integrity of the structural components of the SWLF will not be disrupted, and

3.2.11.a. Permittees of new SWLFs, and lateral expansions cannot be located above deep- underground mine workings or within the critical angle of draw of such workings, unless otherwise approved by the director in writing.

3.2.12.a. Permittees of new SWLFs, and lateral expansions cannot be located within previously surface mined areas, unless otherwise approved by the director in writing.

3.2.14.a. All permittees must ensure that violations of the applicable requirements developed under a State Implementation Plan (SIP) promulgated pursuant to section 110 of the Clean Air Act, as amended or as reflected in the rules promulgated by the Office of Air Quality, do not occur.

3.3.1.g. Sewage Sludge Processing Facility;

3.3.1.h. Yard Waste Composting Facility;

3.3.1.i. Mixed Waste Processing Facility; and/or

3.4.1.b.A. A certification of publication of the legal advertisement required under section 3.4.1.a of these regulations this rule from the a qualified newspaper, as defined in WV Code §59-3-1 in which such advertisement was published;

3.6.2. A fee equal to ten percent (10%) of the application fee listed in Appendix III of these regulations IV to this rule must accompany an permit application for any renewal, modification, transfer or other permitting functions refiled or that requires additional information due to substantial administrative or technical incompleteness.

3.7.7. Quality Assurance and Quality Control Plans. The application shall must include quality assurance and quality control (Q.A./Q.C.) plans to be implemented to assure conformity of the solid waste facility construction, environmental monitoring, and monitoring well development, and provisions for monitoring within applicable standards.

3.7.12. Facility Expansion. In an application for an expansion of an existing facility, the effectiveness of the existing design and operation shall must be discussed. An evaluation of relevant monitoring data and a discussion of all plan modifications and remedial actions shall must 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 must also be noted and discussed.

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

3.8.1.1.G. Underground and or surface mines (for underground mines, also indicate the subsidence angle of draw, as applicable);

258.51(a)

3.8.4. Hydrologic Information. The permittee must install a groundwater monitoring system that consists of a sufficient number of wells (minimum of four {4}) monitoring wells must shall be drilled to intersect be installed at appropriate locations and depths, to yield groundwater samples from the uppermost significant aquifer or the uppermost aquifer at all landfill sites. Monitoring wells -- one (1) upgradient and three (3) downgradient -- shall must 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 must be plugged from the bottom of the hole to the uppermost significant aquifer with a sodium bentonite grout, then properly screened and cased.

258.54(a)

3.8.4.e. Groundwater Quality Analyses. The method of sampling, date and results of the analyses of the water sampled from each groundwater monitoring well at the site shall must be provided in the application. All sampling procedures must be included in the application and approved by the chief director. Analyses for the constituents listed in Appendix I, the facility permit, or an order by the director 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, free 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(s) specified by the chief director in writing must be conducted.

3.9.1.b. Land Use Zoning. The application shall must provide a review of 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 natural wetlands are designated.

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, existing 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.c.A. The physical environment including the regional and local topography, geology, surface water drainage features, hydrogeologic conditions, air, natural 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 natural wetlands;

3.12.1. General.

The application shall must 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 natural wetlands.

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 or within surface waters or natural wetlands. It is the responsibility of the applicant or property owner to obtain any such permits.

3.13.1.a. The chief director 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 or other form of financial assurance, as applicable, in accordance with these regulations this rule and the bond or other form of financial assurance is approved by the director.

258.70(a)

3.13.1.d.A. The requirements of this section apply to permittees of all SWLFs, except as provided in section 3.13.1. The requirements of this section are effective on the date specified in 40 CFR Part 258 Section 70(b), as amended. If a state or federal government entity should become a permittee in the State of West Virginia, they will be exempt from the requirements of this section, since their debts and liabilities are the debts and liabilities of the state or the United States.

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 an applicant's unqualified obligation to reimburse the issuer for monies paid under the letter of credit.

3.14.6.b. 3-14-9. All signatures shall must 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 must be typed, stamped, or legibly printed beneath each signature. all signatures must be notarized.

3.14.8.d.A.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

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

new municipal or commercial solid waste facility utilizing incineration technology for the purpose of solid waste incineration is prohibited, per Chapter 22, Article 15, section 19 of the Code of WV, with the single exception of pilot projects.

3.16.4.c.A. Comply with the applicable prohibitions and location standards listed under section 3.1 of this rule;

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 this rule. A landowner using construction/demolition waste material to improve the grade of the 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 natural 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.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.

3.18. Permit Modification, Reissuance, Suspension, and Revocation.

3.18.1. Actions by the Chief Director.

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

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

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

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

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

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

3.18.2.b.N. A significant change in the WV Code "Solid Waste Management Act", this rule or the counterpart federal regulations that results in a similar modification, as determined by the director.

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

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.

4.5.4.b.A.(a) Soil mottling shall indicate the presence of a ~~The location of the seasonal high groundwater table may be inferred by such indicators as soil mottling, soil greying and iron and manganese concentrations.~~

~~4.5.4.d.A.(c)(B)~~ The distance between pipes in the piping system must may not exceed one hundred (100) feet on center unless otherwise approved by the director;

4.5.4.d.A.(e)(C) The pipes shall must be installed nearly perpendicular to the slope with continuous positive slope;

4.5.4.e.A.(d) Be free of particles greater than two (2) inches in any dimension, and must also be free of debris, rock, plant materials, and other foreign materials;

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, unless otherwise approved by the director 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.f.A.(g)(B) The distance between pipes in the piping system must may not exceed one hundred (100) feet on center unless otherwise approved by the director;

4.5.4.f.A.(g)(C) The pipes shall must be installed nearly perpendicular to the slope with continuous positive slope;

4.5.5.a.A. Subgrade Preparation

4.5.5.a.A.(a) ~~4-5-5-a-A-~~ Site preparation, including clearing, and grubbing;

4.5.5.a.A.(b) ~~4-5-5-a-B-~~ Excavation and contouring of the subgrade to required elevations;

4.5.5.a.B. Subbase Preparation

4.5.5.b.c. Inspections of locations where inlet/outlet structures or penetration that penetrate through the liner to insure ensure the protection of, and the compatibility of those structures with respect to the liner system;

258.25

4.6.1.a.E. Permittees of all SWLFs Access to the facility must be restricted must control public access and prevent unauthorized vehicular traffic through the use of artificial barriers, including fencing, natural barriers, both, or other methods approved in writing by the chief director, as appropriate to protect human health and the environment;

4.6.1.a.F.(b)(A) 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 division authorities if a regulated hazardous waste is found at the facility unless the permittee takes other steps approved by the director in writing to ensure that incoming loads do not contain regulated hazardous wastes or PCB wastes;

258.25

4.6.1.a.G. Effective means must be taken to limit and control public access and prevent illegal dumping of wastes at the active disposal area to minimize exposure of the public to hazards;

258.24(b)

4.6.1.a.Q.(a) All open burning of solid waste, except for the infrequent burning of land clearing debris, diseased trees, or debris from emergency clean-up operations, except as approved by the Office of Air Quality is prohibited at all SWLFs.

4.6.2.a.B. Daily Cell Height. Daily cell height shall must not exceed eight (8) feet in the vertical dimension except in the middle area of the daily cell to divert stormwater. The vertical dimension of the middle area of the daily cell must not exceed eleven (11) feet.

4.7.2.c. Unstabilized sewage sludge or sludges that have not been dewatered, or contain less than 20% solids by weight;

4.8.1.d. Except as otherwise provided in sections 4.8.1.e through 4.8.1.f of these regulations this rule, leachate must be collected, treated, and then directly discharged into a POTW or other treatment facility permitted by the division Department. In addition, the operator must operate a leachate treatment facility as provided in section 4.8.1.g of these regulations this rule within three (3) years following the detection of leachate in the collection or handling system, unless otherwise approved by the director. 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.

4.8.4.b. On a quarterly basis, the chemical composition of the leachate flowing into the leachate treatment system shall must be determined through the analysis of the leachate for the following parameters listed in

Appendix I, or as specified by the facility permit, or order of the director.
+ 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 must be conducted.

4.11.2.b. At a minimum, a Phase I detection monitoring program for commercial solid waste facilities shall include the following monitoring parameters listed in Appendix I, or as specified in the facility permit, or order of the director.+ 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.

258.54(c) (Part 1)

4.11.2.d. Unless otherwise directed by the director, if the permittee determines pursuant to this rule, that there is a statistically significant increase over background for one or more any of the constituents listed in Appendix I to this rule, or in the alternative list approved in accordance with section 4.11.2.b.B., Phase I parameter at the boundary specified under sections 3.8.4.a.J, the permittee must:

258.54(c)(1) (Part 1)

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. Within 14 days of this finding, place a notice in the operating record indicating which constituents have shown statistically significant changes from background levels, and notify the director that this notice was placed in the operating record;

4.11.2.d.B. Within a thirty-day period, repeat the sampling of the groundwater in all appropriate monitoring wells as approved by the director, and determine the concentration of all constituents designated under section 4.11.2.b of this rule 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

258.54(c)(2)

4.11.2.d.D. If the repeat sampling confirms that a statistically significant increase over background levels has occurred, establish a Phase II assessment monitoring program meeting the requirements of section 4.11.3 of these regulations within ninety 90 thirty (30) days of confirmation, except as provided for in section 4.11.2.e.

258.58(g)

4.11.7.g. When, upon completion of the certification, the director determines that the corrective action remedy has been completed in accordance with the requirements under section 4.11.7.e, the permittee must be released from the requirements for financial assurance for corrective action under section 3.7.10.a.

4.12.1. Daily Logs. Accurate, complete and true 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:

4.12.2.b.A. The ground and surfacewater sampling analysis monitoring reports and accompanying report of determining whether there was 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 and Phase II monitoring programs, as required in section 4.11 of these regulations this rule shall must be submitted with the monthly solid waste reports due before the twentieth fifteenth day of April, July, October November, and January.

4.12.2.d. Reporting and Recordkeeping.

A copy of ~~this~~ the monthly tonnage and the monitoring reports shall must 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 all of these reports required by this section must be kept on file at the solid waste facility.

4.12.3. Annual Operational Report. An annual solid waste facility operational report must is to be submitted for the current previous calendar year to the chief director before January 31 of the following year.

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 must be fenced, or a waiver from the director must be obtained. Provided; That a natural barrier exists on the site that adequately deters access by the general public. The fence shall must be of the six (6) feet high chain link type with three (3) strands of barbed wire on top. The fence shall must completely encompass encircle the disposal area and internal buffer zone and maintain access control through locked gates.

4.13.2.c.G. A plat of the area, surveyed and clearly marked as containing asbestos waste shall must be provided to the ~~chief~~ or the director upon request and shall must be contained and specifically noted in the deed notation as required by section 6.2.6 of these regulations this rule.

5.1.2.a.B.(a) A significant adverse impact upon natural 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

5.5.1.b. The following requirements of section 4 of this rule these regulations which may be waived or modified by the director ~~chief~~ for Class F 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 this rule these regulations.

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 HDPE 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.

5.6.1. Green Boxes, Bins, roll-offs 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.a.~~ ~~5.6.1.b.~~ Each person who causes to be placed a green box, bin, roll-off or dumpster at places other than approved solid waste facilities shall be are responsible for maintenance, prevention of litter, and open dump control, and leachate management at the site of the dumpster.

6.1.5.a.A.(a) Gas Management Layer. A one (1) foot layer of a material with a high hydraulic conductivity or a geocomposite drainage layer having a permeability of at least 1×10^{-3} cm/sec may be used in lieu of the one (1) foot drainage layer shall must be placed directly on the intermediate cover refuse mass to facilitate landfill gas control;

6.1.5.a.A.(c) Drainage Layer. A one (1) foot drainage layer that is more permeable than 1×10^{-3} cm/s or a geocomposite drainage layer haveing a permeability of at least 1×10^{-3} cm/sec may be used in lieu of the one (1) foot drainage layer, and capable of transmitting flow and preventing erosion ~~shall~~ must be placed over the cap. and

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 earthen material or a layer of synthetic material acceptable to the chief director.

In addition to the above, the following parameters should be analyzed:

Temperature, hardness, total dissolved solids, total suspended solids, (BOD-5day), flouride, nitrite, hexavalent chromium and calcium.

REASONS FOR PROPOSED AMENDMENTS

The following amendments were made to the rule in response to the public comments received and also the public hearing.

General comments were with reference to: dissolved metals, regulation of coal combustion by-products (Class F) facilities, "significant," throughout the proposed rule.

Additionally, specific comments were received and amendments were made to: sections 1.1, 2.8, 2.28, 2.33, 2.36, 2.1, 2.46, 2.74, 2.76, 2.56, 2.57, 2.57.3, 2.83, 2.89, 2.90, 2.93, 2.104, 2.121, 2.124, 3.2., 3.2., 3.2.4.a., 3.2.7.a., 3.2.10.a., 3.2.2.b., 3.1., 3.2.2, 3.2.3, 3.2.5, 3.2.8.a, 3.2.9.a, 3.2., 3.2.10.a, 3.2.14.a, 3.4.1.b.A., 3.5.3., 3.15. 3.21, 3.5.2, 3.5.4, 3.6.1, 3.6.2, 3.7.6.f., 3.7.7., 3.8.1.1., 3.8.1.1.V., 3.8.1.1.G., 3.8.3., 3.8.4., 3.10.2., 3.8.4.a.G., 3.8.4.a.I., 3.8.4.a., 3.8.4.a.E, 3.8.4.a.G, 3.8.4.e., 4.8.4.b., 4.11.2.b., 4.11.3.a., 2.29, 2.90., 2.124., 3.2.2.c.G., 3.7.6.g., 3.8.4., 3.13.1.c, 3.13.4., 3.13.4.d, 3.13.7.a.A., 3.13.14.a.A.(a), 3.14.2, 3.14.5.c.A.(c), 3.16.2.a.A., 3.16.3.a.C., 3.16.5.d.B., 3.18.1.a., 3.18.1.b.B., 3.27.2., 4.1., 4.4., 4.4., 4.5.2.a.B, 4.5.2.b.A., 4.5.5.a.A.(a), 4.5.5.a.A.(b), 4.5.5.a.B(b), 4.5.5.b.C., 4.5.5.b.I., 4.6.2.c., 4.7.2.f.B.(e), 4.8.1.d., 4.8.1.g.B., 4.11.1.e.G., 4.11.1.e.F., 4.11.1.e.G., 4.11.1.i.G., 4.11.2.c.A., 4.11.2.c.B., 4.11.2.c.D., 4.11.2.d. 4.11.2.d.A., 4.11.3.d.A., 4.11.3.d.B.(a), 4.11.5.c.D., 4.11.6.c.A., 4.11.6.c.C., 4.11.6.c.e., 4.11.7.g., 4.12.3. 5.1.3.a.P., 5.1.4.a.A., 5.5.2.a.A., 5.5.2.b.A., 5.4.2.e., 5.5.2.a.H., 5.5.2.b.A., 6.1.5.a., 6.1.5.a.G., 6.1.5.c., 7.1.5., 3.13.1.d., 3.16.2., 3.16.2.a., 3.18.2.b.N., 4.5.2.d.B., 4.5.2.c.A(i)(F), 4.5.4.a.B.(c), 4.5.4.b.A.(a), 4.5.4.d.A.(e)(C), 4.5.4.e.A.(d), 4.5.e.B., 4.5.5.a.A., 4.5.5.a., 4.6.1.a.F., 4.6.1.a.E., 4.6.1.a.G., 4.6.1.a.G., 4.8.3.a.C., 4.8.4.b., 4.11.1.b.A., 4.11.1.e.F., 4.11.1.e.G., 4.11.1.d., 4.11.1.i.C., 4.11.1.i.D., 4.11.1.i.E, 4.11.2.b., 4.11.2.d.D., 4.11.6.e., 4.12.2.b.A., 5.5.1., 6.1.1., 5.5.2.a.A., 5.5.2.b.C., 5.6.1, 6.1.5.a.A., 6.1.8., Appendix III, 2.57, 4.7.2.f., 2.126., 2.112, 2.128, 3.5.4., 3.6.2., 3.7.10.a., 3.18.2.b., 3.18.2.b.A., C., D., E., and L., 4.5.4.d.A.(e)(B), (g)(B) and (g)(C), 6.1.5.a.A.(a), (c), and (C), 2.13., 2.13., 3.3.1., 3.16.4.c.A., 3.20., 4.6.1.a.Q.(a), 4.12.1., 4.12.2.d. and 4.6.2.a.B.

(7) U.S. EPA, OSWER, Report to Congress, Methods to Manage and Control Plastic Wastes. EPA/530-SW-89-051, February 1990.

(8) U.S. EPA, OSW, Summary of Data on Municipal Solid Waste Landfill Leachate Characteristics—Criteria for Municipal Solid Waste Landfills (40 CFR part 258)—Subtitle D of the Resource Conservation and Recovery Act (RCRA), July 1988. (draft). EPA/530-SW-88-038, PB88-242 441.

(9) U.S. EPA, OSWER, Characterization of Municipal Solid Waste in the United States: 1990 Update. EPA/530-SW-90-042, June 1990.

(10) U.S. GAO, Nonhazardous Waste: Environmental Safeguards for Industrial Facilities Need to be Developed. GAO/RCED-90-92, April 1990.

XI. List of Subjects

40 CFR Part 257

Reporting and recordkeeping requirements, Waste disposal.

40 CFR Part 258

Corrective action, Household hazardous waste, Liner requirements, Liquids in landfills, Reporting and recordkeeping requirements, Security measures, Small quantity generators, Waste disposal, Water pollution control.

Dated: September 11, 1991.

William K. Reilly,
Administrator.

For reasons set out in the preamble, title 40 of the Code of Federal Regulations is amended as set forth below:

PART 257—CRITERIA FOR CLASSIFICATION OF SOLID WASTE DISPOSAL FACILITIES AND PRACTICES

1. The authority citation for part 257 is revised to read as follows:

Authority: 42 U.S.C. 6907(a)(3), 6944(a) and 6949a(c), 33 U.S.C. 1345 (d) and (e).

2. Section 257.1 is amended by adding paragraph (c)(10) to read as follows:

§ 257.1 Scope and purpose.

(c) * * *

(10) The criteria of this part do not apply to municipal solid waste landfill units, which are subject to the revised criteria contained in part 258 of this chapter.

3. Section 257.2 is amended by revising the definition for "facility" and adding definitions in alphabetical order for "land application unit," "landfill," "municipal solid waste landfill unit," "surface impoundment," and "waste pile" to read as follows:

§ 257.2 Definitions.

Facility means all contiguous land and structures, other appurtenances,

and improvements on the land used for the disposal of solid waste.

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

Landfill means an area of land or an excavation in which wastes are placed for permanent disposal, and that is not a land application unit, surface impoundment, injection well, or waste pile.

Municipal solid waste landfill (MSWLF) unit means a discrete area of land or an excavation that receives household waste, and that is not a land application unit, surface impoundment, injection well, or waste pile, as those terms are defined in this section. A MSWLF unit also may receive other types of RCRA Subtitle D wastes, such as commercial solid waste, nonhazardous sludge, and industrial solid waste. Such a landfill may be publicly or privately owned. An MSWLF unit may be a new MSWLF unit, an existing MSWLF unit or a lateral expansion.

Surface impoundment or impoundment means a facility or part of a facility that is a natural topographic depression, human-made excavation, or diked area formed primarily of earthen materials (although it may be lined with human-made materials), that is designed to hold an accumulation of liquid wastes or wastes containing free liquids and that is not an injection well. Examples of surface impoundments are holding storage, settling, and aeration pits, ponds, and lagoons.

Waste pile or pile means any noncontainerized accumulation of solid, nonflowing waste that is used for treatment or storage.

4. In 40 CFR part 257, Appendix I is revised to read as follows:

Appendix I to 40 CFR Part 257—Maximum Contaminant Levels (MCLs)

MAXIMUM CONTAMINANT LEVELS (MCLs) PROMULGATED UNDER THE SAFE DRINKING WATER ACT

Chemical	CAS No.	MCL (mg/l)
Arsenic.....	7440-38-2	0.05
Barium.....	7440-39-3	1.0
Benzene.....	71-34-2	0.005
Cadmium.....	7440-43-9	0.01
Carbon tetrachloride.....	58-23-5	0.005

MAXIMUM CONTAMINANT LEVELS (MCLs) PROMULGATED UNDER THE SAFE DRINKING WATER ACT—Continued

Chemical	CAS No.	MCL (mg/l)
Chromium (hexavalent).....	7440-47-3	0.05
2,4-Dichlorophenoxy acetic acid.....	84-75-7	0.1
1,4-Dichlorobenzene.....	106-46-7	0.075
1,2-Dichloroethane.....	107-06-2	0.005
1,1-Dichloroethylene.....	75-35-4	0.007
Endrin.....	75-20-8	0.0002
Fluoride.....	7	4.0
Lindane.....	58-89-9	0.004
Lead.....	7439-92-1	0.05
Mercury.....	7439-97-8	0.002
Methoxychlor.....	72-43-5	0.1
Nitrate.....		10.0
Selenium.....	7782-49-2	0.01
Silver.....	7440-22-4	0.05
Toxaphene.....	8001-35-2	0.005
1,1,1-Trichloroethane.....	71-65-8	0.2
Trichloroethylene.....	79-01-6	0.005
2,4,5-Trichlorophenoxy acetic acid.....	83-76-5	0.01
Vinyl chloride.....	75-01-4	0.002

5. A new part 258 is added to read as follows:

PART 258—CRITERIA FOR MUNICIPAL SOLID WASTE LANDFILLS

Subpart A—General

Sec.

- 258.1 Purpose, scope, and applicability.
- 258.2 Definitions.
- 258.3 Consideration of other Federal laws.
- 258.4-258.9 [Reserved].

Subpart B—Location Restrictions

Sec.

- 258.10 Airport safety.
- 258.11 Floodplains.
- 258.12 Wetlands.
- 258.13 Fault areas.
- 258.14 Seismic impact zones.
- 258.15 Unstable areas.
- 258.16 Closure of existing municipal solid waste landfill units.
- 258.17-258.19 [Reserved].

Subpart C—Operating Criteria

Sec.

- 258.20 Procedures for excluding the receipt of hazardous waste.
- 258.21 Cover material requirements.
- 258.22 Disease vector control.
- 258.23 Explosive gases control.
- 258.24 Air criteria.
- 258.25 Access requirements.
- 258.26 Run-on/run-off control systems.
- 258.27 Surface water requirements.
- 258.28 Liquids restrictions.
- 258.29 Recordkeeping requirements.
- 258.30-258.39 [Reserved].

Subpart D—Design Criteria

Sec.

- 258.40 Design criteria.
- 258.41-258.49 [Reserved].

Solid waste

Subpart E—Ground-Water Monitoring and Corrective Action**Sec.**

- 258.50 Applicability.
- 258.51 Ground-water monitoring systems.
- 258.52 [Reserved].
- 258.53 Ground-water sampling and analysis requirements.
- 258.54 Detection monitoring program.
- 258.55 Assessment monitoring program.
- 258.56 Assessment of corrective measures.
- 258.57 Selection of remedy.
- 258.58 Implementation of the corrective action program.
- 258.59 [Reserved].

Subpart F—Closure and Post-closure Care**Sec.**

- 258.60 Closure criteria.
- 258.61 Post-closure care requirements.
- 258.62–258.69 [Reserved].

Subpart G—Financial Assurance Criteria

- 258.70 Applicability and effective date.
- 258.71 Financial assurance for closure.
- 258.72 Financial assurance for post-closure care.
- 258.73 Financial assurance for corrective action.
- 258.74 Allowable mechanisms.

Appendix I to Part 258—Constituents for Detection Monitoring

Appendix II to Part 258—List of Hazardous and Organic Constituents

Authority: 42 U.S.C. 6907(a)(3), 6944(a) and 6949(c); 33 U.S.C. 1345 (d) and (e).

Subpart A—General**§ 258.1 Purpose, scope, and applicability.**

(a) The purpose of this part is to establish minimum national criteria under the Resource Conservation and Recovery Act (RCRA or the Act), as amended, for all municipal solid waste landfill (MSWLF) units and under the Clean Water Act, as amended, for municipal solid waste landfills that are used to dispose of sewage sludge. These minimum national criteria ensure the protection of human health and the environment.

(b) These Criteria apply to owners and operators of new MSWLF units, existing MSWLF units, and lateral expansions, except as otherwise specifically provided in this part; all other solid waste disposal facilities and practices that are not regulated under Subtitle C of RCRA are subject to the criteria contained in part 257 of this chapter.

(c) These Criteria do not apply to municipal solid waste landfill units that do not receive waste after October 9, 1991.

(d) MSWLF units that receive waste after October 9, 1991 but stop receiving waste before October 9, 1993 are exempt from all the requirements of this part 258, except the final cover requirement specified in § 258.60(a). The final cover

must be installed within six months of last receipt of wastes. Owners or operators of MSWLF units described in this paragraph that fail to complete cover installation within this six month period will be subject to all the requirements of this part 258, unless otherwise specified.

(e) All MSWLF units that receive waste on or after October 9, 1993 must comply with all requirements of this part 258 unless otherwise specified.

(f)(1) Owners or operators of new MSWLF units, existing MSWLF units, and lateral expansions that dispose of less than twenty (20) tons of municipal solid waste daily, based on an annual average are exempt from subparts D and E of this part, so long as there is no evidence of existing ground-water contamination from the MSWLF unit, and the MSWLF unit serves:

- (i) A community that experiences an annual interruption of at least three consecutive months of surface transportation that prevents access to a regional waste management facility, or
- (ii) A community that has no practicable waste management alternative and the landfill unit is located in an area that annually receives less than or equal to 25 inches of precipitation.

(2) Owners or operators of new MSWLF units, existing MSWLF units, and lateral expansions that meet the criteria in paragraph (f)(1)(i) or (f)(1)(ii) of this section must place in the operating record information demonstrating this.

(3) If the owner or operator of a new MSWLF unit, existing MSWLF unit, or lateral expansion has knowledge of ground-water contamination resulting from the unit that has asserted the exemption in paragraph (f)(1)(i) or (f)(1)(ii) of this section, the owner or operator must notify the State Director of such contamination and, thereafter, comply with subparts D and E of this part.

(g) Municipal solid waste landfill units failing to satisfy these criteria are considered open dumps for purposes of State solid waste management planning under RCRA.

(h) Municipal solid waste landfill units failing to satisfy these criteria constitute open dumps, which are prohibited under section 4005 of RCRA.

(i) Municipal solid waste landfill units containing sewage sludge and failing to satisfy these Criteria violate sections 309 and 405(e) of the Clean Water Act.

(j) The effective date of this part is October 9, 1993, except subpart G of this part 258 is effective April 9, 1994.

§ 258.2 Definitions.

Unless otherwise noted, all terms contained in this part are defined by their plain meaning. This section contains definitions for terms that appear throughout this part; additional definitions appear in the specific sections to which they apply.

Active life means the period of operation beginning with the initial receipt of solid waste and ending at completion of closure activities in accordance with § 258.60 of this part.

Active portion means that part of a facility or unit that has received or is receiving wastes and that has not been closed in accordance with § 258.60 of this part.

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

Commercial solid waste means all types of solid waste generated by stores, offices, restaurants, warehouses, and other nonmanufacturing activities, excluding residential and industrial wastes.

Director of an approved State means the chief administrative officer of a State agency responsible for implementing the State municipal solid waste permit program or other system of prior approval that is deemed to be adequate by EPA under regulations published pursuant to sections 2002 and 4005 of RCRA.

Existing MSWLF unit means any municipal solid waste landfill unit that is receiving solid waste as of the effective date of this part (October 9, 1993). Waste placement in existing units must be consistent with past operating practices or modified practices to ensure good management.

Facility means all contiguous land and structures, other appurtenances, and improvements on the land used for the disposal of solid waste.

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

Household waste means any solid waste (including garbage, trash, and sanitary waste in septic tanks) derived from households (including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas).

Industrial solid waste means solid waste generated by manufacturing or industrial processes that is not a hazardous waste regulated under subtitle C of RCRA. Such waste may include, but is not limited to, waste resulting from the following manufacturing processes: Electric power

generation; fertilizer/agricultural chemicals; food and related products/by-products; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing/foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing; transportation equipment; and water treatment. This term does not include mining waste or oil and gas waste.

Lateral expansion means a horizontal expansion of the waste boundaries of an existing MSWLF unit.

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

Municipal solid waste landfill unit means a discrete area of land or an excavation that receives household waste, and that is not a land application unit, surface impoundment, injection well, or waste pile, as those terms are defined under § 257.2. A MSWLF unit also may receive other types of RCRA subtitle D wastes, such as commercial solid waste, nonhazardous sludge, small quantity generator waste and industrial solid waste. Such a landfill may be publicly or privately owned. A MSWLF unit may be a new MSWLF unit, an existing MSWLF unit or a lateral expansion.

New MSWLF unit means any municipal solid waste landfill unit that has not received waste prior to the effective date of this part (October 9, 1993).

Open burning means the combustion of solid waste without:

- (1) Control of combustion air to maintain adequate temperature for efficient combustion,
- (2) Containment of the combustion reaction in an enclosed device to provide sufficient residence time and mixing for complete combustion, and
- (3) Control of the emission of the combustion products.

Operator means the person(s) responsible for the overall operation of a facility or part of a facility.

Owner means the person(s) who owns a facility or part of a facility.

Run-off means any rainwater, leachate, or other liquid that drains over land from any part of a facility.

Run-on means any rainwater, leachate, or other liquid that drains over land onto any part of a facility.

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

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

Solid waste means any garbage, or refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved materials in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permit under 33 U.S.C. 1342, or source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 923).

State means any of the several States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands.

State Director means the chief administrative officer of the State agency responsible for implementing the State municipal solid waste permit program or other system of prior approval.

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

Waste management unit boundary means a vertical surface located at the hydraulically downgradient limit of the unit. This vertical surface extends down into the uppermost aquifer.

§ 258.3 Consideration of other Federal laws.

The owner or operator of a municipal solid waste landfill unit must comply with any other applicable Federal rules, laws, regulations, or other requirements.

§§ 258.4-258.9 [Reserved]

Subpart B—Location Restrictions

§ 258.10 Airport safety.

(a) Owners or operators of new MSWLF units, existing MSWLF units, and lateral expansions that are located within 10,000 feet (3,048 meters) of any airport runway end used by turbojet aircraft or within 5,000 feet (1,524 meters) of any airport runway end used

by only piston-type aircraft must demonstrate that the units are designed and operated so that the MSWLF unit does not pose a bird hazard to aircraft.

(b) Owners or operators proposing to site new MSWLF units and lateral expansions within a five-mile radius of any airport runway end used by turbojet or piston-type aircraft must notify the affected airport and the Federal Aviation Administration (FAA).

(c) The owner or operator must place the demonstration in paragraph (a) of this section in the operating record and notify the State Director that it has been placed in the operating record.

(d) For purposes of this section:

(1) *Airport* means public-use airport open to the public without prior permission and without restrictions within the physical capacities of available facilities.

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

§ 258.11 Floodplains.

(a) Owners or operators of new MSWLF units, existing MSWLF units, and lateral expansions located in 100-year floodplains must demonstrate that the unit will not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste so as to pose a hazard to human health and the environment. The owner or operator must place the demonstration in the operating record and notify the State Director that it has been placed in the operating record.

(b) For purposes of this section:

(1) *Floodplain* means the lowland and relatively flat areas adjoining inland and coastal waters, including flood-prone areas of offshore islands, that are inundated by the 100-year flood.

(2) *100-year flood* means a flood that has a 1-percent or greater chance of recurring in any given year or a flood of a magnitude equalled or exceeded once in 100 years on the average over a significantly long period.

(3) *Washout* means the carrying away of solid waste by waters of the base flood.

§ 258.12 Wetlands.

(a) New MSWLF units and lateral expansions shall not be located in wetlands, unless the owner or operator can make the following demonstrations to the Director of an approved State:

(1) Where applicable under section 404 of the Clean Water Act or applicable State wetlands laws, the presumption that practicable alternative to the

proposed landfill is available which does not involve wetlands is clearly rebutted:

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

(i) Cause or contribute to violations of any applicable State water quality standard.

(ii) Violate any applicable toxic effluent standard or prohibition under Section 307 of the Clean Water Act.

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

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

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

(i) Erosion, stability, and migration potential of native wetland soils, muds and deposits used to support the MSWLF unit;

(ii) Erosion, stability, and migration potential of dredged and fill materials used to support the MSWLF unit;

(iii) The volume and chemical nature of the waste managed in the MSWLF unit;

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

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

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

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

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

(b) For purposes of this section, *wetlands* means those areas that are defined in 40 CFR 232.2(r).

§ 258.13 Fault areas.

(a) New MSWLF units and lateral expansions shall not be located within 200 feet (60 meters) of a fault that has had displacement in Holocene time unless the owner or operator demonstrates to the Director of an approved State that an alternative setback distance of less than 200 feet (60 meters) will prevent damage to the structural integrity of the MSWLF unit and will be protective of human health and the environment.

(b) For the purposes of this section:

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

(2) *Displacement* means the relative movement of any two sides of a fault measured in any direction.

(3) *Holocene* means the most recent epoch of the Quaternary period, extending from the end of the Pleistocene Epoch to the present.

§ 258.14 Seismic impact zones.

(a) New MSWLF units and lateral expansions shall not be located in seismic impact zones, unless the owner or operator demonstrates to the Director of an approved State/Tribe that all containment structures, including liners, leachate collection systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site. The owner or operator must place the demonstration in the operating record and notify the State Director that it has been placed in the operating record.

(b) For the purposes of this section:

(1) *Seismic impact zone* means an area with a ten percent or greater probability that the maximum horizontal acceleration in lithified earth material, expressed as a percentage of the earth's gravitational pull paragraph (g) of this section, will exceed 0.10g in 250 years.

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

(3) *Lithified earth material* means all rock, including all naturally occurring and naturally formed aggregates or masses of minerals or small particles of older rock that formed by crystallization

of magma or by induration of loose sediments. This term does not include man-made materials, such as fill, concrete, and asphalt, or unconsolidated earth materials, soil, or regolith lying at or near the earth surface.

§ 258.15 Unstable areas.

(a) Owners or operators of new MSWLF units, existing MSWLF units, and lateral expansions located in an unstable area must demonstrate that engineering measures have been incorporated into the MSWLF unit's design to ensure that the integrity of the structural components of the MSWLF unit will not be disrupted. The owner or operator must place the demonstration in the operating record and notify the State Director that it has been placed in the operating record. The owner or operator must consider the following factors, at a minimum, when determining whether an area is unstable:

(1) On-site or local soil conditions that may result in significant differential settling;

(2) On-site or local geologic or geomorphologic features; and

(3) On-site or local human-made features or events (both surface and subsurface).

(b) For purposes of this section:

(1) *Unstable area* means a location that is susceptible to natural or human-induced events or forces capable of impairing the integrity of some or all of the landfill structural components responsible for preventing releases from a landfill. Unstable areas can include poor foundation conditions, areas susceptible to mass movements, and Karst terranes.

(2) *Structural components* means liners, leachate collection systems, final covers, run-on/run-off systems, and any other component used in the construction and operation of the MSWLF that is necessary for protection of human health and the environment.

(3) *Poor foundation conditions* means those areas where features exist which indicate that a natural or man-induced event may result in inadequate foundation support for the structural components of an MSWLF unit.

(4) *Areas susceptible to mass movement* means those areas of influence (i.e., areas characterized as having an active or substantial possibility of mass movement) where the movement of earth material at, beneath, or adjacent to the MSWLF unit, because of natural or man-induced events, results in the downslope transport of soil and rock material by means of gravitational influence. Areas

of mass movement include, but are not limited to, landslides, avalanches, debris slides and flows, soil fluctuation, block sliding, and rock fall.

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

§ 258.18 Closure of existing municipal solid waste landfill units.

(a) Existing MSWLF units that cannot make the demonstration specified in § 258.10(a), pertaining to airports, § 258.11(a), pertaining to floodplains, or § 258.15(a), pertaining to unstable areas, must close by October 9, 1996, in accordance with § 258.80 of this part and conduct post-closure activities in accordance with § 258.81 of this part.

(b) The deadline for closure required by paragraph (a) of this section may be extended up to two years if the owner or operator demonstrates to the Director of an approved State that:

- (1) There is no available alternative disposal capacity;
- (2) There is no immediate threat to human health and the environment.

Note to Subpart B: Owners or operators of MSWLFs should be aware that a State in which their landfill is located or is to be located, may have adopted a state wellhead protection program in accordance with section 1423 of the Safe Drinking Water Act. Such state wellhead protection programs may impose additional requirements on owners or operators of MSWLFs than those set forth in this part.

§ 258.17-258.19 [Reserved].

Subpart C—Operating Criteria

§ 258.20 Procedures for excluding the receipt of hazardous waste.

(a) Owners or operators of all MSWLF units must implement a program at the facility for detecting and preventing the disposal of regulated hazardous wastes as defined in part 261 of this chapter and polychlorinated biphenyls (PCB) wastes as defined in part 761 of this chapter. This program must include, at a minimum:

- (1) Random inspections of incoming loads unless the owner or operator takes other steps to ensure that incoming loads do not contain regulated hazardous wastes or PCB wastes;
- (2) Records of any inspections;
- (3) Training of facility personnel to recognize regulated hazardous waste and PCB wastes; and

(4) Notification of State Director of authorized States under Subtitle C of RCRA or the EPA Regional Administrator if in an unauthorized State if a regulated hazardous waste or PCB waste is discovered at the facility.

(b) For purposes of this section, *regulated hazardous waste* means a solid waste that is a hazardous waste, as defined in 40 CFR 261.3, that is not excluded from regulation as a hazardous waste under 40 CFR 261.4(b) or was not generated by a conditionally exempt small quantity generator as defined in § 261.5 of this chapter.

§ 258.21 Cover material requirements.

(a) Except as provided in paragraph (b) of this section, the owners or operators of all MSWLF units must cover disposed solid waste with six inches of earthen material at the end of each operating day, or at more frequent intervals if necessary, to control disease vectors, fires, odors, blowing litter, and scavenging.

(b) Alternative materials of an alternative thickness (other than at least six inches of earthen material) may be approved by the Director of an approved State if the owner or operator demonstrates that the alternative material and thickness control disease vectors, fires, odors, blowing litter, and scavenging without presenting a threat to human health and the environment.

(c) The Director of an approved State may grant a temporary waiver from the requirement of paragraph (a) and (b) of this section if the owner or operator demonstrates that there are extreme seasonal climatic conditions that make meeting such requirements impractical.

§ 258.22 Disease vector control.

(a) Owners or operators of all MSWLF units must prevent or control on-site populations of disease vectors using techniques appropriate for the protection of human health and the environment.

(b) For purposes of this section, *disease vectors* means any rodents, flies, mosquitoes, or other animals, including insects, capable of transmitting disease to humans.

§ 258.23 Explosive gases control.

(a) Owners or operators of all MSWLF units must ensure that:

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

limit for methane at the facility property boundary.

(b) Owners or operators of all MSWLF units must implement a routine methane monitoring program to ensure that the standards of paragraph (a) of this section are met.

(1) The type and frequency of monitoring must be determined based on the following factors:

- (i) Soil conditions;
- (ii) The hydrogeologic conditions surrounding the facility;
- (iii) The hydraulic conditions surrounding the facility; and
- (iv) The location of facility structures and property boundaries.

(2) The minimum frequency of monitoring shall be quarterly.

(c) If methane gas levels exceeding the limits specified in paragraph (a) of this section are detected, the owner or operator must:

- (1) Immediately take all necessary steps to ensure protection of human health and notify the State Director;
- (2) Within seven days of detection, place in the operating record the methane gas levels detected and a description of the steps taken to protect human health; and
- (3) Within 60 days of detection, implement a remediation plan for the methane gas releases, place a copy of the plan in the operating record, and notify the State Director that the plan has been implemented. The plan shall describe the nature and extent of the problem and the proposed remedy.

(4) The Director of an approved State may establish alternative schedules for demonstrating compliance with paragraphs (c) (2) and (3) of this section.

(d) For purposes of this section, *lower explosive limit* means the lowest percent by volume of a mixture of explosive gases in air that will propagate a flame at 25°C and atmospheric pressure.

§ 258.24 Air criteria.

(a) Owners or operators of all MSWLFs must ensure that the units not violate any applicable requirements developed under a State Implementation Plan (SIP) approved or promulgated by the Administrator pursuant to section 110 of the Clean Air Act, as amended.

(b) Open burning of solid waste, except for the infrequent burning of agricultural wastes, silvicultural wastes, landclearing debris, diseased trees, or debris from emergency cleanup operations, is prohibited at all MSWLF units.

§ 258.25 Access requirements.

Owners or operators of all MSWLF units must control public access and prevent unauthorized vehicular traffic and illegal dumping of wastes by using artificial barriers, natural barriers, or both, as appropriate to protect human health and the environment.

§ 258.25 Run-on/run-off control systems.

(a) Owners or operators of all MSWLF units must design, construct, and maintain:

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

(2) A run-off control system from the active portion of the landfill to collect and control at least the water volume resulting from a 24-hour, 25-year storm.

(b) Run-off from the active portion of the landfill unit must be handled in accordance with § 258.27(a) of this part.

§ 258.27 Surface water requirements.

MSWLF units shall not:

(a) Cause a discharge of pollutants into waters of the United States, including wetlands, that violates any requirements of the Clean Water Act, including, but not limited to, the National Pollutant Discharge Elimination System (NPDES) requirements, pursuant to section 402.

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

§ 258.28 Liquids restrictions.

(a) Bulk or noncontainerized liquid waste may not be placed in MSWLF units unless:

(1) The waste is household waste other than septic waste; or

(2) The waste is leachate or gas condensate derived from the MSWLF unit and the MSWLF unit, whether it is a new or existing MSWLF, or lateral expansion, is designed with a composite liner and leachate collection system as described in § 258.40(a)(2) of this part. The owner or operator must place the demonstration in the operating record and notify the State Director that it has been placed in the operating record.

(b) Containers holding liquid waste may not be placed in a MSWLF unit unless:

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

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

(3) The waste is household waste.

(c) For purposes of this section:

(1) *Liquid waste* means any waste material that is determined to contain "free liquids" as defined by Method 9095 (Paint Filter Liquids Test), as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods" (EPA Pub. No. SW-846).

(2) *Gas condensate* means the liquid generated as a result of gas recovery process(es) at the MSWLF unit.

§ 258.29 Recordkeeping requirements.

(a) The owner or operator of a MSWLF unit must record and retain near the facility in an operating record or in an alternative location approved by the Director of an approved State the following information as it becomes available:

(1) Any location restriction demonstration required under subpart B of this part;

(2) Inspection records, training procedures, and notification procedures required in § 258.20 of this part;

(3) Gas monitoring results from monitoring and any remediation plans required by § 258.23 of this part;

(4) Any MSWLF unit design documentation for placement of leachate or gas condensate in a MSWLF unit as required under § 258.28(a)(2) of this part;

(5) Any demonstration, certification, finding, monitoring, testing, or analytical data required by subpart E of this part;

(6) Closure and post-closure care plans and any monitoring, testing, or analytical data as required by §§ 258.60 and 258.61 of this part; and

(7) Any cost estimates and financial assurance documentation required by subpart G of this part.

(8) Any information demonstrating compliance with small community exemption as required by § 258.1(f)(2).

(b) The owner/operator must notify the State Director when the documents from paragraph (a) of this section have been placed or added to the operating record, and all information contained in the operating record must be furnished upon request to the State Director or be made available at all reasonable times for inspection by the State Director.

(c) The Director of an approved State can set alternative schedules for recordkeeping and notification requirements as specified in paragraphs (a) and (b) of this section, except for the notification requirements in § 258.10(b) and § 258.55(g)(1)(iii).

§ 258.30-258.39 [Reserved].**Subpart D—Design Criteria****§ 258.40 Design criteria.**

(a) New MSWLF units and lateral expansions shall be constructed:

(1) In accordance with a design approved by the Director of an approved State or as specified in § 258.40(e) for unapproved States. The design must ensure that the concentration values listed in Table 1 of this section will not be exceeded in the uppermost aquifer at the relevant point of compliance, as specified by the Director of an approved State under paragraph (d) of this section, or

(2) With a composite liner, as defined in paragraph (b) of this section and a leachate collection system that is designed and constructed to maintain less than a 30-cm depth of leachate over the liner.

(b) For purposes of this section, *composite liner* means a system consisting of two components; the upper component must consist of a minimum 30-mil flexible membrane liner (FML), and the lower component must consist of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} cm/sec. FML components consisting of high density polyethylene (HDPE) shall be at least 60-mil thick. The FML component must be installed in direct and uniform contact with the compacted soil component.

(c) When approving a design that complies with paragraph (a)(1) of this section, the Director of an approved State shall consider at least the following factors:

(1) The hydrogeologic characteristics of the facility and surrounding land;

(2) The climatic factors of the area; and

(3) The volume and physical and chemical characteristics of the leachate.

(d) The relevant point of compliance specified by the Director of an approved State shall be no more than 150 meters from the waste management unit boundary and shall be located on land owned by the owner of the MSWLF unit. In determining the relevant point of compliance State Director shall consider at least the following factors:

(1) The hydrogeologic characteristics of the facility and surrounding land;

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

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

(4) The proximity and withdrawal rate of the ground-water users;

(5) The availability of alternative drinking water supplies;

(6) The existing quality of the ground water, including other sources of contamination and their cumulative impacts on the ground water, and whether the ground water is currently used or reasonably expected to be used for drinking water;

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

(8) Practicable capability of the owner or operator.

(e) If EPA does not promulgate a rule establishing the procedures and requirements for State compliance with RCRA section 4005(c)(1)(B) by October 9, 1993, owners and operators in unapproved States may utilize a design meeting the performance standard in § 258.40(a)(1) if the following conditions are met:

(1) The State determines the design meets the performance standard in § 258.40(a)(1);

(2) The State petitions EPA to review its determination; and

(3) EPA approves the State determination or does not disapprove the determination within 30 days.

Note to subpart D: 40 CFR part 239 is reserved to establish the procedures and requirements for State compliance with RCRA section 4005(c)(1)(B).

TABLE 1

Chemical	MCL (mg/l)
Arsenic.....	0.05
Barium.....	1.0
Benzene.....	0.005
Cadmium.....	0.01
Carbon tetrachloride.....	0.005
Chromium (hexavalent).....	0.05
2,4-Dichlorophenoxy acetic acid.....	0.1
1,4-Dichlorobenzene.....	0.075
1,2-Dichloroethane.....	0.005
1,1-Dichloroethylene.....	0.007
Endrin.....	0.0002
Fluoride.....	4
Lindane.....	0.004
Lead.....	0.05
Mercury.....	0.002
Methoxychlor.....	0.1
Nitrate.....	10
Selenium.....	0.01
Silver.....	0.05
Toxaphene.....	0.005
1,1,1-Trichloromethane.....	0.2
Trichloroethylene.....	0.005
2,4,5-Trichlorophenoxy acetic acid.....	0.01
Vinyl Chloride.....	0.002

Subpart E—Ground-Water Monitoring and Corrective Action

§ 258.50 Applicability.

(a) The requirements in this part apply to MSWLF units, except as provided in paragraph (b) of this section.

(b) Ground-water monitoring requirements under § 258.51 through § 258.55 of this part may be suspended by the Director of an approved State for a MSWLF unit if the owner or operator can demonstrate that there is no potential for migration of hazardous constituents from that MSWLF unit to the uppermost aquifer (as defined in § 258.2) during the active life of the unit and the post-closure care period. This demonstration must be certified by a qualified ground-water scientist and approved by the Director of an approved State, and must be based upon:

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

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

(c) Owners and operators of MSWLF units must comply with the ground-water monitoring requirements of this part according to the following schedule unless an alternative schedule is specified under paragraph (d) of this section:

(1) Existing MSWLF units and lateral expansions less than one mile from a drinking water intake (surface or subsurface) must be in compliance with the ground-water monitoring requirements specified in §§ 258.51–258.55 by October 9, 1996;

(2) Existing MSWLF units and lateral expansions greater than one mile but less than two miles from a drinking water intake (surface or subsurface) must be in compliance with the ground-water monitoring requirements specified in §§ 258.51–258.55 by October 9, 1995;

(3) Existing MSWLF units and lateral expansions greater than two miles from a drinking water intake (surface or subsurface) must be in compliance with the ground-water monitoring requirements specified in §§ 258.51–258.55 by October 9, 1996.

(4) New MSWLF units must be in compliance with the ground-water monitoring requirements specified in §§ 258.51–258.55 before waste can be placed in the unit.

(d) The Director of an approved State may specify an alternative schedule for the owners or operators of existing MSWLF units and lateral expansions to comply with the ground-water monitoring requirements specified in §§ 258.51–258.55. This schedule must ensure that 50 percent of all existing MSWLF units are in compliance by October 9, 1994 and all existing MSWLF units are in compliance by October 9, 1996. In setting the compliance schedule,

the Director of an approved State must consider potential risks posed by the unit to human health and the environment. The following factors should be considered in determining potential risk:

(1) Proximity of human and environmental receptors;

(2) Design of the MSWLF unit;

(3) Age of the MSWLF unit;

(4) The size of the MSWLF unit; and

(5) Types and quantities of wastes disposed including sewage sludge; and

(6) Resource value of the underlying aquifer, including:

(i) Current and future uses;

(ii) Proximity and withdrawal rate of users; and

(iii) Ground-water quality and quantity.

(e) Once established at a MSWLF unit, ground-water monitoring shall be conducted throughout the active life and post-closure care period of that MSWLF unit as specified in § 258.61.

(f) For the purposes of this subpart, a *qualified ground-water scientist* is a scientist or engineer who has received a baccalaureate or post-graduate degree in the natural sciences or engineering and has sufficient training and experience in groundwater hydrology and related fields as may be demonstrated by State registration, professional Certifications, or completion of accredited university programs that enable that individual to make sound professional judgements regarding ground-water monitoring, contaminant fate and transport, and corrective action.

(g) The Director of an approved State may establish alternative schedules for demonstrating compliance with § 258.51(d)(2), pertaining to notification of placement of certification in operating record; § 258.54(c)(1), pertaining to notification that statistically significant increase (SSI) notice is in operating record; § 258.54(c)(2) and (3), pertaining to an assessment monitoring program; § 258.55(b), pertaining to sampling and analyzing Appendix II constituents; § 258.55(d)(1), pertaining to placement of notice (Appendix II constituents detected) in record and notification of notice in record; § 258.55(d)(2), pertaining to sampling for appendix I and II to this part; § 258.55(g), pertaining to notification (and placement of notice in record) of SSI above ground-water protection standard; §§ 258.55(g)(1)(iv) and 258.56(a), pertaining to assessment of corrective measures; § 258.57(a), pertaining to selection of remedy and notification of placement in record; § 258.58(c)(4), pertaining to notification of placement in record (alternative

corrective action measures); and § 258.58(f), pertaining to notification of placement in record (certification of remedy completed).

§ 258.51 Ground-water monitoring systems.

(a) A ground-water monitoring system must be installed that consists of a sufficient number of wells, installed at appropriate locations and depths, to yield ground-water samples from the uppermost aquifer (as defined in § 258.2) that:

(1) Represent the quality of background ground water that has not been affected by leakage from a unit. A determination of background quality may include sampling of wells that are not hydraulically upgradient of the waste management area where:

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

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

(2) Represent the quality of ground water passing the relevant point of compliance specified by Director of an approved State under § 258.40(d) or at the waste management unit boundary in unapproved States. The downgradient monitoring system must be installed at the relevant point of compliance specified by the Director of an approved State under § 258.40(d) or at the waste management unit boundary in unapproved States that ensures detection of ground-water contamination in the uppermost aquifer. When physical obstacles preclude installation of ground-water monitoring wells at the relevant point of compliance at existing units, the down-gradient monitoring system may be installed at the closest practicable distance hydraulically down-gradient from the relevant point of compliance specified by the Director of an approved State under § 258.40 that ensure detection of groundwater contamination in the uppermost aquifer.

(b) The Director of an approved State may approve a multiunit ground-water monitoring system instead of separate ground-water monitoring systems for each MSWLF unit when the facility has several units, provided the multi-unit ground-water monitoring system meets the requirement of § 258.51(a) and will be as protective of human health and the environment as individual monitoring systems for each MSWLF unit, based on the following factors:

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

(2) Hydrogeologic setting;

(3) Site history;

(4) Engineering design of the MSWLF units, and

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

(c) Monitoring wells must be cased in a manner that maintains the integrity of the monitoring well bore hole. This casing must be screened or perforated and packed with gravel or sand, where necessary, to enable collection of ground-water samples. The annular space (i.e., the space between the bore hole and well casing) above the sampling depth must be sealed to prevent contamination of samples and the ground water.

(1) The owner or operator must notify the State Director that the design, installation, development, and decommission of any monitoring wells, piezometers and other measurement, sampling, and analytical devices documentation has been placed in the operating record; and

(2) The monitoring wells, piezometers, and other measurement, sampling, and analytical devices must be operated and maintained so that they perform to design specifications throughout the life of the monitoring program.

(d) The number, spacing, and depths of monitoring systems shall be:

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

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

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

(2) Certified by a qualified ground-water scientist or approved by the Director of an approved State. Within 14 days of this certification, the owner or operator must notify the State Director that the certification has been placed in the operating record.

§ 258.52 [Reserved].

§ 258.53 Ground-water sampling and analysis requirements.

(a) The ground-water monitoring program must include consistent sampling and analysis procedures that

are designed to ensure monitoring results that provide an accurate representation of ground-water quality at the background and downgradient wells installed in compliance with § 258.51(a) of this part. The owner or operator must notify the State Director that the sampling and analysis program documentation has been placed in the operating record and the program must include procedures and techniques for:

(1) Sample collection;

(2) Sample preservation and shipment;

(3) Analytical procedures;

(4) Chain of custody control; and

(5) Quality assurance and quality control.

(b) The ground-water monitoring program must include sampling and analytical methods that are appropriate for ground-water sampling and that accurately measure hazardous constituents and other monitoring parameters in ground-water samples. Ground-water samples shall not be field-filtered prior to laboratory analysis.

(c) The sampling procedures and frequency must be protective of human health and the environment.

(d) Ground-water elevations must be measured in each well immediately prior to purging, each time ground water is sampled. The owner or operator must determine the rate and direction of ground-water flow each time ground water is sampled. Ground-water elevations in wells which monitor the same waste management area must be measured within a period of time short enough to avoid temporal variations in ground-water flow which could preclude accurate determination of ground-water flow rate and direction.

(e) The owner or operator must establish background ground-water quality in a hydraulically upgradient or background well(s) for each of the monitoring parameters or constituents required in the particular ground-water monitoring program that applies to the MSWLF unit, as determined under § 258.54(a) or § 258.55(a) of this part. Background ground-water quality may be established at wells that are not located hydraulically upgradient from the MSWLF unit if it meets the requirements of § 258.51(a)(1).

(f) The number of samples collected to establish ground-water quality data must be consistent with the appropriate statistical procedures determined pursuant to paragraph (g) of this section. The sampling procedures shall be those specified under § 258.54(b) for detection monitoring, § 258.55 (b) and (d) for assessment monitoring, and § 258.56(b) of corrective action.

(g) The owner or operator must specify in the operating record one of the following statistical methods to be used in evaluating ground-water monitoring data for each hazardous constituent. The statistical test chosen shall be conducted separately for each hazardous constituent in each well.

(1) A parametric analysis of variance (ANOVA) followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's mean and the background mean levels for each constituent.

(2) An analysis of variance (ANOVA) based on ranks followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's median and the background median levels for each constituent.

(3) A tolerance or prediction interval procedure in which an interval for each constituent is established from the distribution of the background data, and the level of each constituent in each compliance well is compared to the upper tolerance or prediction limit.

(4) A control chart approach that gives control limits for each constituent.

(5) Another statistical test method that meets the performance standards of § 258.53(h). The owner or operator must place a justification for this alternative in the operating record and notify the State Director of the use of this alternative test. The justification must demonstrate that the alternative method meets the performance standards of § 258.53(h).

(h) Any statistical method chosen under § 258.53(g) shall comply with the following performance standards, as appropriate:

(1) The statistical method used to evaluate ground-water monitoring data shall be appropriate for the distribution of chemical parameters or hazardous constituents. If the distribution of the chemical parameters or hazardous constituents is shown by the owner or operator to be inappropriate for a normal theory test, then the data should be transformed or a distribution-free theory test should be used. If the distributions for the constituents differ, more than one statistical method may be needed.

(2) If an individual well comparison procedure is used to compare an individual compliance well constituent concentration with background constituent concentrations or a ground-water protection standard, the test shall

be done at a Type I error level no less than 0.01 for each testing period. If a multiple comparisons procedure is used, the Type I experiment wise error rate for each testing period shall be no less than 0.05; however, the Type I error of no less than 0.01 for individual well comparisons must be maintained. This performance standard does not apply to tolerance intervals, prediction intervals, or control charts.

(3) If a control chart approach is used to evaluate ground-water monitoring data, the specific type of control chart and its associated parameter values shall be protective of human health and the environment. The parameters shall be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

(4) If a tolerance interval or a prediction interval is used to evaluate ground-water monitoring data, the levels of confidence and, for tolerance intervals, the percentage of the population that the interval must contain, shall be protective of human health and the environment. These parameters shall be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

(5) The statistical method shall account for data below the limit of detection with one or more statistical procedures that are protective of human health and the environment. Any practical quantitation limit (pql) that is used in the statistical method shall be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility.

(6) If necessary, the statistical method shall include procedures to control or correct for seasonal and spatial variability as well as temporal correlation in the data.

(i) The owner or operator must determine whether or not there is a statistically significant increase over background values for each parameter or constituent required in the particular ground-water monitoring program that applies to the MSWLF unit, as determined under §§ 258.54(a) or 258.55(a) of this part.

(1) In determining whether a statistically significant increase has occurred, the owner or operator must compare the ground-water quality of each parameter or constituent at each monitoring well designated pursuant to § 258.51(a)(2) to the background value of

that constituent, according to the statistical procedures and performance standards specified under paragraphs (g) and (h) of this section.

(2) Within a reasonable period of time after completing sampling and analysis, the owner or operator must determine whether there has been a statistically significant increase over background at each monitoring well.

§ 258.54 Detection monitoring program.

(a) Detection monitoring is required at MSWLF units at all ground-water monitoring wells defined under §§ 258.51(a)(1) and (a)(2) of this part. At a minimum, a detection monitoring program must include the monitoring for the constituents listed in appendix I to this part.

(1) The Director of an approved State may delete any of the appendix I monitoring parameters for a MSWLF unit if it can be shown that the removed constituents are not reasonably expected to be in or derived from the waste contained in the unit.

(2) The Director of an approved State may establish an alternative list of inorganic indicator parameters for a MSWLF unit, in lieu of some or all of the heavy metals (constituents 1-15 in appendix I to this part), if the alternative parameters provide a reliable indication of inorganic releases from the MSWLF unit to the ground water. In determining alternative parameters, the Director shall consider the following factors:

(i) The types, quantities, and concentrations of constituents in wastes managed at the MSWLF unit;

(ii) The mobility, stability, and persistence of waste constituents or their reaction products in the unsaturated zone beneath the MSWLF unit;

(iii) The detectability of indicator parameters, waste constituents, and reaction products in the ground water; and

(iv) The concentration or values and coefficients of variation of monitoring parameters or constituents in the groundwater background.

(b) The monitoring frequency for all constituents listed in appendix I to this part, or in the alternative list approved in accordance with paragraph (a)(2) of this section, shall be at least semiannual during the active life of the facility (including closure) and the post-closure period. A minimum of four independent samples from each well (background and downgradient) must be collected and analyzed for the appendix I constituents, or the alternative list approved in accordance with paragraph (a)(2) of this section, during the first

semiannual sampling event. At least one sample from each well (background and downgradient) must be collected and analyzed during subsequent semiannual sampling events. The Director of an approved State may specify an appropriate alternative frequency for repeated sampling and analysis for appendix I constituents, or the alternative list approved in accordance with paragraph (a)(2) of this section, during the active life (including closure) and the post-closure care period. The alternative frequency during the active life (including closure) shall be no less than annual. The alternative frequency shall be based on consideration of the following factors:

- (1) Lithology of the aquifer and unsaturated zone;
 - (2) Hydraulic conductivity of the aquifer and unsaturated zone;
 - (3) Ground-water flow rates;
 - (4) Minimum distance between upgradient edge of the MSWLF unit and downgradient monitoring well screen (minimum distance of travel); and
 - (5) Resource value of the aquifer.
- (c) If the owner or operator determines, pursuant to § 258.53(g) of this part, that there is a statistically significant increase over background for one or more of the constituents listed in appendix I to this part or in the alternative list approved in accordance with paragraph (a)(2) of this section, at any monitoring well at the boundary specified under § 258.51(a)(2), the owner or operator:

- (1) Must, within 14 days of this finding, place a notice in the operating record indicating which constituents have shown statistically significant changes from background levels, and notify the State director that this notice was placed in the operating record; and
- (2) Must establish an assessment monitoring program meeting the requirements of § 258.55 of this part within 90 days except as provided for in paragraph (c)(3) of this section.
- (3) The owner/operator may demonstrate that a source other than a MSWLF unit caused the contamination or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in ground-water quality. A report documenting this demonstration must be certified by a qualified ground-water scientist or approved by the Director of an approved State and be placed in the operating record. If a successful demonstration is made and documented, the owner or operator may continue detection monitoring as specified in this section. If, after 90 days, a successful demonstration is not made, the owner or

operator must initiate an assessment monitoring program as required in § 258.55.

§ 258.55 Assessment monitoring program.

(a) Assessment monitoring is required whenever a statistically significant increase over background has been detected for one or more of the constituents listed in the appendix I to this part or in the alternative list approved in accordance with § 258.51(a)(2).

(b) Within 90 days of triggering an assessment monitoring program, and annually thereafter, the owner or operator must sample and analyze the ground water for all constituents identified in appendix II to this part. A minimum of one sample from each downgradient well must be collected and analyzed during each sampling event. For any constituent detected in the downgradient wells as a result of the complete appendix II analysis, a minimum of four independent samples from each well (background and downgradient) must be collected and analyzed to establish background for the constituents. The Director of an approved State may specify an appropriate subset of wells to be sampled and analyzed for appendix II constituents during assessment monitoring. The Director of an approved State may delete any of the appendix II monitoring parameters for a MSWLF unit if it can be shown that the removed constituents are not reasonably expected to be in or derived from the waste contained in the unit.

(c) The Director of an approved State may specify an appropriate alternate frequency for repeated sampling and analysis for the full set of appendix II constituents required by § 258.55(b) of this part, during the active life (including closure) and post-closure care of the unit considering the following factors:

- (1) Lithology of the aquifer and unsaturated zone;
- (2) Hydraulic conductivity of the aquifer and unsaturated zone;
- (3) Ground-water flow rates;
- (4) Minimum distance between upgradient edge of the MSWLF unit and downgradient monitoring well screen (minimum distance of travel);
- (5) Resource value of the aquifer; and
- (6) Nature (fate and transport) of any constituents detected in response to this section.

(d) After obtaining the results from the initial or subsequent sampling events required in paragraph (b) of this section, the owner or operator must:

- (1) Within 14 days, place a notice in the operating record identifying the appendix II constituents that have been

detected and notify the State Director that this notice has been placed in the operating record;

(2) Within 90 days, and on at least a semiannual basis thereafter, resample all wells specified by § 258.51(a), conduct analyses for all constituents in appendix I to this part or in the alternative list approved in accordance with § 258.54(a)(2), and for those constituents in appendix II to this part that are detected in response to paragraph (b) of this section, and record their concentrations in the facility operating record. At least one sample from each well (background and downgradient) must be collected and analyzed during these sampling events. The Director of an approved State may specify an alternative monitoring frequency during the active life (including closure) and the post-closure period for the constituents referred to in this paragraph. The alternative frequency for appendix I constituents, or the alternative list approved in accordance with § 258.54(a)(2), during the active life (including closure) shall be no less than annual. The alternative frequency shall be based on consideration of the factors specified in paragraph (c) of this section;

(3) Establish background concentrations for any constituents detected pursuant to paragraph (b) or (d)(2) of this section; and

(4) Establish ground-water protection standards for all constituents detected pursuant to paragraph (b) or (d) of this section. The ground-water protection standards shall be established in accordance with paragraphs (h) or (i) of this section.

(e) If the concentrations of all appendix II constituents are shown to be at or below background values, using the statistical procedures in § 258.53(g), for two consecutive sampling events, the owner or operator must notify the State Director of this finding and may return to detection monitoring.

(f) If the concentrations of any appendix II constituents are above background values, but all concentrations are below the ground-water protection standard established under paragraphs (h) or (i) of this section, using the statistical procedures in § 258.53(g), the owner or operator must continue assessment monitoring in accordance with this section.

(g) If one or more appendix II constituents are detected at statistically significant levels above the ground-water protection standard established under paragraphs (h) or (i) of this section in any sampling event, the owner or operator must, within 14 days

of this finding, place a notice in the operating record identifying the appendix II constituents that have exceeded the ground-water protection standard and notify the State Director and all appropriate local government officials that the notice has been placed in the operating record. The owner or operator also:

(1)(i) Must characterize the nature and extent of the release by installing additional monitoring wells as necessary;

(ii) Must install at least one additional monitoring well at the facility boundary in the direction of contaminant migration and sample this well in accordance with § 258.55(d)(2);

(iii) Must notify all persons who own the land or reside on the land that directly overlies any part of the plume of contamination if contaminants have migrated off-site if indicated by sampling of wells in accordance with § 258.55(g)(1); and

(iv) Must initiate an assessment of corrective measures as required by § 258.56 of this part within 90 days; or

(2) May demonstrate that a source other than a MSWLF unit caused the contamination, or that the SSI increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in ground-water quality. A report documenting this demonstration must be certified by a qualified ground-water scientist or approved by the Director of an approved State and placed in the operating record. If a successful demonstration is made the owner or operator must continue monitoring in accordance with the assessment monitoring program pursuant to § 258.55, and may return to detection monitoring if the appendix II constituents are at or below background as specified in § 258.55(e). Until a successful demonstration is made, the owner or operator must comply with § 258.55(g) including initiating an assessment of corrective measures.

(h) The owner or operator must establish a ground-water protection standard for each appendix II constituent detected in the ground-water. The ground-water protection standard shall be:

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

(2) For constituents for which MCLs have not been promulgated, the background concentration for the constituent established from wells in accordance with § 258.51(a)(1); or

(3) For constituents for which the background level is higher than the MCL identified under paragraph (h)(1) of this section or health based levels identified under § 258.55(i)(1), the background concentration.

(i) The Director of an approved State may establish an alternative ground-water protection standard for constituents for which MCLs have not been established. These ground-water protection standards shall be appropriate health based levels that satisfy the following criteria:

(1) The level is derived in a manner consistent with Agency guidelines for assessing the health risks of environmental pollutants (51 FR 33992, 34006, 34014, 34028, Sept. 24, 1986);

(2) The level is based on scientifically valid studies conducted in accordance with the Toxic Substances Control Act Good Laboratory Practice Standards (40 CFR part 792) or equivalent;

(3) For carcinogens, the level represents a concentration associated with an excess lifetime cancer risk level (due to continuous lifetime exposure) with the 1×10^{-4} to 1×10^{-6} range; and

(4) For systemic toxicants, the level represents a concentration to which the human population (including sensitive subgroups) could be exposed to on a daily basis that is likely to be without appreciable risk of deleterious effects during a lifetime. For purposes of this subpart, systemic toxicants include toxic chemicals that cause effects other than cancer or mutation.

(j) In establishing ground-water protection standards under paragraph (i) of this section, the Director of an approved State may consider the following:

(1) Multiple contaminants in the ground water;

(2) Exposure threats to sensitive environmental receptors; and

(3) Other site-specific exposure or potential exposure to ground water.

§ 258.56 Assessment of corrective measures.

(a) Within 90 days of finding that any of the constituents listed in appendix II to this part have been detected at a statistically significant level exceeding the ground-water protection standards defined under § 258.55 (h) or (i) of this part, the owner or operator must initiate an assessment of corrective measures. Such an assessment must be completed within a reasonable period of time.

(b) The owner or operator must continue to monitor in accordance with the assessment monitoring program as specified in § 258.55.

(c) The assessment shall include an analysis of the effectiveness of potential

corrective measures in meeting all of the requirements and objectives of the remedy as described under § 258.57, addressing at least the following:

(1) The performance, reliability, ease of implementation, and potential impacts of appropriate potential remedies, including safety impacts, cross-media impacts, and control of exposure to any residual contamination;

(2) The time required to begin and complete the remedy;

(3) The costs of remedy implementation; and

(4) The institutional requirements such as State or local permit requirements or other environmental or public health requirements that may substantially affect implementation of the remedy(s).

(d) The owner or operator must discuss the results of the corrective measures assessment, prior to the selection of remedy, in a public meeting with interested and affected parties.

§ 258.57 Selection of remedy.

(a) Based on the results of the corrective measures assessment conducted under § 258.56, the owner or operator must select a remedy that, at a minimum, meets the standards listed in paragraph (b) of this section. The owner or operator must notify the State Director, within 14 days of selecting a remedy, a report describing the selected remedy has been placed in the operating record and how it meets the standards in paragraph (b) of this section.

(b) Remedies must:

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

(2) Attain the ground-water protection standard as specified pursuant to §§ 258.55 (h) or (i);

(3) Control the source(s) of releases so as to reduce or eliminate, to the maximum extent practicable, further releases of appendix II constituents into the environment that may pose a threat to human health or the environment; and

(4) Comply with standards for management of wastes as specified in § 258.58(d).

(c) In selecting a remedy that meets the standards of § 258.57(b), the owner or operator shall consider the following evaluation factors:

(1) The long- and short-term effectiveness and protectiveness of the potential remedy(s), along with the degree of certainty that the remedy will prove successful based on consideration of the following:

(i) Magnitude of reduction of existing risks;

(ii) Magnitude of residual risks in terms of likelihood of further releases

due to waste remaining following implementation of a remedy;

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

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

(v) Time until full protection is achieved;

(vi) Potential for exposure of humans and environmental receptors to remaining wastes, considering the potential threat to human health and the environment associated with excavation, transportation, redispersion, or containment;

(vii) Long-term reliability of the engineering and institutional controls; and

(viii) Potential need for replacement of the remedy.

(2) The effectiveness of the remedy in controlling the source to reduce further releases based on consideration of the following factors:

(i) The extent to which containment practices will reduce further releases;

(ii) The extent to which treatment technologies may be used.

(3) The ease or difficulty of implementing a potential remedy(s) based on consideration of the following types of factors:

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

(ii) Expected operational reliability of the technologies;

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

(iv) Availability of necessary equipment and specialists; and

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

(4) Practicable capability of the owner or operator, including a consideration of the technical and economic capability.

(5) The degree to which community concerns are addressed by a potential remedy(s).

(d) The owner or operator shall specify as part of the selected remedy a schedule(s) for initiating and completing remedial activities. Such a schedule must require the initiation of remedial activities within a reasonable period of time taking into consideration the factors set forth in paragraphs (d) (1)-(8) of this section. The owner or operator must consider the following factors in determining the schedule of remedial activities:

(1) Extent and nature of contamination;

(2) Practical capabilities of remedial technologies in achieving compliance with ground-water protection standards established under § 258.55 (g) or (h) and other objectives of the remedy;

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

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

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

(6) Resource value of the aquifer including:

(i) Current and future uses;

(ii) Proximity and withdrawal rate of users;

(iii) Ground-water quantity and quality;

(iv) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituent;

(v) The hydrogeologic characteristic of the facility and surrounding land;

(vi) Ground-water removal and treatment costs; and

(vii) The cost and availability of alternative water supplies.

(7) Practicable capability of the owner or operator.

(8) Other relevant factors.

(e) The Director of an approved State may determine that remediation of a release of an appendix II constituent from a MSWLF unit is not necessary if the owner or operator demonstrates to the satisfaction of the Director of the approved State that:

(1) The ground-water is additionally contaminated by substances that have originated from a source other than a MSWLF unit and those substances are present in concentrations such that cleanup of the release from the MSWLF unit would provide no significant reduction in risk to actual or potential receptors; or

(2) The constituent(s) is present in ground water that:

(i) Is not currently or reasonably expected to be a source of drinking water; and

(ii) Is not hydraulically connected with waters to which the hazardous constituents are migrating or are likely to migrate in a concentration(s) that would exceed the ground-water protection standards established under § 258.55 (h) or (i); or

(3) Remediation of the release(s) is technically impracticable; or

(4) Remediation results in unacceptable cross-media impacts.

(f) A determination by the Director of an approved State pursuant to paragraph (e) of this section shall not affect the authority of the State to require the owner or operator to undertake source control measures or other measures that may be necessary to eliminate or minimize further releases to the ground-water, to prevent exposure to the ground-water, or to remediate the ground-water to concentrations that are technically practicable and significantly reduce threats to human health or the environment.

§ 258.58 Implementation of the corrective action program.

(a) Based on the schedule established under § 258.57(d) for initiation and completion of remedial activities the owner/operator must:

(1) Establish and implement a corrective action ground-water monitoring program that:

(i) At a minimum, meet the requirements of an assessment monitoring program under § 258.55;

(ii) Indicate the effectiveness of the corrective action remedy; and

(iii) Demonstrate compliance with ground-water protection standard pursuant to paragraph (e) of this section.

(2) Implement the corrective action remedy selected under § 258.57; and

(3) Take any interim measures necessary to ensure the protection of human health and the environment. Interim measures should, to the greatest extent practicable, be consistent with the objectives of and contribute to the performance of any remedy that may be required pursuant to § 258.57. The following factors must be considered by an owner or operator in determining whether interim measures are necessary:

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

(ii) Actual or potential exposure of nearby populations or environmental receptors to hazardous constituents;

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

(iv) Further degradation of the ground-water that may occur if remedial action is not initiated expeditiously;

(v) Weather conditions that may cause hazardous constituents to migrate or be released;

(vi) Risks of fire or explosion, or potential for exposure to hazardous constituents as a result of an accident or

failure of a container or handling system; and

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

(b) An owner or operator may determine, based on information developed after implementation of the remedy has begun or other information, that compliance with requirements of § 258.57(b) are not being achieved through the remedy selected. In such cases, the owner or operator must implement other methods or techniques that could practicably achieve compliance with the requirements, unless the owner or operator makes the determination under § 258.58(c).

(c) If the owner or operator determines that compliance with requirements under § 258.57(b) cannot be practically achieved with any currently available methods, the owner or operator must:

(1) Obtain certification of a qualified ground-water scientist or approval by the Director of an approved State that compliance with requirements under § 258.57(b) cannot be practically achieved with any currently available methods;

(2) Implement alternate measures to control exposure of humans or the environment to residual contamination, as necessary to protect human health and the environment; and

(3) Implement alternate measures for control of the sources of contamination, or for removal or decontamination of equipment, units, devices, or structures that are:

(i) Technically practicable; and
(ii) Consistent with the overall objective of the remedy.

(4) Notify the State Director within 14 days that a report justifying the alternative measures prior to implementing the alternative measures has been placed in the operating record.

(d) All solid wastes that are managed pursuant to a remedy required under § 258.57, or an interim measure required under § 258.58(a)(3), shall be managed in a manner:

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

(2) That complies with applicable RCRA requirements.

(e) Remedies selected pursuant to § 258.57 shall be considered complete when:

(1) The owner or operator complies with the ground-water protection standards established under §§ 258.55(h) or (i) at all points within the plume of contamination that lie beyond the ground-water monitoring well system established under § 258.51(a).

(2) Compliance with the ground-water protection standards established under §§ 258.55(h) or (i) has been achieved by demonstrating that concentrations of appendix II constituents have not exceeded the ground-water protection standard(s) for a period of three consecutive years using the statistical procedures and performance standards in § 258.53(g) and (h). The Director of an approved State may specify an alternative length of time during which the owner or operator must demonstrate that concentrations of appendix II constituents have not exceeded the ground-water protection standard(s) taking into consideration:

(i) Extent and concentration of the release(s);

(ii) Behavior characteristics of the hazardous constituents in the ground-water;

(iii) Accuracy of monitoring or modeling techniques, including any seasonal, meteorological, or other environmental variabilities that may affect the accuracy; and

(iv) Characteristics of the ground-water.

(3) All actions required to complete the remedy have been satisfied.

(f) Upon completion of the remedy, the owner or operator must notify the State Director within 14 days that a certification that the remedy has been completed in compliance with the requirements of § 258.58(e) has been placed in the operating record. The certification must be signed by the owner or operator and by a qualified ground-water scientist or approved by the Director of an approved State.

(g) When, upon completion of the certification, the owner or operator determines that the corrective action remedy has been completed in accordance with the requirements under paragraph (e) of this section, the owner or operator shall be released from the requirements for financial assurance for corrective action under § 258.73.

§ 258.59 [Reserved]

Subpart F—Closure And Post-Closure Care

§ 258.60 Closure criteria.

(a) Owner or operator of all MSWLF units must install a final cover system that is designed to minimize infiltration and erosion. The final cover system must be comprised of an erosion layer underlain by an infiltration layer as follows:

(1) The infiltration layer must be comprised of a minimum of 18 inches of earthen material that has a permeability less than or equal to the permeability of

any bottom liner system or natural subsoils present, or a permeability no greater than 1×10^{-5} cm/sec, whichever is less, and

(2) The erosion layer must consist of a minimum of 6 inches of earthen material that is capable of sustaining native plant growth.

(b) The Director of an approved State may approve an alternative final cover design that includes:

(1) An infiltration layer that achieves an equivalent reduction in infiltration as the infiltration layer specified in paragraph (a)(1) of this section, and

(2) An erosion layer that provides equivalent protection from wind and water erosion as the erosion layer specified in paragraph (a)(2) of this section.

(c) The owner or operator must prepare a written closure plan that describes the steps necessary to close all MSWLF units at any point during its active life in accordance with the cover design requirements in § 258.60(a) or (b), as applicable. The closure plan, at a minimum, must include the following information:

(1) A description of the final cover, designed in accordance with § 258.60(a) and the methods and procedures to be used to install the cover;

(2) An estimate of the largest area of the MSWLF unit ever requiring a final cover as required under § 258.60(a) at any time during the active life;

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

(4) A schedule for completing all activities necessary to satisfy the closure criteria in § 258.60.

(d) The owner or operator must notify the State Director that a closure plan has been prepared and placed in the operating record no later than the effective date of this part, or by the initial receipt of waste, whichever is later.

(e) Prior to beginning closure of each MSWLF unit as specified in § 258.60(f), an owner or operator must notify the State Director that a notice of the intent to close the unit has been placed in the operating record.

(f) The owner or operator must begin closure activities of each MSWLF unit no later than 30 days after the date on which the MSWLF unit receives the known final receipt of wastes or, if the MSWLF unit has remaining capacity and there is a reasonable likelihood that the MSWLF unit will receive additional wastes, no later than one year after the most recent receipt of wastes. Extensions beyond the one-year deadline for beginning closure may be

granted by the Director of an approved State if the owner or operator demonstrates that the MSWLF unit has the capacity to receive additional wastes and the owner or operator has taken and will continue to take all steps necessary to prevent threats to human health and the environmental from the unclosed MSWLF unit.

(g) The owner or operator of all MSWLF units must complete closure activities of each MSWLF unit in accordance with the closure plan within 180 days following the beginning of closure as specified in paragraph (f) of this section. Extensions of the closure period may be granted by the Director of an approved State if the owner or operator demonstrates that closure will, of necessity, take longer than 180 days and he has taken and will continue to take all steps to prevent threats to human health and the environment from the unclosed MSWLF unit.

(h) Following closure of each MSWLF unit, the owner or operator must notify the State Director that a certification, signed by an independent registered professional engineer or approved by Director of an approved State, verifying that closure has been completed in accordance with the closure plan, has been placed in the operating record.

(i) (1) Following closure of all MSWLF units, the owner or operator must record a notation on the deed to the landfill facility property, or some other instrument that is normally examined during title search, and notify the State Director that the notation has been recorded and a copy has been placed in the operating record.

(2) The notation on the deed must in perpetuity notify any potential purchaser of the property that:

(i) The land has been used as a landfill facility; and

(ii) Its use is restricted under § 258.61(c)(3).

(j) The owner or operator may request permission from the Director of an approved State to remove the notation from the deed if all wastes are removed from the facility.

§ 258.61 Post-closure care requirements.

(a) Following closure of each MSWLF unit, the owner or operator must conduct post-closure care. Post-closure care must be conducted for 30 years, except as provided under paragraph (b) of this section, and consist of at least the following:

(1) Maintaining the integrity and effectiveness of any final cover, including making repairs to the cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-

off from eroding or otherwise damaging the final cover;

(2) Maintaining and operating the leachate collection system in accordance with the requirements in § 258.40. The Director of an approved State may allow the owner or operator to stop managing leachate if the owner or operator demonstrates that leachate no longer poses a threat to human health and the environment;

(3) Monitoring the ground water in accordance with the requirements of subpart E of this part and maintaining the ground-water monitoring system, if applicable; and

(4) Maintaining and operating the gas monitoring system in accordance with the requirements of § 258.23.

(b) The length of the post-closure care period may be:

(1) Decreased by the Director of an approved State if the owner or operator demonstrates that the reduced period is sufficient to protect human health and the environment and this demonstration is approved by the Director of an approved State; or

(2) Increased by the Director of an approved State if the Director of an approved State determines that the lengthened period is necessary to protect human health and the environment.

(c) The owner or operator of all MSWLF units must prepare a written post-closure plan that includes, at a minimum, the following information:

(1) A description of the monitoring and maintenance activities required in § 258.61(a) for each MSWLF unit, and the frequency at which these activities will be performed;

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

(3) A description of the planned uses of the property during the post-closure period. Post-closure use of the property shall not disturb the integrity of the final cover, liner(s), or any other components of the containment system, or the function of the monitoring systems unless necessary to comply with the requirements in this Part 258. The Director of an approved State may approve any other disturbance if the owner or operator demonstrates that disturbance of the final cover, liner or other component of the containment system, including any removal of waste, will not increase the potential threat to human health or the environment.

(d) The owner or operator must notify the State Director that a post-closure plan has been prepared and placed in the operating record no later than the effective date of this part, October 9,

1991, or by the initial receipt of waste, whichever is later.

(e) Following completion of the post-closure care period for each MSWLF unit, the owner or operator must notify the State Director that a certification, signed by an independent registered professional engineer or approved by the Director of an approved State, verifying that post-closure care has been completed in accordance with the post-closure plan, has been placed in the operating record.

§§ 258.62—258.69 [Reserved]

Subpart G—Financial Assurance Criteria

§ 258.70 Applicability and effective date.

(a) The requirements of this section apply to owners and operators of all MSWLF units, except owners or operators who are State or Federal government entities whose debts and liabilities are the debts and liabilities of a State or the United States.

(b) The requirements of this section are effective April 9, 1994.

§ 258.71 Financial assurance for closure.

(a) The owner or operator must have a detailed written estimate, in current dollars, of the cost of hiring a third party to close the largest area of all MSWLF unit ever requiring a final cover as required under § 258.60 at any time during the active life in accordance with the closure plan. The owner or operator must notify the State Director that the estimate has been placed in the operating record.

(1) The cost estimate must equal the cost of closing the largest area of all MSWLF unit ever requiring a final cover at any time during the active life when the extent and manner of its operation would make closure the most expensive, as indicated by its closure plan (see § 258.60(c)(2) of this part).

(2) During the active life of the MSWLF unit, the owner or operator must annually adjust the closure cost estimate for inflation.

(3) The owner or operator must increase the closure cost estimate and the amount of financial assurance provided under paragraph (b) of this section if changes to the closure plan or MSWLF unit conditions increase the maximum cost of closure at any time during the remaining active life.

(4) The owner or operator may reduce the closure cost estimate and the amount of financial assurance provided under paragraph (b) of this section if the cost estimate exceeds the maximum cost of closure at any time during the remaining life of the MSWLF unit. The

owner or operator must notify the State Director that the justification for the reduction of the closure cost estimate and the amount of financial assurance has been placed in the operating record.

(b) The owner or operator of each MSWLF unit must establish financial assurance for closure of the MSWLF unit in compliance with § 258.74. The owner or operator must provide continuous coverage for closure until released from financial assurance requirements by demonstrating compliance with § 258.60(h) and (i).

§ 258.72 Financial assurance for post-closure care.

(a) The owner or operator must have a detailed written estimate, in current dollars, of the cost of hiring a third party to conduct post-closure care for the MSWLF unit in compliance with the post-closure plan developed under § 258.61 of this part. The post-closure cost estimate used to demonstrate financial assurance in paragraph (b) of this section must account for the total costs of conducting post-closure care, including annual and periodic costs as described in the post-closure plan over the entire post-closure care period. The owner or operator must notify the State Director that the estimate has been placed in the operating record.

(1) The cost estimate for post-closure care must be based on the most expensive costs of post-closure care during the post-closure care period.

(2) During the active life of the MSWLF unit and during the post-closure care period, the owner or operator must annually adjust the post-closure cost estimate for inflation.

(3) The owner or operator must increase the post-closure care cost estimate and the amount of financial assurance provided under paragraph (b) of this section if changes in the post-closure plan or MSWLF unit conditions increase the maximum costs of post-closure care.

(4) The owner or operator may reduce the post-closure cost estimate and the amount of financial assurance provided under paragraph (b) of this section if the cost estimate exceeds the maximum costs of post-closure care remaining over the post-closure care period. The owner or operator must notify the State Director that the justification for the reduction of the post-closure cost estimate and the amount of financial assurance has been placed in the operating record.

(b) The owner or operator of each MSWLF unit must establish, in a manner in accordance with § 258.74, financial assurance for the costs of post-closure care as required under § 258.61

of this part. The owner or operator must provide continuous coverage for post-closure care until released from financial assurance requirements for post-closure care by demonstrating compliance with § 258.61(e).

§ 258.73 Financial assurance for corrective action.

(a) An owner or operator of a MSWLF unit required to undertake a corrective action program under § 258.58 of this part must have a detailed written estimate, in current dollars, of the cost of hiring a third party to perform the corrective action in accordance with the program required under § 258.58 of this part. The corrective action cost estimate must account for the total costs of corrective action activities as described in the corrective action plan for the entire corrective action period. The owner or operator must notify the State Director that the estimate has been placed in the operating record.

(1) The owner or operator must annually adjust the estimate for inflation until the corrective action program is completed in accordance with § 258.58(f) of this part.

(2) The owner or operator must increase the corrective action cost estimate and the amount of financial assurance provided under paragraph (b) of this section if changes in the corrective action program or MSWLF unit conditions increase the maximum costs of corrective action.

(3) The owner or operator may reduce the amount of the corrective action cost estimate and the amount of financial assurance provided under paragraph (b) of this section if the cost estimate exceeds the maximum remaining costs of corrective action. The owner or operator must notify the State Director that the justification for the reduction of the corrective action cost estimate and the amount of financial assurance has been placed in the operating record.

(b) The owner or operator of each MSWLF unit required to undertake a corrective action program under § 258.58 of this part must establish, in a manner in accordance with § 258.74, financial assurance for the most recent corrective action program. The owner or operator must provide continuous coverage for corrective action until released from financial assurance requirements for corrective action by demonstrating compliance with § 258.58 (f) and (g).

§ 258.74 Allowable mechanisms.

The mechanisms used to demonstrate financial assurance under this section must ensure that the funds necessary to meet the costs of closure, post-closure care, and corrective action for known

releases will be available whenever they are needed. Owners and operators must choose from the options specified in paragraphs (a) through (j) of this section.

(a) *Trust Fund.* (1) An owner or operator may satisfy the requirements of this section by establishing a trust fund which conforms to the requirements of this paragraph. The trustee must be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a Federal or State agency. A copy of the trust agreement must be placed in the facility's operating record.

(2) Payments into the trust fund must be made annually by the owner or operator over the term of the initial permit or over the remaining life of the MSWLF unit, whichever is shorter, in the case of a trust fund for closure or post-closure care, or over one-half of the estimated length of the corrective action program in the case of corrective action for known releases. This period is referred to as the pay-in period.

(3) For a trust fund used to demonstrate financial assurance for closure and post-closure care, the first payment into the fund must be at least equal to the current cost estimate for closure or post-closure care, except as provided in paragraph (j) of this section, divided by the number of years in the pay-in period as defined in paragraph (a)(2) of this section. The amount of subsequent payments must be determined by the following formula:

$$\text{Next Payment} = \frac{\text{CE} - \text{CV}}{Y}$$

where CE is the current cost estimate for closure or post-closure care (updated for inflation or other changes), CV is the current value of the trust fund, and Y is the number of years remaining in the pay-in period.

(4) For a trust fund used to demonstrate financial assurance for corrective action, the first payment into the trust fund must be at least equal to one-half of the current cost estimate for corrective action, except as provided in paragraph (j) of this section, divided by the number of years in the corrective action pay-in period as defined in paragraph (a)(2) of this section. The amount of subsequent payments must be determined by the following formula:

$$\text{Next Payment} = \frac{\text{RB} - \text{CV}}{Y}$$

where RB is the most recent estimate of the required trust fund balance for corrective action (i.e., the total costs that will be incurred during the second half of the corrective action period), CV is the current value of the trust fund, and Y is the number of years remaining on the pay-in period.

(5) The initial payment into the trust fund must be made before the initial receipt of waste or before the effective date of this section (April 9, 1994), whichever is later, in the case of closure and post-closure care, or no later than 120 days after the corrective action remedy has been selected in accordance with the requirements of § 258.58.

(6) If the owner or operator establishes a trust fund after having used one or more alternate mechanisms specified in this section, the initial payment into the trust fund must be at least the amount that the fund would contain if the trust fund were established initially and annual payments made according to the specifications of this paragraph and § 270.74(a) of this section, as applicable.

(7) The owner or operator, or other person authorized to conduct closure, post-closure care, or corrective action activities may request reimbursement from the trustee for these expenditures. Requests for reimbursement will be granted by the trustee only if sufficient funds are remaining in the trust fund to cover the remaining costs of closure, post-closure care, or corrective action, and if justification and documentation of the cost is placed in the operating record. The owner or operator must notify the State Director that the documentation of the justification for reimbursement has been placed in the operating record and that reimbursement has been received.

(8) The trust fund may be terminated by the owner or operator only if the owner or operator substitutes alternate financial assurance as specified in this section or if he is no longer required to demonstrate financial responsibility in accordance with the requirements of §§ 258.71(b), 258.72(b), or 258.73(b).

(b) *Surety Bond Guaranteeing Payment or Performance.* (1) An owner or operator may demonstrate financial assurance for closure or post-closure care by obtaining a payment or performance surety bond which conforms to the requirements of this paragraph. An owner or operator may demonstrate financial assurance for corrective action by obtaining a performance bond which conforms to the requirements of this paragraph. The bond must be effective before the initial receipt of waste or before the effective date of this section (April 9, 1994),

whichever is later, in the case of closure and post-closure care, or no later than 120 days after the corrective action remedy has been selected in accordance with the requirements of § 258.58. The owner or operator must notify the State Director that a copy of the bond has been placed in the operating record. The surety company issuing the bond must, at a minimum, be among those listed as acceptable sureties on Federal bonds in Circular 570 of the U.S. Department of the Treasury.

(2) The penal sum of the bond must be in an amount at least equal to the current closure, post-closure care or corrective action cost estimate, whichever is applicable, except as provided in § 258.74(k).

(3) Under the terms of the bond, the surety will become liable on the bond obligation when the owner or operator fails to perform as guaranteed by the bond.

(4) The owner or operator must establish a standby trust fund. The standby trust fund must meet the requirements of § 258.74(a) except the requirements for initial payment and subsequent annual payments specified in § 258.74 (a)(2), (3), (4) and (5).

(5) Payments made under the terms of the bond will be deposited by the surety directly into the standby trust fund. Payments from the trust fund must be approved by the trustee.

(6) Under the terms of the bond, the surety may cancel the bond by sending notice of cancellation by certified mail to the owner and operator and to the State Director 120 days in advance of cancellation. If the surety cancels the bond, the owner or operator must obtain alternate financial assurance as specified in this section.

(7) The owner or operator may cancel the bond only if alternate financial assurance is substituted as specified in this section or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with § 258.71(b), 258.72(b) or 258.73(b).

(c) *Letter of Credit.* (1) An owner or operator may satisfy the requirements of this section by obtaining an irrevocable standby letter of credit which conforms to the requirements of this paragraph. The letter of credit must be effective before the initial receipt of waste or before the effective date of this section (April 9, 1994), whichever is later, in the case of closure and post-closure care, or no later than 120 days after the corrective action remedy has been selected in accordance with the requirements of § 258.58. The owner or operator must notify the State Director that a copy of the letter of credit has been placed in the operating record. The

issuing institution must be an entity which has the authority to issue letters of credit and whose letter-of-credit operations are regulated and examined by a Federal or State agency.

(2) A letter from the owner or operator referring to the letter of credit by number, issuing institution, and date, and providing the following information: Name, and address of the facility, and the amount of funds assured, must be included with the letter of credit in the operating record.

(3) The letter of credit must be irrevocable and issued for a period of at least one year in an amount at least equal to the current cost estimate for closure, post-closure care or corrective action, whichever is applicable, except as provided in § 258.74(a). The letter of credit must provide that the expiration date will be automatically extended for a period of at least one year unless the issuing institution has cancelled the letter of credit by sending notice of cancellation by certified mail to the owner and operator and to the State Director 120 days in advance of cancellation. If the letter of credit is cancelled by the issuing institution, the owner or operator must obtain alternate financial assurance.

(4) The owner or operator may cancel the letter of credit only if alternate financial assurance is substituted as specified in this section or if the owner or operator is released from the requirements of this section in accordance with § 258.71(b), 258.72(b) or 258.73(b).

(d) *Insurance.* (1) An owner or operator may demonstrate financial assurance for closure and post-closure care by obtaining insurance which conforms to the requirements of this paragraph. The insurance must be effective before the initial receipt of waste or before the effective date of this section (April 9, 1994), whichever is later. At a minimum, the insurer must be licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more States. The owner or operator must notify the State Director that a copy of the insurance policy has been placed in the operating record.

(2) The closure or post-closure care insurance policy must guarantee that funds will be available to close the MSWLF unit whenever final closure occurs or to provide post-closure care for the MSWLF unit whenever the post-closure care period begins, whichever is applicable. The policy must also guarantee that once closure or post-closure care begins, the insurer will be

responsible for the paying out of funds to the owner or operator or other person authorized to conduct closure or post-closure care, up to an amount equal to the face amount of the policy.

(3) The insurance policy must be issued for a face amount at least equal to the current cost estimate for closure or post-closure care, whichever is applicable, except as provided in § 258.74(a). The term *face amount* means the total amount the insurer is obligated to pay under the policy. Actual payments by the insurer will not change the face amount, although the insurer's future liability will be lowered by the amount of the payments.

(4) An owner or operator, or any other person authorized to conduct closure or post-closure care, may receive reimbursements for closure or post-closure expenditures, whichever is applicable. Requests for reimbursement will be granted by the insurer only if the remaining value of the policy is sufficient to cover the remaining costs of closure or post-closure care, and if justification and documentation of the cost is placed in the operating record. The owner or operator must notify the State Director that the documentation of the justification for reimbursement has been placed in the operating record and that reimbursement has been received.

(5) Each policy must contain a provision allowing assignment of the policy to a successor owner or operator. Such assignment may be conditional upon consent of the insurer, provided that such consent is not unreasonably refused.

(6) The insurance policy must provide that the insurer may not cancel, terminate or fail to renew the policy except for failure to pay the premium. The automatic renewal of the policy must, at a minimum, provide the insured with the option of renewal at the face amount of the expiring policy. If there is a failure to pay the premium, the insurer may cancel the policy by sending notice of cancellation by certified mail to the owner and operator and to the State Director 120 days in advance of cancellation. If the insurer cancels the policy, the owner or operator must obtain alternate financial assurance as specified in this section.

(7) For insurance policies providing coverage for post-closure care, commencing on the date that liability to make payments pursuant to the policy accrues, the insurer will thereafter annually increase the face amount of the policy. Such increase must be equivalent to the face amount of the policy, less any payments made, multiplied by an amount equivalent to 85 percent of the most recent investment rate or of the

equivalent coupon-issue yield announced by the U.S. Treasury for 26-week Treasury securities.

(8) The owner or operator may cancel the insurance policy only if alternate financial assurance is substituted as specified in this section or if the owner or operator, is no longer required to demonstrate financial responsibility in accordance with the requirements of § 258.71(b), 258.72(b) or 258.73(b).

(e) *Corporate Financial Test.* [Reserved]

(f) *Local Government Financial Test.*

[Reserved]

(g) *Corporate Guarantee.* [Reserved]

(h) *Local Government Guarantee.* [Reserved]

(i) *State-Approved Mechanism.* An owner or operator may satisfy the requirements of this section by obtaining any other mechanism that meets the criteria specified in § 258.74(1), and that is approved by the Director of an approved State.

(j) *State Assumption of Responsibility.* If the State Director either assumes legal responsibility for an owner or operator's compliance with the closure, post-closure care and/or corrective action requirements of this part, or assures that the funds will be available from State sources to cover the requirements, the owner or operator will be in compliance with the requirements of this section. Any State assumption of responsibility must meet the criteria specified in § 258.74(1).

(k) *Use of Multiple Financial Mechanisms.* An owner or operator may satisfy the requirements of this section by establishing more than one financial mechanism per facility. The mechanisms must be as specified in paragraphs (a), (b), (c), (d), (e), (f), (g), (h), (i), and (j) of this section, except that it is the combination of mechanisms, rather than the single mechanism, which must provide financial assurance for an amount at least equal to the current cost estimate for closure, post-closure care or corrective action, whichever is applicable. The financial test and a guarantee provided by a corporate parent, sibling, or grandparent may not be combined if the financial statements of the two firms are consolidated.

(l) The language of the mechanisms listed in paragraphs (a), (b), (c), (d), (e), (f), (g), (h), (i), and (j) of this section must ensure that the instruments satisfy the following criteria:

(1) The financial assurance mechanisms must ensure that the amount of funds assured is sufficient to cover the costs of closure, post-closure care, and corrective action for known releases when needed;

(2) The financial assurance mechanisms must ensure that funds will be available in a timely fashion when needed;

(3) The financial assurance mechanisms must be obtained by the owner or operator by the effective date of these requirements or prior to the initial receipt of solid waste, whichever is later, in the case of closure and post-closure care, and no later than 120 days after the corrective action remedy has been selected in accordance with the requirements of § 258.58, until the owner or operator is released from the financial assurance requirements under §§ 258.71, 258.72 and 258.73.

(4) The financial assurance mechanisms must be legally valid, binding, and enforceable under State and Federal law.

Appendix I to this Part 258— Constituents for Detection Monitoring ¹

Common name *	CAS RN *
Inorganic Constituents:	
(1) Antimony.....	(Total)
(2) Arsenic.....	(Total)
(3) Barium.....	(Total)
(4) Beryllium.....	(Total)
(5) Cadmium.....	(Total)
(6) Chromium.....	(Total)
(7) Cobalt.....	(Total)
(8) Copper.....	(Total)
(9) Lead.....	(Total)
(10) Nickel.....	(Total)
(11) Selenium.....	(Total)
(12) Silver.....	(Total)
(13) Thallium.....	(Total)
(14) Vanadium.....	(Total)
(15) Zinc.....	(Total)
Organic Constituents:	
(16) Acetone.....	87-64-1
(17) Acrylonitrile.....	107-13-1
(18) Benzene.....	71-43-2
(19) Bromochloromethane.....	74-87-5
(20) Bromodichloromethane.....	75-27-4
(21) Bromoform; Tribromomethane.....	75-25-2
(22) Carbon disulfide.....	75-15-0
(23) Carbon tetrachloride.....	56-23-5
(24) Chlorobenzene.....	108-90-7
(25) Chloroethane; Ethyl chloride.....	75-00-3
(26) Chloroform; Trichloromethane.....	67-66-3
(27) Dibromochloromethane; Chloro-dibromomethane.....	124-48-1
(28) 1,2-Dibromo-3-chloropropane; DBCP.....	96-12-8
(29) 1,2-Dibromoethane; Ethylene dibromide; EDB.....	106-83-4
(30) o-Dichlorobenzene; 1,2-Dichlorobenzene.....	95-50-1
(31) p-Dichlorobenzene; 1,4-Dichlorobenzene.....	106-48-7
(32) trans-1,4-Dichloro-2-butene.....	110-57-8
(33) 1,1-Dichloroethane; Ethylidene chloride.....	75-34-3
(34) 1,2-Dichloroethane; Ethylene dichloride.....	107-06-2
(35) 1,1-Dichloroethylene; 1,1-Dichloroethene; Vinylidene chloride.....	75-35-4
(36) cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene.....	156-59-2

Common name *	CAS RN *	Common name *	CAS RN *	Common name *	CAS RN *
(37) trans-1,2-Dichloroethylene; trans-1,2-Dichloroethene.....	156-60-5	(47) Methyl ethyl ketone; MEK; 2- Butanone.....	78-93-3	(59) 1,2,3-Trichloropropane.....	96-18-4
(38) 1,2-Dichloropropane; Propylene dichloride.....	78-87-5	(48) Methyl iodide; Iodomethane.....	74-88-4	(60) Vinyl acetate.....	108-05-4
(39) cis-1,3-Dichloropropene.....	10061-01-5	(49) 4-Methyl-2-pentanone; Methyl isobutyl ketone.....	108-10-1	(61) Vinyl chloride.....	75-01-4
(40) trans-1,3-Dichloropropene.....	10061-02-8	(50) Styrene.....	100-42-5	(62) Xylenes.....	1330-20-7
(41) Ethylbenzene.....	100-41-4	(51) 1,1,1,2-Tetrachloroethane.....	630-20-8	¹ This list contains ~~of~~ volatile organics for which possible analytical procedures provided in EPA Report SW-846 "Test Methods for Evaluating Solid Waste," third edition, November 1986, as revised December 1987, includes Method 8260; and 15 metals for which SW-846 provides either Method 8010 or a method from the 7000 series of methods. ² Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals. ³ Chemical Abstracts Service registry number. Where "Total" is entered, all species in the ground water that contain this element are included.	
(42) 2-Hexanone; Methyl butyl ketone.....	591-78-6	(52) 1,1,2,2-Tetrachloroethane.....	79-34-5		
(43) Methyl bromide; Bromometh- ane.....	74-83-9	(53) Tetrachloroethylene; Tetrach- loroethene; Perchloroethylene.....	127-18-4		
(44) Methyl chloride; Chlorometh- ane.....	74-87-3	(54) Toluene.....	108-88-3		
(45) Methylene bromide; Dibromo- methane.....	74-95-3	(55) 1,1,1-Trichloroethane; Meth- ylchloroform.....	71-55-8		
(46) Methylene chloride; Dichloro- methane.....	75-09-2	(56) 1,1,2-Trichloroethane.....	79-00-5		
		(57) Trichloroethylene; Trichloroeth- ene.....	79-01-8		
		(58) Trichlorofluoromethane; CFC- 11.....	75-89-4		

Appendix II to this Part 258—List of Hazardous Inorganic and Organic Constituents ¹

Common Name *	CAS RN *	Chemical abstracts service index name *	Sug- gested meth- ods *	PCL (µg/ L) *
Acenaphthene.....	83-32-9	Acenaphthylene, 1,2-dihydro.....	8100	200
Acenaphthylene.....	208-96-8	Acenaphthylene.....	8270	10
Acetone.....	67-84-1	2-Propanone.....	8100	200
Acetonitrile; Methyl cyanide.....	75-05-8	Acetonitrile.....	8270	10
Acetophenone.....	98-85-2	Ethanone, 1-phenyl.....	8260	100
2-Acetylaminofluorene; 2-AAF.....	53-96-3	Acetamide, N-9H-fluoren-2-yl.....	8015	100
Acrolein.....	107-02-8	2-Propanal.....	8270	20
			8030	5
Acrylonitrile.....	107-13-1	2-Propenenitrile.....	8260	100
			8030	5
Aldrin.....	309-00-2	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro- 1,4,4a,5,8,8a-hexahydro- (1a,4a,4aβ,5a,8a,8aβ)-	8260	200
Alkyl chloride.....	107-05-1	1-Propene, 3-chloro.....	8270	10
			8010	5
4-Aminobiphenyl.....	92-67-1	[1,1'-Biphenyl]-4-amine.....	8260	10
Anthracene.....	120-12-7	Anthracene.....	8270	20
			8100	200
Antimony.....	(Total)	Antimony.....	8270	10
			6010	300
			7040	2000
			7041	30
Arsenic.....	(Total)	Arsenic.....	6010	500
			7060	10
			7061	20
Barium.....	(Total)	Barium.....	6010	20
			7060	1000
Benzene.....	71-43-2	Benzene.....	8020	2
			8021	0.1
			8260	5
Benzo[a]anthracene; Benzanthracene.....	56-55-3	Benzo[a]anthracene.....	8100	200
			8270	10
Benzo[b]fluoranthene.....	205-99-2	Benzo[b]acephenanthrylene.....	8100	200
			8270	10
Benzo[k]fluoranthene.....	207-08-9	Benzo[k]fluoranthene.....	8100	200
			8270	10
Benzo[ghi]perylene.....	191-24-2	Benzo[ghi]perylene.....	8100	200
			8270	10
Benzo[a]pyrene.....	50-32-8	Benzo[a]pyrene.....	8100	200
			8270	10
Benzyl alcohol.....	100-51-6	Benzenemethanol.....	8270	20
Beryllium.....	(Total)	Beryllium.....	6010	5
			7060	50
			7091	2
alpha-BHC.....	319-84-6	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1a,2a,3β,4a,5β,6β)-	8080	0.05
			8270	10
beta-BHC.....	319-85-7	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1a,2β,3a,4β,5a,6β)-	8080	0.05
			8270	20
delta-BHC.....	319-86-8	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1a,2a,3a,4β,5a,6β)-	8080	0.1
			8270	20