

**WEST VIRGINIA
SECRETARY OF STATE**

KEN HECHLER

ADMINISTRATIVE LAW DIVISION

Form #6

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1989 MAY-1 PM 1:55

WEST VIRGINIA LEGISLATURE
SECRETARY OF STATE

**NOTICE OF FINAL FILING AND ADOPTION OF A LEGISLATIVE RULE AUTHORIZED
BY THE WEST VIRGINIA LEGISLATURE.**

AGENCY: West Virginia Department of Natural Resources TITLE NUMBER: 47

AMENDMENT TO AN EXISTING RULE: YES X, NO

IF YES, SERIES NUMBER OF RULE BEING AMENDED: 35

TITLE OF RULE BEING AMENDED: _____

Hazardous Waste Management Regulations

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


TITLE OF RULE BEING PROPOSED: _____

THE ABOVE RULE HAS BEEN AUTHORIZED BY THE WEST VIRGINIA LEGISLATURE.

AUTHORIZATION IS CITED IN (house or senate bill number) House Bill 2853

SECTION 64-2-7(x), PASSED ON April 8, 1989

THIS RULE IS FILED WITH THE SECRETARY OF STATE. THIS RULE BECOMES EFFECTIVE ON
THE FOLLOWING DATE: June 1, 1989



FISCAL NOTE FOR PROPOSED RULES

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Rule Title: Hazardous Waste Management Regulations

Type of Rule: X Legislative Interpretive Procedural

Agency: West Virginia Department of Natural Resources

Address: 1800 Washington Street East, Charleston, West Virginia 25305

1. Effect of Proposed Rule (Estimated Total Cost)	Increase \$	ANNUAL		FISCAL YEAR	
		Decrease \$	Current \$	Next \$	Thereafter \$

Personal Services

Current Expense

Repairs and Alterations

NO CHANGE

Equipment

Other

2. Explanation of Above Estimates:

This proposal updates existing Department regulations; no new administrative expenditures are anticipated.

3. Objectives of These Rules:

This proposal updates the State's hazardous waste management regulations to incorporate federal revisions promulgated between July 1, 1987 and June 30, 1988.

4. Explanation of Overall Economic Impact of Proposed Rule.

A. Economic Impact on State Government: NO IMPACT

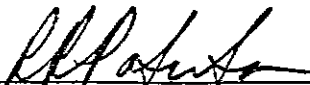
B. Economic Impact on Political Subdivisions: NO IMPACT

Economic Impact on Specific Industries: NO IMPACT

Economic Impact on Specific Groups of Citizens: NO IMPACT

C. Economic Impact on Citizens/Public at Large: NO IMPACT

Date: July 15, 1988


 Ronald R. Potesta
 Director

DATE: September 2, 1988

TO: LEGISLATIVE RULE-MAKING REVIEW COMMITTEE

FROM: West Virginia Department of Natural Resources

LEGISLATIVE RULE TITLE: Hazardous Waste Management Regulations

1. Authorizing statute(s) citation:

West Virginia Code Chapter 20, Article 5E, Section 6

2. a. Date filed in State Register with Notice of Hearing:

July 15, 1988

b. What other notice, including advertising, did you give of the public hearing?

An official Department News Release was sent to all West Virginia newspapers and radio and television stations.

c. Date(s) of hearing(s): August 22, 1988

d. Attach list of persons who appeared at hearing, comments received, amendments, reasons for amendments.

Attached X No comments received _____

Comments received, amendments, and reasons for amendments appear in the Response to Comments filed with the agency-approved proposed Legislative Rule.

e. Date you filed in State Register the agency-approved proposed Legislative Rule following public hearing:

September 2, 1988

f. Name and phone number of agency person to contact for additional information:

Mr. Dennis H. Treacy, Administrator
Office of Environmental & Regulatory Affairs
348-2754

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:

NOT APPLICABLE

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.

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:

TITLE 47
LEGISLATIVE RULES
DEPARTMENT OF NATURAL RESOURCES

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SERIES 35
HAZARDOUS WASTE MANAGEMENT REGULATIONS

OFFICE OF THE CLERK
SECRETARY OF STATE

§47-35-1. Scope and Authority.

1.1. Scope and Purpose. -- The purpose of these regulations is to provide for the regulation of the generation, treatment, storage, and disposal of hazardous waste to the extent necessary for the protection of the public health and safety and the environment.

1.2. Authority. -- ~~W. Va. Code §§20-5E-4 through 20-5E-7~~
W. Va. Code §20-5E-6.

1.3. Effective Date. --

1.4. Filing Date. --

1.5. Incorporation by Reference. Whenever either federal statutes or regulations or State statutes or regulations are incorporated by reference into these regulations, the reference is to that statute or regulation in effect on ~~June 30, 1987~~ June 30, 1988.

1.6. Promulgation History. (Reserved).

§47-35-2. Definitions.

For the purposes of these regulations, the following words and phrases shall have the meanings ascribed to them in Section 2 of these regulations unless the context of the regulations indicate otherwise:

2.1. "Aboveground Tank" means a device meeting the definition of "tank" in these regulations and that is situated in such a way that the entire surface area of the tank is completely above the plane of the adjacent surrounding surface and the entire surface area of the tank (including the tank bottom) is able to be visually inspected.

2.2. "Active Life" of a facility means the period from the initial receipt of a hazardous waste at the facility until the chief receives certification of final closure.

2.3. "Active Portion" means that portion of a facility where treatment, storage, or disposal operations are being conducted. It includes the treated area of a landfarm and the active face of a landfill, but does not include those portions of a facility which

have been closed in accordance with all applicable closure requirements.

2.4. "Administrator" means the administrator of the United States Environmental Protection Agency or his designee.

2.5. "Ancillary Equipment" means any device including, but not limited to, such devices as piping, fitting, flanges, valves, and pumps that is used to distribute, meter, or control the flow of hazardous waste from its point of generation to a storage or treatment tank(s), between hazardous waste storage and treatment tanks to a point of disposal on-site, or to a point of shipment for disposal off-site.

2.6. "Application, Part A" means that part of the application which a permit applicant must complete to qualify for interim status under Section 3005(e) of RCRA or these regulations and for consideration for a permit.

2.7. "Application, Part B" means that part of the application which a permit applicant must complete to be considered for a permit.

2.8. "Approved Form" means any Environmental Protection Agency standard national form for administering the hazardous waste provisions of RCRA, or a form approved by the ~~chief of the Division of Water Resources or the director of the Department of Natural Resources~~ or the director.

2.9. "Aquifer" means a geologic formation, group of formations, or part of a formation that is capable of yielding a significant amount of groundwater to wells or springs.

2.10. "Authorized Representative" means the person responsible for the overall operation of a facility or an operational unit that is part of a facility.

2.11. "Boiler" means an enclosed device using controlled flame combustion and having the following characteristics:

2.11.1. The unit must have physical provisions for recovering and exporting thermal energy in the form of steam, heated fluids, or heated gases;

2.11.2. The unit's combustion chamber and primary energy recovery section(s) must be of integral design. To be of integral design, the combustion chamber and primary energy recovery section(s) (such as waterwalls and superheaters) must be physically formed into one manufactured or assembled unit. A unit in which the combustion chamber and the primary energy recovery section(s) are joined only by ducts or connections carrying flue gas is not integrally designed; however, secondary energy recovery equipment such as economizers or air preheaters need not be

physically formed into the same unit as the combustion chamber and primary energy recovery section(s). The following units are not precluded from being boilers solely because they are not of integral design: process heaters (units that transfer energy directly to a process stream) and fluidized bed combustion units;

2.11.3. While in operation, the unit must maintain a thermal energy recovery efficiency of at least sixty percent (60%), calculated in terms of the recovered energy compared with the thermal value of the fuel; and

2.11.4. The unit must export and utilize at least seventy-five percent (75%) of the recovered energy, calculated on an annual basis. In this calculation, no credit shall be given for recovered heat used internally in the same unit. Examples of internal use are the preheating of fuel or combustion air and the driving of induced or forced draft fans or feedwater pumps.

2.12. "Calendar Year" means January 1 through December 31.

2.13. "Certification" means a statement of professional opinion based upon knowledge and belief.

2.14. "Chief" means the chief of the Division of Water Resources of the West Virginia Department of Natural Resources.

2.15. "Closed Facility" means a facility which has been properly closed in accordance with the facility closure plan and all applicable regulations and requirements.

2.16. "Closed Portion" means that portion of a facility which an owner or operator has closed in accordance with the facility closure plan and all applicable closure requirements.

2.17. "Closure" means the act of securing a hazardous waste management facility pursuant to the requirements of these regulations.

2.18. "Common Code" means the unique code assigned by the Chemical Abstract Services (also known as the CAS Registry Number) to each EPA hazardous waste and to each DOT hazardous waste material.

2.19. "Component" means either the tank or the ancillary equipment of a tank system.

2.20. "Confined Aquifer" means an aquifer, overlain by a confining layer of significantly lower hydraulic conductivity, containing groundwater that is under sufficient pressure to rise above the level at which it is encountered by a well.

2.21. "Container" means any portable device in which a material is stored, transported, treated, disposed of, or

otherwise handled.

2.22. "Contingency Plan" means a document setting out an organized, planned, and coordinated course of actions to be followed in the event of a fire, explosion, or release of hazardous waste or hazardous constituents which could threaten human health or environment.

2.23. "Corrosion Expert" means a person who, by reason of his knowledge of the physical sciences and the principles of engineering and mathematics, acquired through a professional education and related practical experience, is qualified to engage in the practice of corrosion control on buried or submerged metal piping systems and metal tanks. Such a person must be certified as being qualified by the National Association of Corrosion Engineers (NACE) or be a registered professional engineer who has certification or licensing that includes education and experience in corrosion control on buried or submerged metal piping systems and metal tanks.

2.24. "CWA" means the Clean Water Act (formerly referred to as the Federal Water Pollution Control Act), Public Law 92-500, as amended by Public Law 95-217 and Public Law 95-576; 33 U.S.C. §1251 et seq.

2.25. "Designated Facility" or "Designated Hazardous Waste Management Facility" means a hazardous waste treatment, storage, or disposal facility which has received a permit from the Environmental Protection Agency in accordance with 40 C.F.R. Parts 124 and 270, a permit from this State or another authorized state hazardous waste program, or which has been granted interim status or that is regulated under Section 3.1.6 or 9.6 of these regulations, and that has been designated on the manifest to receive a specific hazardous waste shipment.

2.26. "Dike" means an embankment or ridge of either natural or man-made materials used to contain liquids, sludges, solids, or other materials.

2.27. "Director" means the director of the West Virginia Department of Natural Resources.

2.28. "Discharge" or "Hazardous Waste Discharge" means the accidental or intentional spilling, leaking, pumping, pouring, emitting, emptying, or dumping of hazardous waste into or on any land or State waters.

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

2.30. "Disposal Facility" means a facility or part of a facility at which hazardous waste is intentionally placed into or on any land or water, and at which the waste will remain after closure.

2.31. "Division" means the Division of Water Resources of the West Virginia Department of Natural Resources.

2.32. "Domestic Sewage" means untreated sanitary wastes that pass through a sewer system.

2.33. "DOT" means the United States Department of Transportation.

2.34. "Draft Permit" means a document prepared under Section 11.21 of these regulations indicating the chief's tentative decision to issue, deny, modify, revoke and reissue, revoke, or reissue a permit.

2.35. "Elementary Neutralization Unit" means a device which:

(a) 2.35.1. Is used for neutralizing wastes which are hazardous only because they exhibit the corrosivity characteristic defined in Section 3.3.3 of these regulations, or are listed in Section 3.4 of these regulations only for this reason; and

(b) 2.35.2. Meets the definition of a tank, container, or transport vehicle as defined in these regulations.

2.36. "Emergency Permit" means a permit issued where an imminent and substantial endangerment to human health or the environment is determined to exist by the director or the chief.

2.37. "EPA" means the United States Environmental Protection Agency.

2.38. "EPA Hazardous Waste Number" means the number assigned by EPA to each hazardous waste listed in Section 3.4 of these regulations and to each characteristic identified in Section 3.3 of these regulations.

2.39. "EPA Identification Number" means the number assigned by EPA to each hazardous waste generator, hazardous waste transporter, or hazardous waste facility.

2.40. "Equivalent Method" means any testing or analytical method approved by the Administrator under 40 C.F.R. §§260.20 and 260.21.

2.41. "Existing Facility" or "Existing Hazardous Waste Management Facility" means a facility which was in operation or for which construction commenced on or before July 10, 1981. Under this authority a facility has commenced construction if:

~~(a)~~ 2.41.1. The owner or operator has obtained all necessary federal, State, and local approvals or permits to begin physical construction; and either

~~(b)~~ 2.41.2. A continuous physical on-site construction program has begun, or

~~(c)~~ 2.41.3. The owner or operator has entered into contractual obligations which cannot be cancelled or modified without substantial loss for construction of the facility to be completed within a reasonable time.

2.42. "Existing Portion" means that land surface area of an existing waste management unit, included in the original Part A permit application, on which wastes have been placed prior to the issuance of a permit.

2.43. "Existing Tank System" or "Existing Component" means a tank system or component that is used for the storage or treatment of hazardous waste and that is either in operation or for which installation has commenced on or prior to the effective date of these regulations. Installation will be considered to have commenced if the owner or operator has obtained all federal, State, and local approvals or permits necessary to begin physical construction of the site or installation of the tank system and if either ~~(a)~~ a continuous on-site physical construction or installation program has begun or ~~(b)~~ the owner or operator has entered into contractual obligations -- which cannot be canceled or modified without substantial loss -- for physical construction of the site or installation of the tank system to be completed within a reasonable time.

2.44. "Federal Agency" means any department, agency, or other instrumentality of the federal government, any independent agency or establishment of the federal government including any government corporation, and the Government Printing Office.

2.45. "Federal, State, and Local Approvals or Permits Necessary to Begin Physical Construction" means permits and approvals required under federal, state, or local hazardous waste control statutes, regulations, or ordinances.

2.46. "Final Closure" means the closure of all hazardous waste management units at the facility in accordance with all applicable closure requirements so that hazardous waste management activities under Section 8 of these regulations and 40 C.F.R. Part 265 are no longer conducted at the facility unless subject to the provisions in Section 6.3.5 of these regulations.

2.47. "Final Cover" means cover material that is applied upon closure of a landfill and is permanently exposed at the surface.

2.48. "Flash Point" means the minimum temperature at which a

liquid or solid gives off sufficient vapor to form an ignitable vapor-air mixture near the surface of the liquid or solid. An ignitable mixture is one that, when ignited, is capable of the initiation and propagation of flame away from the source of ignition. Propagation of flame means the spread of the flame from layer to layer independent of the source of ignition.

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

2.50. "Foreign Source" means a source outside the geographical boundaries of the continental United States.

2.51. "Freeboard" means the vertical distance between the top of a surface impoundment, open tank, or other containment device and the surface of the waste contained therein.

2.52. "Free Liquids" means liquids which readily separate from the solid portion of a waste under ambient temperature and pressure.

2.53. "Generator" means any person, by site location, whose act or process produces hazardous waste identified or listed in Section 3 of these regulations or whose act first causes a hazardous waste to become subject to these regulations.

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

2.55. "Hazardous Constituent" or "Constituent" are constituents identified in Appendix VIII of these regulations or constituents that caused the director to list the hazardous waste in Section 3.4 of these regulations or constituents listed in Table II of these regulations, that are reasonably expected to be in or derived from waste contained in a regulated unit or that have been detected in groundwater in the uppermost aquifer underlying a regulated unit.

2.56. "Hazardous Waste" means a hazardous waste as defined in Section 3.1.3 of these regulations except as Section 3.1.1.b of these regulations provides otherwise.

2.57. "Hazardous Waste Activity" means the handling of hazardous waste as in the generation, transportation, treatment, storage, or disposal of any hazardous waste.

2.58. "Hazardous Waste Generation" means the act or process of producing hazardous waste materials.

2.59. "Hazardous Waste Management" means the systematic control of the collection, source separation, storage, transportation, processing, treatment, recovery, and disposal of

hazardous wastes.

2.60. "Hazardous Waste Management Facility" or "Facility" means all contiguous land and structures, other appurtenances, and improvements on the land used for treating, storing, or disposing of hazardous waste. A facility may consist of several treatment, storage, or disposal operational units.

2.61. "Hazardous Waste Management Unit" is a contiguous area of land on or in which hazardous waste is placed, or the largest area in which there is significant likelihood of mixing hazardous waste constituents in the same area. Examples of hazardous waste management units include a surface impoundment, a waste pile, a land treatment area, a landfill cell, an incinerator, a tank (including its associated piping and underlying containment system), and a container storage area. A container alone does not constitute a unit; a unit includes containers and the land or pad upon which they are placed.

2.62. "Inactive Portion" means that portion of a facility which has not been in operation since the effective date of Section 3 of these regulations.

2.63. "Incinerator" means any enclosed device using controlled flame combustion that neither meets the criteria for classification as a boiler nor is listed as an industrial furnace.

2.64. "Incompatible Waste" means a hazardous waste which is unsuitable for:

2.64.1. Placement in a particular device or facility because it may cause corrosion or decay of containment materials; or

2.64.2. Commingling with another waste or material under uncontrolled conditions because the commingling might produce heat or pressure, fire or explosion, violent reaction, toxic dusts, mists, fumes or gases, or flammable fumes or gases.

2.65. "Individual Generation Site" means the contiguous site at or on which one or more hazardous wastes are generated. An individual generation site, such as a large manufacturing plant, may have one or more sources of hazardous waste, but is considered a single or individual generation site if the site or property is contiguous.

2.66. "Industrial Furnace" means any of the following enclosed devices that are integral components of manufacturing processes and that use controlled flame devices to accomplish recovery of materials or energy:

2.66.1. Cement kilns;

- 2.66.2. Lime kilns;
- 2.66.3. Aggregate kilns;
- 2.66.4. Phosphate kilns;
- 2.66.5. Coke ovens;
- 2.66.6. Blast furnaces;
- 2.66.7. Smelting, melting, and refining furnaces (including pyrometallurgical devices such as cupolas, reverberator furnaces, sintering machines, roasters, and foundry furnaces);
- 2.66.8. Titanium dioxide chloride process oxidation reactors;
- 2.66.9. Methane reforming furnaces;
- 2.66.10. Pulping liquor recovery furnaces;
- 2.66.11. Combustion devices used in the recovery of sulfur values from spent sulfuric acid; or
- 2.66.12. Such other devices as the director may, after notice and comment, add to this list on the basis of one or more of the following factors:
 - 2.66.12.a. The design and use of the device primarily to accomplish recovery of material products;
 - 2.66.12.b. The use of the device to burn or reduce raw materials to make a material product;
 - 2.66.12.c. The use of the device to burn or reduce secondary materials as effective substitutes for raw materials, in processes using raw materials as principal feedstocks;
 - 2.66.12.d. The use of the device to burn or reduce secondary materials as ingredients in an industrial process to make a material product;
 - 2.66.12.e. The use of the device in common industrial practice to produce a material product; and
 - 2.66.12.f. Other factors, as appropriate.
- 2.67. "Inground Tank" means a device meeting the definition of "tank" in these regulations whereby a portion of the tank wall is situated to any degree within the ground, thereby preventing visual inspection of that external surface area of the tank that is in the ground.

2.68. "Injection Well" means a well or bore hole into which fluids are injected.

2.69. "Inner Liner" means a continuous layer of material placed inside a tank or container which protects the construction materials of the tank or container from the contained waste or reagents used to treat the waste.

2.70. "In Operation" means facilities that are treating, storing, or disposing of hazardous waste.

2.71. "Installation Inspector" means a person who, by reason of his knowledge of the physical sciences and the principles of engineering, acquired through a professional education and related practical experience, is qualified to supervise the installation of tank systems.

2.72. "Interim Status" means the status obtained by any person who owns or operates a facility in existence, or existing on July 10, 1981, and required to have a permit under these regulations. Such facilities will be treated as having been issued a permit until such time as final administrative disposition is made with respect to an applicant for such permit provided that such facility is operating and continues to operate in compliance with interim status requirements of Section 3005 of the--~~federal--Solid Waste Disposal Act RCRA~~, and in such a manner as will not cause or create a substantial risk of a health hazard or public nuisance or a significant adverse effect upon the environment.

2.73. "International Shipment" means the transportation of hazardous waste, into or out of the jurisdiction of the United States.

~~2.74. "Landfill" means a disposal facility or part of a facility where hazardous waste is placed in or on land and which is not a land treatment facility, a surface impoundment, or an injection well.~~

2.74. "Landfill" means a disposal facility or part of a facility where hazardous waste is placed in or on land and which is not a pile, a land treatment facility, a surface impoundment, an underground injection well, a salt dome formation, a salt bed formation, an underground mine, or a cave.

2.75. "Landfill Cell" or "Cell" means a discrete volume of a hazardous waste landfill which uses a liner to provide isolation of wastes from adjacent cells or wastes. Examples of landfill cells are trenches and pits.

2.76. "Land Treatment Facility" means a facility or part of a facility at which hazardous waste is applied onto or incorporated into the soil surface; such facilities are disposal facilities if the waste will remain after closure.

2.77. "Leachate" means liquid, including any suspended components in the liquid, that has percolated through or drained from hazardous waste.

2.78. "Leak-Detection System" means a system capable of detecting the failure of either the primary or secondary containment structure or the presence of a release of hazardous waste or accumulated liquid in the secondary containment structure. Such a system must employ operational controls (e.g., daily visual inspections for releases into the secondary containment system of aboveground tanks) or consist of an interstitial monitoring device designed to detect continuously and automatically the failure of the primary or secondary containment structure or the presence of a release of hazardous waste into the secondary containment structure.

2.79. "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 hazardous waste, hazardous waste constituents or leachate.

2.80. "Major Facility" means a disposal or treatment facility which disposes or treats an amount of hazardous waste exceeding or equal to one thousand (1,000) tons during a calendar year, and any storage facility having a storage capacity for one thousand (1,000) tons of hazardous waste or more.

2.81. "Manifest" means the shipping document originated and signed by the generator, which contains the information required by Section 6.2 of these regulations.

2.82. "Manifest Document Number" means the serial number assigned to the manifest by the generator for record keeping and reporting purposes.

2.83. "Mining Overburden Returned to the Mine Site" means any material overlying an economic mineral deposit which is removed to gain access to that deposit and is then used for reclamation of a surface mine.

2.84. "Miscellaneous Unit" means a hazardous waste management unit where hazardous waste is treated, stored, or disposed of and that is not a container, tank, surface impoundment, pile, land treatment unit, landfill, incinerator, boiler, industrial furnace, underground injection well with appropriate technical standards under 40 C.F.R. Part 146, or unit eligible for a research, development, and demonstration permit under 40 C.F.R. §270.65.

~~2-84-~~ 2.85. "Monitoring" means all procedures used to inspect and quantify the chemical or physical characteristics of the air, ~~State-waters,-or-soils~~ soils, or State waters.

~~2-85-~~ 2.86. "Movement" means transportation of hazardous waste to a facility in an individual transportation vehicle.

~~2-86-~~ 2.87. "New Facility" or "New Hazardous Waste Management Facility" means a facility which began operation or for which construction commenced after July 10, 1981.

~~2-87-~~ 2.88. "New Tank Component" or "New Tank System" means a tank system or component that will be used for the storage or treatment of hazardous waste and for which installation has commenced after the effective date of these regulations; except, however, for purposes of Section 8.8.4.g.2 of these regulations, a new tank system is one for which construction commences after the effective date of these regulations. (See also "existing tank system.")

~~2-88-~~ 2.89. "Not In Service" means a regulated unit that has ceased receiving hazardous waste and has been emptied to the point that portions of the liner(s) are exposed below the normal operating level.

~~2-89-~~ 2.90. "NPDES (National Pollutant Discharge Elimination System)" means the national program for issuing, modifying, revoking, reissuing, terminating, monitoring, and enforcing permits and imposing and enforcing pretreatment requirements pursuant to CWA Sections 307, 402, 318, and 405. The term includes any approved State program.

~~2-90-~~ 2.91. "Onground Tank" means a device meeting the definition of "tank" in these regulations and that is situated in such a way that the bottom of the tank is on the same level as the adjacent surrounding surface so that the external tank bottom cannot be visually inspected.

~~2-91-~~ 2.92. "On-Site" means on the same or geographically contiguous property which may be divided by public or private rights-of-way, provided the entrance and exit between the properties is at a cross-roads intersection, and access is by crossing as opposed to going along the rights-of-way. Noncontiguous properties owned by the same person but connected by a right-of-way which the person controls and to which the public does not have access, is also considered on-site property.

~~2-92-~~ 2.93. "Operator" means the person responsible for the overall operation of a hazardous waste management facility.

~~2-93-~~ 2.94. "Owner" means the person who owns a hazardous waste management facility or part of a hazardous waste management facility.

~~2-94-~~ 2.95. "Packaging" means the assembly of one or more containers and any other components necessary to assure compliance with the minimum packaging requirements under 49 C.F.R. Parts

173, 178, and 179 and includes containers (other than freight containers or overpacks), portable tanks, cargo tanks, tank cars, and multi-unit tank car units.

2-95- 2.96. "Partial Closure" means the closure of a hazardous waste management unit in accordance with the applicable closure requirements of Section 8 of these regulations and 40 C.F.R. Part 265 at a facility that contains other active hazardous waste management units. For example, partial closure may include the closure of a tank (including its associated piping and underlying containment system), a landfill cell, a surface impoundment, a waste pile, or other hazardous waste management unit while other units of the same facility continue to operate.

2-96- 2.97. "Permit" means a control document issued by this state pursuant to the State Act and these regulations, or by other states having an authorized program pursuant to Section 3006 of RCRA or by the Administrator pursuant to applicable federal regulations, or a facility having "interim status."

2-97- 2.98. "Permit By Rule" means the provision of these regulations stating that a "facility or activity" is deemed to have a permit if it meets the requirements of such provision.

2-98- 2.99. "Permitted Facility" or "Permitted Hazardous Waste Management Facility" means a hazardous waste treatment, storage, or disposal facility that has received an EPA RCRA permit, a RCRA permit from an authorized state pursuant to Section 3006 of RCRA, or a State permit in accordance with the requirements of these regulations, or a facility having "interim status."

2-99- ~~"Person" means an individual, trust, firm, joint stock company, public, private or government corporation, partnership, association, State or federal agency, the United States government, this State or any other State, municipality, county commission, or any other political subdivision of a State or any interstate body.~~

2.100. "Person" means an individual, trust, firm, joint stock company, public or private corporation, government corporation, partnership, association, state or federal agency, the United States government, this State or any political subdivision thereof, any other state or any political subdivision thereof, or any interstate body.

2-100- 2.101. "Personnel" or "Facility Personnel" means all persons who work at or oversee the operations of a hazardous waste management facility, and whose actions or failure to act may result in noncompliance with the requirements of these regulations.

2-101- 2.102. "Physical Construction" or "Construct" means excavation, movement of earth, erection of forms or structures, or

similar activity involving the actual preparation of a hazardous waste management facility.

~~2-102-~~ 2.103. "Pile" means any noncontainerized accumulation of solid, non-flowing hazardous waste that is used for treatment or storage.

~~2-103-~~ 2.104. "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, concentrated animal feeding operation, or vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture.

~~2-104-~~ 2.105. "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 CWA Section 502(4). This definition includes sewers, pipes, or other conveyances only if they convey wastewater to a POTW providing treatment.

~~2-105-~~ 2.106. "RCRA" means ~~Subtitle---C,~~ the Resource Conservation and Recovery Act, as amended by the federal Solid Waste Disposal Act, as amended; 42 U.S.C. §6901 et seq.

~~2-106-~~ 2.107. "Representative Sample" means a sample of a universe or whole which can be expected to exhibit the average properties of the universe or whole.

~~2-107-~~ 2.108. "Retrofitting" means the act of installing or upgrading a regulated unit with liners, leachate collection, detection, and removal systems not installed at the time of original construction.

~~2-108-~~ 2.109. "Revocation" -- when the term is used in Section 11 of these regulations in the context of a permit action -- means an action which renders a permit permanently null and void.

~~2-109-~~ 2.110. "Runoff" means any rainwater, leachate, or other liquid that drains over land from any part of a facility.

~~2-110-~~ 2.111. "Run-on" means any rainwater, leachate, or other liquid that drains over land onto any part of a facility.

~~2-111-~~ 2.112. "Saturated Zone" or "Zone of Saturation" means that part of the earth's crust in which all voids are filled with water.

~~2-112-~~ 2.113. "SDWA" means the federal Safe Drinking Water Act, Public Law 95-523, as amended by Public Law 95-1900; 42 U.S.C. §300f et seq.

~~2-113-~~ 2.114. "SIC" means Standard Industrial Classification.

~~2-114-~~ 2.115. "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.

~~2-115-~~ 2.116. "Small Quantity Generator" means a generator who generates less than one thousand (1,000) kilograms of hazardous wastes in a calendar month.

~~2-116-~~ 2.117. "State Act" means the Hazardous Waste Management Act, W. Va. Code §20-5E et seq.

~~2-117-~~ 2.118. "State Waters" 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 shall include, without limiting the generality of the foregoing, natural or artificial lakes, rivers, streams, creeks, branches, brooks, ponds (except farm ponds, industrial settling basins and ponds, and water treatment facilities), impounding reservoirs, springs, wells, watercourses, and wetlands.

~~2-118-~~ 2.119. "Storage" means the holding of hazardous waste for a temporary period, at the end of which the hazardous waste is treated, disposed of, or stored elsewhere.

~~2-119-~~ 2.120. "Storm" means the 5-year, 24-hour rainfall event for a particular location as it relates to the inspection requirements specified in Sections 8.9.5, 8.10.5 and 8.11.3 of these regulations; "storm" for the purposes specified in the design requirements of Sections 8.9.2, 8.10.2, and 8.11.2 of these regulations shall mean a 25-year, 24-hour rainfall event for a particular location. Both definitions are as defined by the National Weather Service in Technical Paper #40, "Rainfall Frequency Atlas of the United States," May 1961, and subsequent amendments thereto or equivalent region or State rainfall probability information developed therefrom.

~~2-120-~~ 2.121. "Sump" means any pit or reservoir that meets the definition of "tank" in these regulations that serves to collect hazardous waste for transport to hazardous waste storage, treatment, or disposal facilities. The term "sump" includes troughs or trenches connected to the pit or reservoir.

~~2-121-~~ 2.122. "Surface Impoundment" or "Impoundment" means a facility or part of a facility which is a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials (although it may be lined with man-made materials), which is designed to hold an accumulation of liquid wastes or wastes containing free liquids, and which is not an

injection well. Examples of surface impoundments are holding, storage, settling, and aeration pits, ponds, and lagoons.

~~2-122-~~ 2.123. "Suspension" -- when used in Section 11 of these regulations in the context of a permit action -- means an action which renders a permit temporarily null and void until such time as the chief reinstates, modifies, revokes, or revokes and reissues the permit in accordance with the applicable provisions of Section 11 of these regulations.

~~2-123-~~ 2.124. "SW-846" means "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, (Second Edition, 1982, as amended by Update I of April 1984 and Update II of April 1985), U.S. Environmental Protection Agency, Office of Solid Waste, Washington, DC. Copies of this document may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

~~2-124-~~ 2.125. "Tank" means a stationary device designed to contain an accumulation of hazardous waste which is constructed primarily of non-earthen materials which provide structural support.

~~2-125-~~ 2.126. "Tank System" means a hazardous waste storage or treatment tank and its associated ancillary equipment and containment system.

~~2-126-~~ 2.127. "Termination" -- when the term is used in Section 11 of these regulations in the context of a permit action -- means the same as the term "revocation".

~~2-127-~~ 2.128. "Totally Enclosed Treatment Facility" means a facility for the treatment of hazardous waste which is directly connected to an industrial production process and which is constructed and operated in a manner which prevents release of any hazardous waste or any constituent thereof into the environment during treatment.

~~2-128-~~ 2.129. "Transfer Facility" means any transportation related facility including loading docks, parking areas, storage areas, and other similar areas where shipments of hazardous waste are held during the normal course of transportation.

~~2-129-~~ 2.130. "Transportation" means the movement of hazardous waste by air, rail, highway, or water.

~~2-130-~~ 2.131. "Transporter" means a person engaged in the off-site transportation of hazardous waste by air, rail, highway, or water.

~~2-131-~~ 2.132. "Transport Vehicle" means a motor vehicle or rail car used for the transportation of cargo by any mode. Each cargo-carrying body (~~trailer, railroad freight car, etc.~~) (e.g.,

trailer, railroad freight car) is a separate transport vehicle.

~~2-132-~~ 2.133. "Treatment" means any method, technique, or process including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste or so as to render such waste nonhazardous, safer to transport, store, or dispose of, or amenable to recovery, amenable for storage or reduced in volume. Such term includes any activity or processing designed to change the physical form or chemical composition of hazardous waste as to render it nonhazardous.

~~2-133-~~ 2.134. "Treatment Zone" means a soil area of the unsaturated zone of a land treatment unit within which hazardous constituents are degraded, transformed, or immobilized.

~~2-134-~~ 2.135. "Triple Rinsed" means containers which have been flushed three (3) times, each time using a volume of diluent at least equal to ten percent (10%) of the container's capacity.

~~2-135-~~ 2.136. "Underground Injection" means the subsurface emplacement of fluids through a bored, drilled, or driven well; or through a dug well, where the depth of the dug well is greater than the largest surface dimension (see also "injection well").

~~2-136-~~ 2.138. "Underground Tank" means a device meeting the definition of "tank" in these regulations whose entire surface area is totally below the surface of and covered by the ground.

~~2-137-~~ 2.139. "Unfit-For-Use Tank System" means a tank system that has been determined through an integrity assessment or other inspection to be no longer capable of storing or treating hazardous waste without posing a threat of release of hazardous waste to the environment.

~~2-138-~~ 2.139. "Unsaturated Zone" or "Zone of Aeration" means the zone between topographic surface and the water table.

~~2-139-~~ 2.140. "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.

~~2-140-~~ 2.141. "Vessel" means every description of watercraft used or capable of being used as a means of transportation on the water.

~~2-141-~~ 2.142. "Waste" means waste as defined in Section 3.1.2 of these regulations.

~~2-142-~~ 2.143. "Wastewater Treatment Unit" means a device which:

~~2-142-1-~~ 2.143.1. Is part of a wastewater treatment facility which is subject to regulation under the CWA;

~~2-142-2-~~ 2.143.2. Receives and treats or stores an influent wastewater which is a hazardous waste as defined in these regulations, or generates and accumulates, or treats or stores a wastewater treatment sludge that is defined as a hazardous waste; and

~~2-142-3-~~ 2.143.3. Meets the definition of a tank as defined in Section 2 of these regulations.

~~2-143-~~ 2.144. "Water (Bulk Shipment)" means the bulk transportation of hazardous waste which is loaded or carried on board a vessel without containers or labels.

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

~~2-144-~~ 2.146. "Water Table" means the upper surface of the zone of saturation in groundwaters in which the hydrostatic pressure is equal to atmospheric pressure.

~~2-145-~~ 2.147. "Well" means any shaft or pit dug, drilled, jetted, driven, or bored into the earth, generally of a cylindrical form, and often cased with bricks or tubing to prevent the earth from caving in, whose depth is greater than the largest surface dimension.

~~2-146-~~ 2.148. "Zone of Engineering Control" means an area under the control of the owner or operator that, upon detection of a hazardous waste release, can be readily cleaned up prior to the release of hazardous waste or hazardous constituents to groundwater or surface water.

§47-35-3. Identification and Listing of Hazardous Waste.

3.1. Identification of Wastes.

3.1.1. Purpose and Scope.

3.1.1.a. Section 3.1 of these regulations identifies those wastes which are subject to regulation as hazardous wastes.

3.1.1.b. The definition of waste contained in Section 3.1.2 of these regulations applies only to wastes that are also hazardous for purposes of the State Act and the regulations implementing the State Act. For example, it does not apply to materials such as nonhazardous scrap, paper, textiles, or rubber that are not otherwise hazardous wastes and that are recycled.

3.1.1.b.1. Section 3.1 of these regulations identifies only some of the materials which are wastes and

hazardous wastes under Sections 5, 12, 13, and 17 of the State Act. A material which is not defined as a waste in Section 3.1.2 of these regulations, or is not a hazardous waste identified or listed in Section 3.4 of these regulations, is still a waste and a hazardous waste for purposes of these sections if:

3.1.1.b.2. In the case of Sections 12 and 13 of the State Act, the director has reason to believe the material may be a waste within the meaning of Section 3(12) of the State Act and a hazardous waste within the meaning of Section 3(6) of the State Act; or

3.1.1.b.3. In the case of Section 17 of the State Act, the statutory elements are established.

3.1.1.c. For the purposes of Sections 3.1.2 and 3.1.6 of these regulations:

3.1.1.c.1. A "spent material" is any material that has been used and as a result of contamination can no longer serve the purpose for which it was produced without processing.

3.1.1.c.2. "Sludge" has the same meaning used in Section 2 of these regulations.

3.1.1.c.3. A "by-product" is a material that is not one of the primary products of a production process and is not solely or separately produced by the production process. Examples are process residues such as slags or distillation column bottoms. The term does not include a co-product that is produced for the general public's use and is ordinarily used in the form it is produced by the process.

3.1.1.c.4. A material is "reclaimed" if it is processed to recover a usable product or if it is regenerated. Examples are recovery of lead values from spent batteries and regeneration of spent solvents.

3.1.1.c.5. A material is "used or reused" if it is either:

3.1.1.c.5.A. Employed as an ingredient (including use as an intermediate) in an industrial process to make a product, such as distillation bottoms from one process used as feedstock for another process. However, a material will not satisfy this condition if distinct components of the material are recovered as separate end products (as when metals are recovered from metal-containing secondary materials); or

3.1.1.c.5.B. Employed in a particular function or application as an effective substitute for a commercial product, such as spent pickle liquor used as phosphorus precipitant and sludge conditioner in wastewater treatment.

3.1.1.c.6. "Scrap metal" is bits and pieces of metal parts such as bars, turnings, rods, sheets, wire, or metal pieces that may be combined together with bolts or soldering which when worn or superfluous can be recycled.

3.1.1.c.7. A material is "recycled" if it is used, reused, or reclaimed.

3.1.1.c.8. A material is "accumulated speculatively" if it is accumulated before being recycled. A material is not accumulated speculatively, however, if the person accumulating it can show that the material is potentially recyclable and has a feasible means of being recycled; and that during the calendar year the amount of material that is recycled or transferred to a different site for recycling equals at least seventy-five percent (75%) by weight or volume of the amount of that material accumulated at the beginning of the period. In calculating the percentage of turnover, the seventy-five percent (75%) requirement is to be applied to each material of the same type, such as slags from a single smelting process, that is recycled in the same way (that is, from which the same material is recovered or that is used in the same way). Materials accumulating in units that would be exempt from regulation under Section 3.1.4.c of these regulations are not to be included in making the calculation. Materials that are already defined as wastes also are not to be included in making the calculation. Materials are no longer in this category once they are removed from accumulation for recycling.

3.1.2. Definitions of Waste.

3.1.2.a. A waste is any discarded material that is not excluded by Section 3.1.4.a of these regulations or that is not excluded by variance granted under Section 16.3 of these regulations.

3.1.2.a.1. A discarded material is any material which is:

3.1.2.a.1.A. Abandoned, as explained in Section 3.1.2.b of these regulations;

3.1.2.a.1.B. Recycled, as explained in Section 3.1.2.c of these regulations; or

3.1.2.a.1.C. Considered inherently waste-like, as explained in Section 3.1.2.d of these regulations.

3.1.2.b. Materials are waste if they are abandoned by being:

3.1.2.b.1. Disposed of;

3.1.2.b.2. Burned or incinerated; or

3.1.2.b.3. Accumulated, stored, or treated (but not recycled) before or in lieu of being abandoned by being disposed of, burned, or incinerated.

3.1.2.c. Materials are waste if they are recycled, or accumulated, stored, or treated before recycling, as specified in Sections 3.1.2.c.1 through 3.1.2.c.4 of these regulations.

3.1.2.c.1. Used in a manner constituting disposal.

3.1.2.c.1.A. Materials noted with an asterisk symbol in Column 1 of Table I of these regulations are wastes when they are:

3.1.2.c.1.A.i. Applied to or placed on the land in a manner that constitutes disposal; or

3.1.2.c.1.A.ii. Used to produce products that are applied to or placed on the land or are otherwise contained in products that are applied to or placed on the land, in which cases the product itself remains a waste.

3.1.2.c.1.A.iii. However, commercial chemical products listed in Section 3.4.4 of these regulations are not wastes if they are applied to the land and that is their ordinary manner of use.

3.1.2.c.2. Burning for energy recovery.

3.1.2.c.2.A. Materials noted with an asterisk symbol in Column 2 of Table I of these regulations are wastes when they are:

3.1.2.c.2.A.i. Burned to recover energy.

3.1.2.c.2.A.ii. Used to produce a fuel or are otherwise contained in fuels (in which case the fuel itself remains a waste).

3.1.2.c.2.B. However, commercial chemical products listed in Section 3.4.4 of these regulations are not wastes if they are themselves fuels.

3.1.2.c.3. Reclaimed. Materials noted with an asterisk symbol in Column 3 of Table I of these regulations are wastes when reclaimed.

3.1.2.c.4. Accumulated speculatively. Materials noted with an asterisk symbol in Column 4 of Table I of these regulations are wastes when accumulated speculatively.

3.1.2.d. Inherently waste-like materials. The following materials are wastes when they are recycled in any manner:

3.1.2.d.1. (Reserved).

3.1.2.d.2. (Reserved).

3.1.2.e. Materials that are not waste when recycled.

3.1.2.e.1. Materials are not wastes when they can be shown to be recycled by being:

3.1.2.e.1.A. Used or reused as ingredients in an industrial process to make a product, provided the materials are not being reclaimed;

3.1.2.e.1.B. Used or reused as effective substitutes for commercial products; or

3.1.2.e.1.C. Returned to the original process from which they are generated, without first being reclaimed. The material must be returned as a substitute for raw material feedstock, and the process must use raw materials as principal feedstocks.

3.1.2.e.2. The following materials are wastes, even if the recycling involves use, reuse or return to the original process (described in Sections 3.1.2.e.1.A through 3.1.2.e.1.C of these regulations:

3.1.2.e.2.A. Materials used in a manner constituting disposal or used to produce products that are applied to the land;

3.1.2.e.2.B. Materials burned for energy recovery, used to produce a fuel, or contained in fuels;

3.1.2.e.2.C. Materials accumulated speculatively;
or

3.1.2.e.2.D. (Reserved).

3.1.2.f. Documentation of claims that materials are not wastes or are conditionally exempt from regulation. Respondents in actions to enforce regulations implementing the State Act who raise a claim that a certain material is not a waste, or is conditionally exempt from regulation, must demonstrate that there is a known market or disposition for the material, and that they meet the terms of the exclusion or exemption. In doing so, they must provide appropriate documentation (such as contracts showing that a second person uses the material as an ingredient in a production process) to demonstrate that the material is not a waste, or is exempt from regulation. In addition, owners or

operators of facilities claiming that they actually are recycling materials must show that they have the necessary equipment to do so.

3.1.3. Definition of Hazardous Waste.

3.1.3.a. A waste as defined in Section 3.1.2 of these regulations is a hazardous waste if:

3.1.3.a.1. It is not excluded from regulation as a hazardous waste under Section 3.1.4.b of these regulations; and

3.1.3.a.2. It meets any of the following criteria:

3.1.3.a.2.A. It is listed in Section 3.4 of these regulations and has not been excluded from the list in Section 3.4 of these regulations pursuant to Section 16 of these regulations.

3.1.3.a.2.B. It is a mixture of a waste and a hazardous waste that is listed in Section 3.4 of these regulations solely because it exhibits one or more of the characteristics of hazardous waste identified in Section 3.3 of these regulations, unless the resultant mixture no longer exhibits any characteristic of hazardous waste identified in Section 3.3 of these regulations.

3.1.3.a.2.C. It is a mixture of a waste and one or more hazardous wastes listed in Section 3.4 of these regulations and has not been excluded from regulation pursuant to Section 16 of these regulations; however, the following mixtures of solid wastes and hazardous wastes listed in Section 3.4 of these regulations are not hazardous wastes (except by application of Section 3.1.3.a.2.A or 3.1.3.a.2.D of these regulations) if the generator complies with the requirements contained in Section 3.1.3.a.3 of these regulations:

3.1.3.a.2.C.i. It is one or more of the following spent solvents listed in Section 3.4.2 of these regulations -- carbon tetrachloride, tetrachloroethylene, and trichloroethylene -- provided that the maximum total weekly usage of these solvents (other than the amounts that can be demonstrated not to be discharged to wastewater) divided by the average weekly flow of wastewater into the headworks of the facility's wastewater treatment or pretreatment system does not exceed one part per million (1 ppm);

3.1.3.a.2.C.ii. It is one or more of the following spent solvents listed in Section 3.4.2 of these regulations -- methylene chloride, 1,1,1-trichloroethane, chlorobenzene, o-dichlorobenzene, cresols, cresylic acid, nitrobenzene, toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, and spent chlorofluorocarbon solvents -- provided that the maximum total weekly usage of these solvents (other than the amounts that can be demonstrated not to be

discharged to wastewater) divided by the average weekly flow of wastewater into the headworks of the facility's wastewater treatment or pretreatment system does not exceed twenty-five parts per million (25 ppm);

3.1.3.a.2.C.iii. It is the following waste listed in Section 3.4.3 of these regulations -- heat exchanger bundle cleaning sludge from the petroleum refining industry (EPA Hazardous Waste Number K050);

3.1.3.a.2.C.iv. It is a discarded commercial chemical product, or chemical intermediate listed in Section 3.4.4 of these regulations, arising from "de minimis" losses of these materials from manufacturing operations produced in the manufacturing process. For purposes of ~~this subsection~~ Section 3.1.3 of these regulations, "de minimis" losses include those from normal material handling operations such as spills from the unloading or transfer of materials from bins or other containers, or leaks from pipes, valves, or other devices used to transfer materials; minor leaks from process equipment, storage tanks, or containers; leaks from well-maintained pump packings and seals; sample purgings; relief device discharges; discharges from safety showers or the rinsing and cleaning of personal safety equipment; and rinsate from empty containers or from containers that are rendered empty by that rinsing; or

3.1.3.a.2.C.v. It is a wastewater resulting from laboratory operations containing toxic (T) wastes listed in Section 3.4 of these regulations, provided the annualized average flow of laboratory wastewater does not exceed one percent of total wastewater flow into the headworks of the facility's wastewater treatment or pretreatment system, or provided the wastes' combined annualized average concentration does not exceed one part per million (1 ppm) in the headworks of the facility's wastewater treatment or pretreatment facility. Toxic (T) wastes used in laboratories that are demonstrated not to be discharged to wastewater are not to be included in this calculation.

3.1.3.a.2.D. It exhibits any of the characteristics of hazardous waste identified in Section 3.3 of these regulations.

3.1.3.a.3. In order for a mixture of a waste and one or more hazardous wastes identified in Section 3.1.3.a.2.C of these regulations to be exempt from the definition of hazardous waste, the owner or operator must comply with the following:

3.1.3.a.3.A. Before claiming an exemption, demonstrate in writing to the chief that the weekly ratio of the usage of solvents to the flow of wastewater in the headworks of wastewater treatment does not exceed the values listed in Section 3.1.3.a.2.C.i or 3.1.3.a.2.C.ii of these regulations; or the annualized ratio of average flow of laboratory wastes of the total

flow of wastewater in the headworks of wastewater treatment or the combined annualized concentration in the headworks of wastewater treatment does not exceed the values listed in Section 3.1.3.a.2.C.v of these regulations. He must also report annually to the chief the ratios or values described in this paragraph for the previous year.

3.1.3.a.3.B. Annually submit to the chief a list of hazardous wastes that are expected to be present in the mixture to be exempted.

3.1.3.a.3.C. Before claiming an exemption, demonstrate in writing to the chief that the mixture consists of wastewater which is treated in a wastewater treatment facility, the discharge of which is subject to regulation under W. Va. Code §20-5A-1 including wastewater at facilities which have eliminated the discharge of wastewater.

3.1.3.a.3.D. Provide a certification in writing to the chief that groundwater monitoring complying with either Subpart F of 40 C.F.R. Part 265, or which is approved by the chief, is or will be in place at the wastewater treatment facility identified in Section 3.1.3.a.3.C of these regulations. A time schedule for the installation of such groundwater monitoring must be included. This requirement does not apply to wastewater treatment units or containers.

3.1.3.a.4. Before claiming an exemption, the owner or operator of each wastewater treatment facility receiving mixtures of wastes under Section 3.1.3.a.2 of these regulations shall notify the chief of the receipt of such wastes on a form prescribed by the chief.

3.1.3.b. A waste which is not excluded from regulation under Section 3.1.3.a.1 of these regulations becomes a hazardous waste when any of the following events occur:

3.1.3.b.1. In the case of a waste listed in Section 3.4 of these regulations when the waste first meets the listing description set forth in Section 3.4 of these regulations;

3.1.3.b.2. In the case of a mixture of a waste and one or more listed hazardous wastes, when a hazardous waste listed in Section 3.4 of these regulations is first added to the waste; or

3.1.3.b.3. In the case of any other waste (including a waste mixture), when the waste exhibits any of the characteristics identified in Section 3.3 of these regulations.

3.1.3.c. Unless and until it meets the criteria of Section 3.1.3.d. of these regulations:

3.1.3.c.1. A hazardous waste will remain a hazardous waste.

3.1.3.c.2.A. Except as otherwise provided in Section 3.1.3.c.2.B of these regulations, any waste generated from the treatment, storage, or disposal of a hazardous waste, including any sludge, spill residue, ash, emissions control dust, or leachate (but not including precipitation runoff) is a hazardous waste. However, materials that are reclaimed from waste and that are used beneficially are not wastes and hence are not hazardous wastes under this provision unless the reclaimed material is burned for energy recovery or used in a manner constituting disposal.

3.1.3.c.2.B. The following wastes are not hazardous wastes even though they are generated from the treatment, storage, or disposal of a hazardous waste, unless they exhibit one or more of the characteristics of hazardous waste:

~~(A)~~ 3.1.3.c.2.B.i. Waste pickle liquor sludge generated by lime stabilization of spent pickle liquor from the iron and steel industry (SIC Codes 331 and 332).

~~(B)~~ 3.1.3.c.2.B.ii. Wastes from burning any of the materials exempted from regulation by Section 3.1.6.c of these regulations.

3.1.3.d. Any waste described in Section 3.1.3.c of these regulations is not a hazardous waste if it meets the following criteria:

3.1.3.d.1. In the case of any waste, it does not exhibit any of the characteristics identified in Section 3.3 of these regulations.

3.1.3.d.2. In the case of a waste which is a listed waste under Section 3.4 of these regulations, contains a waste listed under Section 3.4 of these regulations or is derived from a waste listed in Section 3.4 of these regulations, it also has been excluded from Section 3.1.3.c of these regulations under Section 16 of these regulations.

3.1.4. Exclusions.

3.1.4.a. Materials which are not wastes:

~~3.1.4.a.i.A.~~ 3.1.4.a.1. Domestic sewage.

~~3.1.4.a.i.B.~~ 3.1.4.a.2. Any mixture of domestic sewage and other wastes that passes through a sewer system to a publicly-owned treatment works for treatment. "Domestic sewage" means untreated sanitary wastes that pass through a sewer system.

~~3.1.4.a.2~~ 3.1.4.a.3. Industrial wastewater discharges that are point source discharges subject to regulation under ~~Section 402 of the Clean Water Act, as amended~~ CWA Section 402.

Comment: This exclusion applies only to the actual point source discharge. It does not exclude industrial wastewaters while they are being collected, stored, or treated before discharge nor does it exclude sludges that are generated by industrial wastewater treatment.

~~3.1.4.a.3~~ 3.1.4.a.4. Irrigation return flows.

~~3.1.4.a.4~~ 3.1.4.a.5. Source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended, 42 U.S.C. §2011.

~~3.1.4.a.5~~ 3.1.4.a.6. Materials subjected to in-situ mining techniques which are not removed from the ground as part of the extraction process.

~~3.1.4.a.6~~ 3.1.4.a.7. Pulping liquors (i.e., black liquor) that are reclaimed in a pulping liquor recovery furnace and then reused in the pulping process, unless it is accumulated speculatively as defined in Section 3.1.1.c.8 of these regulations.

~~3.1.4.a.7~~ 3.1.4.a.8. Spent sulfuric acid used to produce virgin sulfuric acid, unless it is accumulated speculatively as defined in Section 3.1.1.c.8 of these regulations.

~~3.1.4.a.8~~ 3.1.4.a.9. Secondary materials that are reclaimed and returned to the original process or processes in which they were generated where they are reused in the production process provided:

~~3.1.4.a.8-A~~ 3.1.4.a.9.A. Only tank storage is involved, and the entire process through completion of reclamation is closed by being entirely connected with pipes or other comparable enclosed means of conveyance;

~~3.1.4.a.8-B~~ 3.1.4.a.9.B. Reclamation does not involve controlled flame combustion (such as occurs in boilers, industrial furnaces, or incinerators);

~~3.1.4.a.8-C~~ 3.1.4.a.9.C. The secondary materials are never accumulated in such tanks for over twelve (12) months without being reclaimed; and

~~3.1.4.a.8-D~~ 3.1.4.a.9.D. The reclaimed material is not used to produce a fuel, or used to produce products that are used in a manner constituting disposal.

3.1.4.b. Wastes which are not hazardous wastes:

3.1.4.b.1. Household waste, including household waste that has been collected, transported, stored, treated, disposed, recovered (e.g., refuse-derived fuel), or reused. "Household waste" means any waste material (including garbage, trash, and sanitary wastes 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).

3.1.4.b.2. Wastes generated by any of the following and which are returned to the soil as fertilizers:

3.1.4.b.2.A. The growing and harvesting of agricultural crops.

3.1.4.b.2.B. The raising of animals, including animal manures.

3.1.4.b.3. Mining overburden returned to the mine site.

3.1.4.b.4. Fly ash waste, bottom ash waste, slag waste, and flue gas emission control waste generated primarily from the combustion of coal or other fossil fuels.

3.1.4.b.5. Drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil, natural gas, or geothermal energy.

3.1.4.b.6.A. Wastes which fail the test for the characteristic of EP toxicity because chromium is present or are listed in Section 3.4 of these regulations due to the presence of chromium which do not fail the test for the characteristic of EP toxicity for any other constituent or are not listed due to the presence of any other constituent, and which do not fail the test for any other characteristic, if it is shown by a waste generator or by waste generators that:

3.1.4.b.6.A.i. The chromium in the waste is exclusively (or nearly exclusively) trivalent chromium;

3.1.4.b.6.A.ii. The waste is generated from an industrial process which uses trivalent chromium exclusively (or nearly exclusively) and the process does not generate hexavalent chromium; and

3.1.4.b.6.A.iii. The waste is typically and frequently managed in non-oxidizing environments.

3.1.4.b.6.B. Specific wastes which meet the standard in 3.1.4.b.6.A of these regulations, (so long as they do

not fail the test for the characteristic of EP toxicity, and do not fail the test for any other characteristic) are:

3.1.4.b.6.B.i. Chrome (blue) trimmings generated by the following sub-categories of the leather tanning and finishing industry; hair pulp/chrome tan/retan/wet finish; hair save/chrome tan/retan/wet finish; retan/wet finish; no beamhouse; through-the-blue; and shearling.

3.1.4.b.6.B.ii. Chrome (blue) shavings generated by the following sub-categories of the leather tanning and finishing industry; hair pulp/chrome tan/retan/wet finish; hair save/chrome tan/retan/wet finish; retan/wet finish; no beamhouse; through-the-blue; and shearling.

3.1.3.b.6.B.iii. Buffing dust generated by the following sub-categories of the leather tanning and finishing industry; hair pulp/chrome tan/retan/wet finish; hair save/chrome tan/retan/wet finish; retan/wet finish; no beamhouse; and through-the-blue.

3.1.4.b.6.B.iv. Sewer screenings generated by the following sub-categories of the leather tanning and finishing industry; hair pulp/chrome tan/retan/wet finish; hair save/chrome tan/retan/wet finish; retan/wet finish; no beamhouse; through-the-blue; and shearling.

3.1.4.b.6.B.v. Wastewater treatment sludges generated by the following sub-categories of the leather tanning and finishing industry; hair pulp/chrome tan/retan/wet finish; hair save/chrome tan/retan/wet finish; retan/wet finish; no beamhouse; through-the-blue; and shearling.

3.1.4.b.6.B.vi. Wastewater treatment sludges generated by the following sub-categories of the leather tanning and finishing industry; hair pulp/chrome tan/retan/wet finish; hair save/chrome tan/retan/wet finish; and through-the-blue.

3.1.4.b.6.B.vii. Waste scrap leather from the leather tanning industry, the shoe manufacturing industry, and other leather product manufacturing industries.

3.1.4.b.6.B.viii. Wastewater treatment sludges from the production of TiO₂ pigment using chromium-bearing ores by the chloride process.

3.1.4.b.7. Waste from the extraction, beneficiation, and processing of ores and minerals (including coal), including phosphate rock and overburden from the mining of uranium ore.

3.1.4.b.8. Cement kiln dust waste.

3.1.4.b.9. Waste which consists of discarded wood or

wood products which fails the test for the characteristic of EP toxicity and which is not a hazardous waste for any other reason if the waste is generated by persons who utilize the arsenical-treated wood and wood products for these materials intended end use.

3.1.4.c. Hazardous wastes which are exempted from certain regulations. A hazardous waste which is generated in a product or raw material storage tank, a product or raw material transport vehicle or vessel, a product or raw material pipeline, or in a manufacturing process unit or an associated non-waste treatment manufacturing unit is not subject to regulation under Sections 4, 6, 8, or 11 of these regulations or under 40 C.F.R. Part 265 until it exits the unit in which it was generated, unless the unit is a surface impoundment, or unless the hazardous waste remains in the unit more than ninety (90) days after the unit ceases to be operated for manufacturing, or for storage or transportation of the product or raw materials.

3.1.4.d. Samples.

3.1.4.d.1. Except as provided in Section 3.1.4.d.2 of these regulations, a sample of waste or a sample of water, soil, or air which is collected for the sole purpose of testing to determine its characteristics or composition is not subject to any requirements of these regulations when:

3.1.4.d.1.A. The sample is being transported to a laboratory for the purpose of testing;

3.1.4.d.1.B. The sample is being transported back to the sample collector after testing;

3.1.4.d.1.C. The sample is being stored by the sample collector before transport to a laboratory for testing;

3.1.4.d.1.D. The sample is being stored in a laboratory before testing;

3.1.4.d.1.E. The sample is being stored in a laboratory after testing but before it is returned to the sample collector; or

3.1.4.d.1.F. The sample is being stored temporarily in the laboratory after testing for a specific purpose (for example, until conclusion of a court case or enforcement action where further testing of the sample may be necessary).

3.1.4.d.2. In order to qualify for the exemption in Sections 3.1.4.d.1.A and 3.1.4.d.1.B of these regulations, a sample collector shipping samples to a laboratory and a laboratory returning samples to a sample collector must:

3.1.4.d.2.A. Comply with U.S. Department of Transportation (DOT), U.S. Postal Service (USPS), or any other applicable shipping requirements; or

3.1.4.d.2.B. Comply with the following requirements if the sample collector determines that DOT, USPS, or other shipping requirements do not apply to the shipment of the sample:

3.1.4.d.2.B.i. Assure that the following information accompanies the sample:

3.1.4.d.2.B.i.1. The sample collector's name, mailing address, and telephone number;

3.1.4.d.2.B.i.2. The laboratory's name, mailing address, and telephone number;

3.1.4.d.2.B.i.3. The quantity of the sample;

3.1.4.d.2.B.i.4. The date of shipment; and

3.1.4.d.2.B.i.5. A description of the sample.

3.1.4.d.2.B.ii. Package the sample so that it does not leak, spill, or vaporize from its packaging.

3.1.4.d.3. This exemption does not apply if the laboratory determines that the waste is hazardous but the laboratory is no longer meeting any of the conditions stated in Section 3.1.4.d.1 of these regulations.

3.1.5. (Reserved).

3.1.6. Requirements for Recyclable Materials.

3.1.6.a. Hazardous wastes that are recycled are subject to the requirements for generators, transporters, and storage facilities of Sections 3.1.6.d through 3.1.6.f of these regulations, except for the materials listed in Sections 3.1.6.b and 3.1.6.c of these regulations. Hazardous wastes that are recycled will be known as "recyclable materials."

3.1.6.b. The following recyclable materials are not subject to the requirements of Section 3.1.6 of these regulations but are regulated under Sections 9.3 through 9.7 of these regulations and all applicable provisions of Section 11 of these regulations:

3.1.6.b.1. Recyclable materials used in a manner constituting disposal (Section 9.3 of these regulations):

3.1.6.b.2. Hazardous wastes burned for energy recovery in boilers and industrial furnaces (Section 9.4 of these regulations).

3.1.6.b.3. (Reserved).

3.1.6.b.4. Recycled materials from which precious metals are reclaimed (Section 9.6 of these regulations).

3.1.6.b.5. Spent lead-acid batteries that are being reclaimed (Section 9.7 of these regulations).

3.1.6.c. The following recyclable materials are not subject to regulation under Sections 4 through 8 of these regulations and are not subject to the notification requirements of Section 10 of the State Act.

3.1.6.c.1. Reclaimed industrial ethyl alcohol;

3.1.6.c.2. Used batteries (or used battery cells) returned to a battery manufacturer for regeneration;

3.1.6.c.3. Used oil that exhibits one or more of the characteristics of hazardous waste but is recycled in some other manner than being burned for energy recovery;

3.1.6.c.4. Scrap metal;

3.1.6.c.5. Fuels produced from the refining of oil bearing hazardous wastes along with normal process streams at a petroleum refining facility, if such wastes result from normal petroleum refining, production, and transportation practices;

3.1.6.c.6. Oil reclaimed from hazardous waste resulting from normal petroleum refining, production, and transportation practices which oil is to be refined along with normal process streams at a petroleum refining facility; or

3.1.6.c.7. Coke from the iron and steel industry that contains hazardous waste from the iron and steel production process.

3.1.6.d. Generators and transporters of recyclable materials shall comply with all applicable provisions of Sections 4, 5, and 6 of these regulations, except as provided in Sections 3.1.6.a through 3.1.6.c of these regulations. Generators and transporters of recyclable materials are also subject to the applicable provisions of Title 157, Department of Highways, Series 7 (157 C.S.R. 7) and Title 150, Public Service Commission, Series 11 (150 C.S.R. 11).

3.1.6.e. Owners or operators of facilities that store recyclable materials before they are recycled are regulated under

all applicable provisions of Sections 4, 8.1 through 8.10, 8.13, 11, and 13 of these regulations, except as provided in Sections 3.1.6.a through 3.1.6.c of these regulations. The recycling process itself is exempt from these regulations.

3.1.6.f. Owners or operators of facilities that recycle recyclable materials without storing them before they are recycled are subject to the following requirements, except as provided in Sections 3.1.6.a through 3.1.6.c of these regulations:

3.1.6.f.1. Notification requirements of Section 4 of these regulations; and

3.1.6.f.2. Sections 8.5.2 and 8.5.3 of these regulations (concerning use of the manifest and manifest discrepancies).

3.1.6.g. Additional regulation of certain hazardous waste recycling activities may be imposed on a case-by-case basis in accordance with the provisions of Sections 3.1.6.g.1 and 3.1.6.g.2 of these regulations.

3.1.6.g.1. The director may decide on a case-by-case basis that persons accumulating or storing the recyclable materials described in Section 3.1.6.b.4 of these regulations should be regulated under Sections 3.1.6.d through 3.1.6.f of these regulations. The basis for this decision is that the materials are being accumulated or stored in a manner that does not protect human health and the environment because the materials or their toxic constituents have not been adequately contained, or because the materials being accumulated or stored together are incompatible. In making this decision, the director will consider the following factors:

3.1.6.g.1.A. The types of materials accumulated or stored and the amounts accumulated or stored;

3.1.6.g.1.B. The method of accumulation or storage;

3.1.6.g.1.C. The length of time the materials have been accumulated or stored before being reclaimed;

3.1.6.g.1.D. Whether any contaminants are being released into the environment, or are likely to be so released; and

3.1.6.g.1.E. Other relevant factors.

3.1.6.g.2. Procedures for case-by-case regulation of hazardous waste recycling activities.

3.1.6.g.2.A. The director will use the following

procedures when determining whether to regulate hazardous waste recycling activities described in Section 3.1.6.b.4 of these regulations under the provisions of Sections 3.1.6.d through 3.1.6.f of these regulations, rather than under the provisions of Section 9.6 of these regulations.

3.1.6.g.2.A.i. If a generator is accumulating the waste, the director will issue a notice setting forth the factual basis for the decision and stating that the person must comply with the applicable requirements of Sections 6.1, 6.3, 6.4, and 6.5 of these regulations. The notice will become final within thirty (30) days, unless the person served requests a public hearing to challenge the decision. Upon receiving such a request, the director will hold a public hearing. The director will provide notice of the hearing to the public and allow public participation at the hearing. The director will issue a final order after the hearing stating whether or not compliance with Section 6 of these regulations is required. The order becomes effective thirty (30) days after service of the decision unless the director specifies a later date or unless review by the director is requested. The order may be appealed to the director by any person who participated in the public hearing. The director may choose to grant or to deny the appeal. Final agency action occurs when a final order is issued and agency review procedures are exhausted.

3.1.6.g.2.A.ii. If the person is accumulating the recyclable material at a storage facility, the notice will state that the person must obtain a permit in accordance with all applicable revisions of Section 11 of these regulations. The owner or operator of the facility must apply for a permit within no less than sixty (60) days and no more than six (6) months of notice, as specified in the notice. If the owner or operator of the facility wishes to challenge the director's decision, he may do so in his permit application, in a public hearing held on the draft permit, or in comments filed on the draft permit or on the notice of intent to deny the permit. The fact sheet accompanying the permit will specify the reasons for the agency's determination. The question of whether the director's decision was proper will remain open for consideration during the public comment period discussed under Section 11.25 of these regulations and in any subsequent hearing.

3.1.7. Residue of Hazardous Waste in Empty Containers.

3.1.7.a. Any hazardous waste remaining in either an empty container or an inner liner removed from an empty container, as defined in Sections 3.1.7.c through 3.1.7.e of these regulations is not subject to these regulations.

3.1.7.b. Any hazardous waste in either a container that is not empty or an inner liner removed from a container that is not empty, as defined in Sections 3.1.7.c through 3.1.7.e of these

regulations, is subject to these regulations.

3.1.7.c. A container or an inner liner removed from a container that has held any hazardous waste, except a waste that is a compressed gas or that is identified in Section 3.4.4.c of these regulations is empty if:

~~3.1.7.c.1. All wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container (e.g., pouring, pumping, and aspirating) and~~

~~3.1.7.c.2. No more than 2.5 centimeters (one inch) of residue remain on the bottom of the container or inner liner; or~~

3.1.7.c.1. All wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container (e.g., pouring, pumping, and aspirating) and no more than 2.5 centimeters (one inch) of residue remain on the bottom of the container or inner liner;

~~3.1.7.c.2.A~~ 3.1.7.c.2. No more than three percent (3%) by weight of the total capacity of the container remains in the container or inner liner if the container is less than or equal to one hundred and ten (110) gallons in size; or

~~3.1.7.c.2.B~~ 3.1.7.c.3. No more than 0.3 percent by weight of the total capacity of the container remains in the container or inner liner ~~if~~ if the container is greater than one hundred and ten (110) gallons in size.

3.1.7.d. A container that has held a hazardous waste that is a compressed gas is empty when the pressure in the container approaches atmospheric.

3.1.7.e. A container or an inner liner removed from a container that has held a hazardous waste identified in Section 3.4.4.c of these regulations is empty if:

3.1.7.e.1. The container or inner liner has been triple rinsed using a solvent capable of removing the commercial chemical product or manufacturing chemical intermediate;

3.1.7.e.2. The container or inner liner has been cleaned by another method that has been shown in the scientific literature, or by tests conducted by the generator, to achieve equivalent removal; or

3.1.7.e.3. In the case of a container, the inner liner that prevented contact of the commercial chemical product or manufacturing chemical intermediate with the container has been removed.

3.2. Criteria for Identifying the Characteristics of Hazardous Waste and for Listing Hazardous Waste.

3.2.1. Criteria for Identifying the Characteristics of Hazardous Waste.

3.2.1.a. The director shall identify and define a characteristic of hazardous waste upon determining that:

3.2.1.a.1. A waste that exhibits the characteristic may:

3.2.1.a.1.A. Cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible illness; or

3.2.1.a.1.B. Pose a substantial present or potential hazard to human health or the environment when it is improperly treated, stored, transported, disposed of, or otherwise managed; and

3.2.1.b. The characteristic can be:

3.2.1.b.1. Measured by an available standardized test method which is reasonably within the capability of generators of waste or private sector laboratories that are available to serve generators of waste; or

3.2.1.b.2. Reasonably detected by generators of waste through their knowledge of their waste.

3.2.2. Criteria for Listing Hazardous Waste.

3.2.2.a. The director may list a waste as being hazardous upon determining that the waste meets one of the following criteria:

3.2.2.a.1. It exhibits any of the characteristics of hazardous waste identified in Section 3.3 of these regulations.

3.2.2.a.2. It has been found to be fatal to humans in low doses or, in the absence of data on human toxicity, it has been shown in studies to have an oral LD-50 toxicity (rat) of less than fifty (50) milligrams per kilogram, an inhalation LC-50 toxicity (rat) of less than two (2) milligrams per liter, or a dermal LD-50 toxicity (rabbit) of less than two hundred (200) milligrams per kilogram or is otherwise capable of causing or significantly contributing to an increase in serious irreversible, or incapacitating reversible, illness. (Waste listed in accordance with these criteria will be designated Acute Hazardous Waste.)

3.2.2.a.3. It contains any of the toxic constituents

listed in Appendix VIII of these regulations, unless, after considering any of the following factors, the director concludes that the waste is not capable of posing a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of, or otherwise managed:

3.2.2.a.3.A. The nature of the toxicity presented by the constituent.

3.2.2.a.3.B. The concentration of the constituent in the waste.

3.2.2.a.3.C. The potential of the constituent or any toxic degradation product of the constituent to migrate from the waste into the environment under the types of improper management considered in Section 3.2.2.a.3.G of these regulations.

3.2.2.a.3.D. The persistence of the constituent or any toxic degradation product of the constituent.

3.2.2.a.3.E. The potential for the constituent or any toxic degradation product of the constituent to degrade into non-harmful constituents and the rate of degradation.

3.2.2.a.3.F. The degree to which the constituent or any degradation product of the constituent bioaccumulates in ecosystems.

3.2.2.a.3.G. The plausible types of improper management to which the waste could be subjected.

3.2.2.a.3.H. The quantities of the waste generated at individual generation sites or on a regional or national basis.

3.2.2.a.3.I. The nature and severity of the human health and environmental damage that has occurred as a result of the improper management of wastes containing the constituent.

3.2.2.a.3.J. Action taken by other governmental agencies or regulatory programs based on the health or environmental hazard posed by the waste or waste constituent.

3.2.2.a.3.K. Such other factors as may be appropriate.

Note: Substances will be listed on Appendix VIII of these regulations, only if they have been shown in scientific studies to have toxic, carcinogenic, mutagenic, or teratogenic effects on humans or other life forms. Waste listed in accordance with these criteria will be designated Toxic Waste.

3.2.2.b. The director may list classes or types of

wastes as hazardous waste if he has reason to believe that individual wastes, within the class or type of waste, typically or frequently are hazardous under the definition of hazardous waste found in W. Va. Code §20-5E-3(6).

3.2.2.c. The director will use the criteria for listing, specified in Section 3.2.2 of these regulations, to establish the exclusion limits referred to in Section 10.2.3 of these regulations.

3.3. Characteristics of Hazardous Waste.

3.3.1. General.

3.3.1.a. A waste as defined in Section 3.1.2 of these regulations which is not excluded from regulation as a hazardous waste under Section 3.1.4.b of these regulations is a hazardous waste if it exhibits any of the characteristics identified in Section 3.3 of these regulations.

3.3.1.b. A hazardous waste which is identified by a characteristic in Section 3.3 of these regulations, but is not listed as a hazardous waste in Section 3.4 of these regulations is assigned the EPA hazardous waste number set forth in the respective characteristic in ~~this--section~~ Section 3.3 of these regulations. This number shall be used in complying with the notification requirements of Section 4 of these regulations and certain record keeping and reporting requirements under these regulations.

3.3.1.c. For purposes of Section 3.3 of these regulations, the director will consider a sample obtained using any of the applicable sampling methods specified in Appendix I of these regulations to be a representative sample within the meaning of Section 2 of these regulations.

3.3.2. Characteristic of Ignitability.

3.3.2.a. A waste exhibits the characteristic of ignitability if a representative sample of the waste has any of the following properties:

3.3.2.a.1. It is a liquid, other than an aqueous solution containing less than twenty-four percent (24%) alcohol by volume, and has a flashpoint less than 60 degrees C (140 degrees F), as determined by a Pensky-Martens Closed Cup Tester, using the test method specified in ASTM Standard D-93-79 or D-93-80, or a Setaflash Closed Cup Tester, using the test method specified in ASTM Standard D-3278-78, or as determined by an equivalent method. ASTM standards are available from the American Society for Testing and Materials (ASTM), 1916 Race Street, Philadelphia, PA 19103.

3.3.2.a.2. It is not a liquid and is capable under

standard temperature and pressure of causing fire through friction, absorption of moisture, or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard.

3.3.2.a.3. It is an ignitable compressed gas as defined in 40 C.F.R. §173.300 and as determined by the test method described in that regulation or an equivalent test method. (see Section 2 of these regulations)

3.3.2.a.4. It is an oxidizer as defined in 40 C.F.R. §173.51.

3.3.2.b. A waste that exhibits the characteristic of ignitability, but is not listed as a hazardous waste by the Administrator or the director, has the EPA Hazardous Waste Number of D001.

3.3.3. Characteristic of Corrositivity.

3.3.3.a. A waste exhibits the characteristic of corrositivity if a representative sample of the waste has either of the following properties:

3.3.3.a.1. It is aqueous and has a pH less than or equal to 2 or greater than or equal to 12.5, as determined by a pH meter using either the test method specified in SW-846, or an equivalent test method approved by the Administrator under the procedures set forth in 40 C.F.R. §§260.20 and 260.21.

3.3.3.a.2. It is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 mm (0.250 inch) per year at a test temperature of 55 degrees C (130 degrees F) as determined by the test method specified in NACE (National Association of Corrosion Engineers) Standard TM-01-69 as standardized in SW-846, or an equivalent test method.

3.3.3.b. A waste that exhibits the characteristics of corrositivity, but is not listed as a hazardous waste by the Administrator or director, has the EPA Hazardous Waste Number of D002.

3.3.4. Characteristic of Reactivity.

3.3.4.a. A waste exhibits the characteristic of reactivity if a representative sample of the waste has any of the following properties:

3.3.4.a.1. It is normally unstable and readily undergoes violent changes without detonating;

3.3.4.a.2. It reacts violently with water;

3.3.4.a.3. It forms potentially explosive mixtures with water;

3.3.4.a.4. When mixed with water, it generates toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or the environment;

3.3.4.a.5. It is a cyanide or sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or the environment;

3.3.4.a.6. It is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement;

3.3.4.a.7. It is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure; or

3.3.4.a.8. It is a forbidden explosive as defined in 49 C.F.R. §173.51, a Class A explosive as defined in 49 C.F.R. §173.53, or a Class B explosive as defined in 49 C.F.R. §173.88.

3.3.4.b. A waste that exhibits the characteristic of reactivity, but is not listed as a hazardous waste by the Administrator or director, has the EPA Hazardous Waste Number of D003.

3.3.5. Characteristic of EP Toxicity.

3.3.5.a. A waste exhibits the characteristic of EP toxicity if, using the test methods described in Appendix II of these regulations or equivalent methods approved by the Administrator under the procedures set forth in 40 C.F.R. §§260.20 and 260.21, the extract from a representative sample of the waste contains any of the contaminants listed in Table II of these regulations at a concentration equal to or greater than the respective value given in that Table. Where the waste contains less than 0.5 percent filterable solids, the waste itself, after filtering, is considered to be the extract for the purposes of Section 3.3.5.a of these regulations.

3.3.5.b. A waste that exhibits the characteristic of EP toxicity, but is not listed as a hazardous waste by the Administrator or director, has the hazardous waste number specified in Table II of these regulations which corresponds to the toxic contaminant causing it to be hazardous.

3.4. Lists of Hazardous Wastes.

3.4.1. General.

3.4.1.a. A waste is a hazardous waste if it is listed in Section 3.4 of these regulations unless it has been excluded from this list under Section 16 of these regulations.

3.4.1.b. The director will indicate his basis for listing the classes or types of wastes listed in Section 3.4 of these regulations by employing one or more of the following hazard codes: Ignitable Waste (I), Corrosive Waste (C), Reactive Waste (R), EP Toxic Waste (E), Acute Hazardous Waste (H), and Toxic Waste (T).

3.4.1.b.1. Appendix VII of these regulations identifies the constituent which caused the director to list the waste as an EP Toxic Waste (E) or Toxic Waste (T) in Sections 3.4.2 and 3.4.3 of these regulations.

3.4.1.c. Each hazardous waste listed in Section 3.4 of these regulations is assigned a Hazardous Waste Number which precedes the name of the waste. This number must be used in complying with the notification requirements of Section 4 of these regulations and certain record keeping and reporting requirements under ~~Section 67-Section 87-and-Section 11~~ Sections 6, 8, and 11 of these regulations.

3.4.1.d. The following hazardous wastes listed in Section 3.4.2 or 3.4.3 of these regulations are subject to the exclusion limits for acutely hazardous wastes established in Section 10.2.5 of these regulations: (Reserved).

3.4.2. Hazardous Waste from Nonspecific Sources.

3.4.2.a. Hazardous waste from nonspecific sources are listed in Table III of these regulations.

3.4.3. Hazardous Waste from Specific Sources.

3.4.3.a. Hazardous waste from specific sources are listed in Table IV of these regulations.

3.4.4. Discarded Commercial Chemical Products, Off-Specification Species, Container Residues, and Spill Residues Thereof. The following materials or items are hazardous wastes if and when they are discarded or intended to be discarded, as described in Section 3.1.2.a.1 of these regulations, when they are burned for purposes of energy recovery in lieu of their original intended use, when they are used to produce fuels in lieu of their original intended use, when they are applied to the land in lieu of their original intended use, or when they are contained in products that are applied to the land in lieu of their original intended use.

3.4.4.a. Any commercial chemical product or manufacturing chemical intermediate having the generic name listed

in Section 3.4.4.e or 3.4.4.f of these regulations.

3.4.4.b. Any off-specification commercial chemical product or manufacturing chemical intermediate which, if it met specifications, would have the generic name listed in Section 3.4.4.e or 3.4.4.f of these regulations.

3.4.4.c. Any residue remaining in a container or in an inner liner removed from a container that has held any commercial chemical product or manufacturing chemical intermediate having the generic name listed in Section 3.4.4.e of these regulations, unless the container is empty as defined in Section 3.1.7.e of these regulations.

Comment: Unless the residue is being beneficially used or reused, or legitimately recycled or reclaimed; or being accumulated, stored, transported, or treated prior to such use, re-use, recycling, or reclamation, the director considers the residue to be intended for discard and thus a hazardous waste. An example of a legitimate re-use of the residue would be where the residue remains in the container and the container is used to hold the same commercial chemical product or manufacturing chemical product or manufacturing chemical intermediate it previously held. An example of the discard of the residue would be where the drum is sent to a drum reconditioner who reconditions the drum but discards the residue.

3.4.4.d. Any residue or contaminated soil, water, or other debris resulting from the clean-up of a spill into or on any land or water of any commercial chemical product or manufacturing chemical intermediate having the generic name listed in Section 3.4.4.e or 3.4.4.f of these regulations, or any residue or contaminated soil, water or other debris resulting from the clean-up of a spill, into or on any land or water, of any off-specification chemical product and manufacturing chemical intermediate which, if it met specifications, would have the generic name listed in Section 3.4.4.e or 3.4.4.f of these regulations.

Comment: The phrase "commercial chemical product or manufacturing chemical intermediate having the generic name listed in..." refers to a chemical substance which is manufactured or formulated for commercial or manufacturing use which consists of the commercially pure grade of the chemical, any technical grades of the chemical that are produced or marketed, and all formulations in which the chemical is the sole active ingredient. It does not refer to a material, such as a manufacturing process waste, that contains any of the substances listed in Section 3.4.4.e or 3.4.4.f of these regulations. Where a manufacturing process waste is deemed to be a hazardous waste because it contains a substance listed in Section 3.4.4.e or 3.4.4.f of these regulations, such waste will be listed in either Section 3.4.2 or 3.4.3 of these regulations or will be identified as a hazardous

waste by the characteristics set forth in Section 3.3 of these regulations.

3.4.4.e. The commercial chemical products, manufacturing chemical intermediates or off-specification commercial chemical products or manufacturing chemical intermediates referred to in Sections 3.4.4.a through 3.4.4.d of these regulations, are identified as acute hazardous wastes (H) and are subject to be the small quantity exclusion defined in Section 10.2.5 of these regulations. These wastes and their corresponding EPA hazardous waste numbers are listed in Table V of these regulations.

Comment: For the convenience of the regulated community the primary hazardous properties of these materials have been indicated by the letters T (Toxicity) and R (Reactivity). Absence of a letter indicates that the compound only is listed for acute toxicity.

3.4.4.f. The commercial chemical products, manufacturing chemical intermediates, or off-specification commercial chemical products referred to in Sections 3.4.4.a through 3.4.4.d of these regulations, are identified as toxic wastes (T) unless otherwise designated and are subject to the small quantity exclusion defined in Section 10.2.1 of these regulations. These wastes and their corresponding EPA hazardous waste numbers are listed in Table VI of these regulations.

Comment: For the convenience of the regulated community, the primary hazardous properties of these materials have been indicated by the letters T (Toxicity), R (Reactivity), I (Ignitability), and C (Corrosivity). Absence of a letter indicates that the compound is only listed for toxicity.

§47-35-4. Notification of Hazardous Waste Activity Regulations.

4.1. General.

4.1.1. Applicability. Any person that engages in a hazardous waste activity in the State of West Virginia shall notify the chief of these activities, unless such activities are exempted from the requirements of these regulations.

4.1.2. Any person as described in Section 4.1.1 of these regulations that has notified the EPA or is subject to the requirements to notify EPA as specified in Volume 45, Number 39 of the Federal Register, dated February 26, 1980, pages 12746 through 12754, is subject to the provisions of Section 4 of these regulations.

4.1.3. The purpose of Section 4 of these regulations is to provide a means for the State of West Virginia to utilize the information provided by all who complied with the notification requirements of EPA as described in Section 4.1.2 of these

regulations and to assure that all persons who did not notify EPA as described in Section 4.1.2 of these regulations or all who initiated hazardous waste activities subsequent to the requirements of EPA as referenced above in Section 4.1.2 of these regulations shall notify the chief of their hazardous waste activities.

4.2. Notification.

4.2.1. Any person that notified EPA of hazardous waste activities as referenced above in Section 4.1 of these regulations shall provide a copy of that notification to the chief within thirty (30) days of the effective date of these regulations.

4.2.2. Any person involved in hazardous waste activities that did not comply with the notification requirements of EPA, as referenced above in Section 4.1 of these regulations, but is subject to those requirements shall notify the chief in writing of their hazardous waste activities within thirty (30) days of the effective date of these regulations. Notification may be accomplished by the use of EPA Form 8700-12 or the provision of the same information in any other manner selected by the notifier.

4.2.3. Any person exempted from the federal notification requirements but subject to West Virginia notification requirements as specified in Sections 3.1.6 and 10 of these regulations shall notify the chief in writing of their hazardous waste activities within ninety (90) days of the effective date of these regulations or the date of initiation of such activities, whichever is later. Notification may be accomplished by use of EPA Form 8700-12 or the provision of the same information in any other manner selected by the notifier.

4.2.4. One notification form is required for each generator.

4.2.5. A notification form is required for each storage, treatment, disposal, or other facility. However, if one facility site includes more than one storage, treatment, or disposal activity, only one notification form for the entire facility site is required.

4.2.6. Generators that store, treat, or dispose of hazardous waste on-site shall file a notification form for generation activities as well as storage, treatment, and disposal activities, unless such activities are exempted from the requirements of these regulations.

4.2.7. New generators and those initiating activities subsequent to the EPA notification period referenced in Section 4.1.2 of these regulations shall comply with the EPA identification number requirements and shall provide a copy of their application for an EPA identification number to the chief.

§47-35-5. Standards Applicable to Transporters of Hazardous Waste by Air or Water or Both.

5.1. The director hereby adopts and incorporates by reference 40 C.F.R. Part 263, as published in the Code of Federal Regulations on the effective date specified in Section 1.5 of these regulations, insofar as such regulations relate to the transportation of hazardous waste by air and water.

5.2. Whenever the term Administrator or Regional Administrator is used, the term shall have the meaning of the director of the Department of Natural Resources.

§47-35-6. Standards Applicable to Generators of Hazardous Waste.

6.1. Purpose, Scope, and Applicability.

6.1.1. General.

6.1.1.a. Generators that generate more than one hundred (100) kilograms of hazardous waste, as identified or listed in Section 3 of these regulations, in any calendar month or who generate acutely hazardous waste in quantities greater than the amounts listed in Section 10.1.5 of these regulations are subject to all sections of these regulations, except as otherwise provided in Sections 6 and 10.1 of these regulations.

6.1.1.b. A generator who treats, stores, or disposes of hazardous waste on-site must only comply with the following subsections of Section 6 of these regulations with respect to that waste: Section 6.1.2 of these regulations for determining whether his waste is hazardous; Section 6.1.3 of these regulations for obtaining an EPA identification number; Sections 6.4.1.c and 6.4.1.d of these regulations for record keeping; Section 6.4.4 of these regulations for additional reporting; and, ~~if applicable,~~ Section 6.5.2 of these regulations for farmers, if applicable; and Section 6.3.5 of these regulations for accumulation of hazardous waste.

6.1.1.c. Any person who imports hazardous waste into West Virginia shall comply with the standards applicable to generators established in Section 6 of these regulations.

6.1.1.d. A farmer who generates waste pesticides which are hazardous wastes and who complies with all the requirements of Section 6.5.2 of these regulations is not required to comply with the remainder of these regulations with respect to such pesticides.

6.1.1.e. A person who generates a hazardous waste, as defined in Section 3 of these regulations, is subject to the compliance requirements and penalties prescribed in Sections 14, 15, and 16 of the Hazardous-Waste-Management State Act if he does

not comply with the requirements of Section 6 of these regulations.

6.1.1.f. An owner or operator who initiates a shipment of hazardous waste from a treatment, storage, or disposal facility must comply with the generator standards established in Section 6 of these regulations.

6.1.2. Hazardous Waste Determination. A person who generates a waste, as defined in Section 3.1.2 of these regulations, shall determine if that waste is a hazardous waste using the following method:

6.1.2.a. He shall first determine if the waste is excluded from regulation under Section 3.1.4 of these regulations.

6.1.2.b. He shall then determine if the waste is listed as hazardous waste in Section 3.4 of these regulations.

Note: Even if the waste is listed, the generator still has an opportunity under 40 C.F.R. §260.22 ~~of--the-federal regulations~~ to demonstrate that the waste from his particular facility or operation is not a hazardous waste.

6.1.2.c. If the waste is not listed as a hazardous waste in Section 3.4 of these regulations, the generator shall determine whether the waste is identified in Section 3.3 of these regulations by either:

6.1.2.c.1. Testing the waste according to the methods set forth in Section 3.3 of these regulations, or according to an equivalent method; or

6.1.2.c.2. Applying knowledge of the hazard characteristics of the waste in light of the materials or the processes used.

6.1.2.d. Generator may elect to voluntarily declare his wastes as hazardous and subject to these regulations.

6.1.3. EPA Identification Numbers.

6.1.3.a. A generator shall not treat, store, dispose of, transport, or offer for transportation hazardous waste without having received an EPA identification number from the Administrator.

6.1.3.b. A generator who has not received an EPA identification number may obtain one by applying to the Administrator using EPA Form 8700-12. Upon receiving the request, the Administrator will assign an EPA identification number to the generator.

6.1.3.c. A generator shall not offer his hazardous waste to transporters or to treatment, storage, or disposal facilities that have not received an EPA identification number.

6.2. The Manifest.

6.2.1. General Requirements.

6.2.1.a. A generator who transports, or offers for transportation, hazardous waste for off-site treatment, storage, or disposal must prepare a manifest, OMB Control Number 2000-0404 on EPA Form 8700-22, and, if necessary, EPA Form 8700-22A, according to the requirements adopted in Appendix IX of these regulations.

6.2.1.b. A generator must designate on the manifest one facility which is permitted to handle the waste described on the manifest.

~~6.2.1.c. Beginning on September 17, 1985, and thereafter, generators shall insert on the manifest, at item 16 "Generator Certification", in addition to the certification which already exists at item 16, the following waste minimization certification:~~

6.2.1.c. A generator shall insert on the manifest at Item 16 ("Generator Certification") the following waste minimization certification in addition to the certification which already exists at Item 16:

"Unless I am a small quantity generator who has been exempted by statute or regulation from the duty to make a waste minimization certification under Section 3002(b) of RCRA, I also certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the method of treatment, storage or disposal currently available to me which minimizes the present and future threat to human health and the environment."

6.2.1.d. A generator may also designate on the manifest one alternate facility which is permitted to handle his waste in the event an emergency prevents delivery of the waste to the primary designated facility.

6.2.1.e. If the transporter is unable to deliver the hazardous waste to the designated facility or the alternate facility, the generator must either designate another facility or instruct the transporter to return the waste.

6.2.2. Acquisition of Manifest.

6.2.2.a. If the state to which the shipment is manifested (consignment state) supplies the manifest and requires

its use, then the generator must use that manifest.

6.2.2.b. If the consignment state does not supply the manifest, but the state in which the generator is located (generator state) supplies the manifest and requires its use, then the generator must use the state's manifest.

6.2.2.c. If neither the generator state nor the consignment state supplies the manifest, then the generator may obtain the manifest from any source.

6.2.3. Number of Copies. The manifest consists of at least the number of copies which will provide the generator, each transporter, and the owner or operator of the designated facility with one copy for their records and another copy to be returned to the generator.

6.2.4. Use of the Manifest.

6.2.4.a. The generator must:

6.2.4.a.1. Sign the manifest certification by hand;

6.2.4.a.2. Obtain the handwritten signature of the initial transporter and date of acceptance on the manifest; and

6.2.4.a.3. Retain one copy, in accordance with Section 6.4.1.a of these regulations.

6.2.4.b. The generator must give the transporter remaining copies of the manifest.

6.2.4.c. For shipments of hazardous waste within the United States solely by water (bulk shipments only), the generator must send three copies of the manifest dated and signed in accordance with Section 6.2 of these regulations to the owner or operator of the designated facility or the last water (bulk shipment) transporter to handle the waste in the United States if exported by water. Copies of the manifest are not required for each transporter.

6.2.4.d. For rail shipments of hazardous waste within the United States which originate at the site of generation, the generator must send at least three copies of the manifest dated and signed in accordance with Section 6 of these regulations to:

6.2.4.d.1. The next non-rail transporter, if any;

6.2.4.d.2. The designated facility if transported solely by rail; or

6.2.4.d.3. The last rail transporter to handle the waste in the United States if exported by rail.

6.3. Pre-Transport Requirements.

6.3.1. Packaging. Before transporting hazardous waste or offering hazardous waste for transportation off-site, a generator shall package the waste in accordance with the applicable DOT regulations on packaging under 49 C.F.R. Parts 173, 178, and 179.

6.3.2. Labeling. Before transporting or offering hazardous waste for transportation off-site, a generator shall package the waste in accordance with the applicable DOT regulations on packaging under 49 C.F.R. Part 172.

6.3.3. Marking.

6.3.3.a. Before transporting or offering hazardous waste for transportation off-site, a generator shall mark each package of hazardous waste in accordance with the applicable DOT regulation on hazardous materials under 49 C.F.R. Part 172;

6.3.3.b. Before transporting hazardous waste or offering hazardous waste for transportation off-site, a generator shall mark each container of ~~not~~ one hundred and ten (110) gallons or less used in such transportation with the following words and information displayed in accordance with the requirements of 49 C.F.R. §172.304:

6.3.3.b.1. "HAZARDOUS WASTE - Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency."

6.3.3.b.2. Generator's name and address.

6.3.3.b.3. Manifest document number.

6.3.4. Placarding. Before transporting hazardous waste or offering hazardous waste for transportation off-site, the generator shall placard or offer the initial transporter the appropriate placards according to DOT regulations for hazardous materials under Subpart F of 49 C.F.R. Part 172.

6.3.5. Accumulation Time.

6.3.5.a. Except as provided in Sections 10.1.3 through 10.1.5 of these regulations, a generator may accumulate hazardous waste on-site for ninety (90) days or less without a permit or without having interim status provided that:

6.3.5.a.1. The waste is placed in containers and the generator complies with Subpart I of 40 C.F.R. Part 265, or the waste is placed in tanks and the generator complies with Subpart J of 40 C.F.R. Part 265 (excluding 40 C.F.R. §§265.197(c) and 265.200). In addition, such a generator is exempt from all the requirements in Subparts G and H of 40 C.F.R. Part 265 (except for

40 C.F.R. §§265.111 and 265.114);

6.3.5.a.2. The date upon which each period of accumulation begins is clearly marked and visible for inspection on each container;

6.3.5.a.3. Each container is properly labeled and marked according to Sections 6.3.2 and 6.3.3 of these regulations;

6.3.5.a.4. While being accumulated, on site, each container and tank is labeled or marked clearly with the words "Hazardous Waste"; and

6.3.5.a.5. The generator complies with the requirements for owners or operators in Subparts C and D of 40 C.F.R. Part 265 and with 40 C.F.R. §265.16.

6.3.5.b. A generator who accumulates hazardous waste for more than ninety (90) days is an operator of a storage facility and is subject to the applicable requirements of Sections 4, 8, and 12 of these regulations, the permit requirements of Section 11 of these regulations and 40 C.F.R. Part 265 unless he has been granted an extension to the ninety (90) day period. Such an extension may be granted by the chief if hazardous wastes must remain on-site for longer than ninety (90) days due to unforeseen, temporary, and uncontrollable circumstances. An extension of up to thirty (30) days may be granted at the discretion of the chief on a case-by-case basis. Before the end of ninety (90) days, or any extension period granted by the chief (not to exceed thirty days), the generator must either transport all such hazardous waste off-site to a designated facility, or, if held on-site for more than ninety (90) days, place such hazardous waste in an on-site facility that is either permitted under Section 11 of these regulations or under 40 C.F.R. Part 270 or which has interim status or which is authorized to manage hazardous waste by a state with a hazardous waste program approved by EPA.

6.3.5.c. Satellite Area Accumulation.

6.3.5.c.1. A generator may accumulate as much as fifty-five (55) gallons of hazardous waste or one quart of acutely hazardous waste listed in Section 3.4.4.e of these regulations in containers at or near any point of generation where wastes initially accumulate, which is under the control of the operator of the process generating the waste, without a permit or interim status and without complying with Section 6.3.5.a of these regulations, provided he:

6.3.5.c.1.A. Complies with 40 C.F.R. §§265.171, 265.172, and 265.173(a); and

6.3.1.c.1.B. Marks the containers either with the words "Hazardous Waste" or with other words that identify the

contents of the containers.

6.3.5.c.2. A generator who accumulates either hazardous waste or acutely hazardous waste listed in Section 3.4.4.e of these regulations in excess of the amounts listed in Section 6.3.5.c.1 of these regulations at or near any point of generation must, with respect to that amount of excess waste, comply within three (3) days with Section 6.3.5.a of these regulations or other applicable provisions of these regulations. During the three-day period, the generator must continue to comply with Sections 6.3.5.c.1 of these regulations. The generator must mark each container holding the excess accumulation of hazardous waste with the date the excess amount of hazardous waste began accumulating.

6.4. Record Keeping and Reporting.

6.4.1. Record Keeping.

6.4.1.a. A generator shall keep a copy of each manifest signed in accordance with Section 6.2.4.a of these regulations for three years or until he receives a signed copy from the designated facility which received the waste. This signed copy must be retained as a record for at least three years from the date the waste was accepted by the initial transporter.

6.4.1.b. A generator shall keep a copy of each annual report and exception report for a period of at least three years from the due date of the report.

6.4.1.c. A generator shall keep records of any test results, waste analyses, or other determinations made in accordance with Section 6.1.2. of these regulations for at least three years from the date that the waste was last sent to on-site or off-site treatment, storage, or disposal.

6.4.1.d. The periods or retention referred to in Section 6.4 of these regulations are extended automatically during the course of any unresolved enforcement action regarding the regulated activity or as requested by the chief or director.

6.4.2. Annual Reporting.

6.4.2.a. A generator who ships hazardous waste off-site shall submit an annual report to the chief on a form prescribed by him, no later than March 1 for the preceding calendar year. Such report must include, at least, the following information:

6.4.2.a.1. The EPA identification number, name, and address of the generator;

6.4.2.a.2. The calendar year covered by the report;

6.4.2.a.3. The EPA identification number, name, and address for each off-site treatment, storage, or disposal facility to which waste was shipped during the year; for exported shipments, the report must give the name and address of the foreign facility;

6.4.2.a.4. The name and EPA identification number of each transporter used during the reporting year;

6.4.2.a.5. A description, EPA hazardous waste number, DOT hazard class, and quantity of each hazardous waste shipped off-site. This information must be listed by EPA identification number of each off-site facility to which waste was shipped;

6.4.2.a.6. A description of the efforts undertaken during the year to reduce the volume and toxicity of waste generated;

6.4.2.a.7. A description of the changes in volume and toxicity of waste actually achieved during the year in comparison to previous years to the extent such information is available for years prior to 1984; and

6.4.2.a.8. The certification signed by the generator or authorized representative.

6.4.2.b. Any generator who treats, stores, or disposes of hazardous waste on-site shall submit an annual report covering those wastes in accordance with the provisions of Sections 8 and 11 of these regulations and 40 C.F.R. Part 265.

6.4.3. Exception Reporting.

6.4.3.a. A generator who does not receive a copy of the manifest with the handwritten signature of the owner or operator of the facility within thirty-five (35) days of the date the waste was accepted by the initial transporter shall contact the transporter or the owner or operator of the designated facility, or both, to determine the status of the hazardous waste.

6.4.3.b. A generator shall submit an exception report to the chief if he has not received a copy of the manifest with the handwritten signature of the owner or operator of the designated facility within forty-five (45) days of the date the waste was accepted by the initial transporter. The exception report must include:

6.4.3.b.1. A legible copy of the manifest for which the generator does not have confirmation of delivery;

6.4.3.b.2. A cover letter signed by the generator or his authorized representative explaining the efforts taken to locate the hazardous waste and the results of those efforts; and

6.4.3.b.3. In case of interstate shipments which originated in the state for delivery to a designated facility in another state, an additional copy of the exception report will be provided to the chief for transmittal to that state or EPA as provided for in 40 C.F.R. §271.128(b)(8).

6.4.4. Additional Reporting. The chief, as he deems necessary, may require generators to furnish additional reports concerning the quantities and disposition of hazardous wastes identified or listed in Section 3 of these regulations.

6.5. Special Conditions.

6.5.1. International Shipments.

6.5.1.a. Any person who exports hazardous waste to a foreign country or imports hazardous waste from a foreign country into West Virginia shall comply with 40 C.F.R Part 262 and Section 6.5 of these regulations.

6.5.1.b. When shipping hazardous waste outside the United States the generator shall:

6.5.1.b.1. Notify the chief and the Administrator in writing four weeks before the initial shipment of hazardous waste to each country in each calendar year. The waste shall be identified by its EPA hazardous waste identification number and its DOT shipping description. The name and address of the foreign consignee shall be included in the notice.

6.5.1.b.2. Send the original of the notice to Office of International Activities (A-106), U.S. Environmental Protection Agency, Washington, D.C. 20460, and one copy to the chief.

6.5.1.b.3. Require that the foreign consignee conform the delivery of the waste in the foreign country. A copy of the manifest, signed by the foreign consignee, may be used for this purpose.

6.5.1.b.4. Meet the requirements under Section 6.2.2 of these regulations for the manifest, except that:

6.5.1.b.4.A. In place of the name, address, and EPA identification number of the designated facility, the name and address of the foreign consignee shall be used.

6.5.1.b.4.B. The generator shall identify the point of departure from the United States through which the waste shall travel before entering a foreign country.

6.5.1.c. A generator shall file an exception report, if:

6.5.1.c.1. He has not received a copy of the manifest

signed by the transporter stating the date and place of departure from the United States within forty-five (45) days from the date it was accepted by the initial transporter; or

6.5.1.c.2. Within ninety (90) days from the date the waste was accepted by the initial transporter, the generator has not received written confirmation from the foreign consignee that the hazardous waste was received.

6.5.1.d. When importing hazardous waste, a person shall meet all requirements of Section 6.2.2 of these regulations for the manifest except that:

6.5.1.d.1. In place of the generator's name, address, and EPA identification number, the name and address of the foreign generator, and the importer's name, address, and EPA identification number shall be used.

6.5.1.d.2. In place of the generator's signature on the certification statement, the U.S. importer or his agent shall sign and date the certification and obtain the signature of the initial transporter.

6.5.2. Farmers. A farmer disposing of waste pesticides from his own use which are hazardous wastes is not required to comply with the standards in Section 6 of these regulations or other standards in Section 8, 11, or 12 of these regulations, or 40 C.F.R. Part 265, for those wastes, provided he triple rinses each emptied pesticide container in accordance with Section 3.1.7.e of these regulations and disposes of the pesticide residues on his own farm in a manner consistent with the disposal instructions on the pesticide label.

§47-35-7. (Reserved).

§47-35-8. Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities.

8.1. General Purpose, Scope, and Applicability.

8.1.1. The purpose of Section 8 of these regulations is to establish minimum standards which define the acceptable management of hazardous waste.

8.1.2. The standards in Section 8 of these regulations apply to owners and operators of all facilities which treat, store, or dispose of hazardous waste except as Section 8.1.5 of these regulations provides otherwise. In addition to the standards in Section 8 of these regulations, the regulations in Title 45, Air Pollution Control Commission, Series 25 (45 C.S.R. 25) apply to management facilities which may emit hazardous waste or the constituents thereof to the atmosphere including incineration facilities except as Section 8.1.5 of these

regulations provides otherwise. For purposes of Section 8 of these regulations, the following persons are considered to be incinerating hazardous waste:

8.1.2.a. Owners or operators of hazardous waste incinerators as defined in Section 2 of these regulations; and

8.1.2.b. Owners or operators of boilers or industrial furnaces used to destroy the wastes.

8.1.3. The requirements of Section 8 of these regulations apply to a person disposing of hazardous waste by means of underground injection only to the extent that they are required to comply with certain portions of Section 8 of these regulations under the underground injection control program establish pursuant to the Water Pollution Control Act. ~~W-Var-Code-§20-5A~~

8.1.4. The requirements of Section 8 of these regulations apply to the owner or operator of a POTW which treats, stores, or disposes of hazardous waste only to the extent they are included in a hazardous waste management permit by rule granted to such a person under Section 11.8 of these regulations.

8.1.5. The requirements of Section 8 of these regulations do not apply to:

8.1.5.a. The owner or operator of a facility managing recyclable materials described in Sections 3.1.6.b and 3.1.6.c of these regulations (except in cases or situations in which the requirements of Section 3 of these regulations are referred to in Section 9 of these regulations).

8.1.5.b. ~~Generator~~ A generator accumulating waste on site in compliance with Section 6.3.5 of these regulations provided the applicable requirements of Sections 3.1.6 and 10 of these regulations are complied with.

8.1.5.c. A farmer disposing of waste pesticides from his own use in compliance with Section 6.5.2 of these regulations.

8.1.5.d. The owner or operator of a totally enclosed treatment facility as defined in Section 2 of these regulations.

8.1.5.e. The owner or operator of an elementary neutralization unit or a wastewater treatment unit as defined in Section 2 of these regulations.

8.1.5.f. A transporter storing manifested shipments of hazardous waste in containers meeting the requirements of Section 6.3.1 of these regulations at a transfer facility for a period of ten (10) days or less.

8.1.5.g. Except as provided in Section 8.1.5.g.2 of

these regulations, a person engaged in treatment or containment activities during immediate response to any of the following situations listed in Section 8.1.5.g.1 of these regulations.

8.1.5.g.1. Immediate response situations include:

8.1.5.g.1.A. A discharge of a hazardous waste;

8.1.5.g.1.B. An imminent and substantial threat of a discharge of hazardous waste; or

8.1.5.g.1.C. A discharge of a material which, when discharged, becomes a hazardous waste.

8.1.5.g.2. An owner or operator of a facility otherwise regulated by ~~this--subsection~~ Section 8.1.5 of these regulations must comply with all applicable requirements of Sections 8.3 and 8.4 of these regulations.

8.1.5.g.3. Any person who is covered by Section 8.1.5.g.1 of these regulations and who continues or initiates hazardous waste treatment or containment activities after the immediate response is over is subject to all applicable requirements of the State Act.

8.1.5.h. The addition of absorbent material to hazardous waste in a container or the addition of hazardous waste to absorbent material in a container, provided that these actions occur at the time hazardous waste is first placed in the container and Sections 8.2.8.b, 8.7.2, and 8.7.3 of these regulations are complied with.

8.1.6. Relation to Interim Status Standards. A facility owner or operator shall comply with the requirements of Section 10 of the State Act, Section 11.3.4 of these regulations, and the corresponding federal requirements of Subpart G of 40 C.F.R. Part 270 in lieu of the regulations of Section 8 of these regulations until final administrative disposition of the permit application is made, except as otherwise noted in these regulations.

8.1.7. Imminent Hazard Section. Notwithstanding any other provisions of these regulations, enforcement actions may be brought pursuant to Section 17 of the State Act.

8.2. General Facility Standards.

8.2.1. Applicability. The regulations in Section 8.2 of these regulations apply to owners and operators of all hazardous waste facilities, except as provided in Section 8.1 of these regulations.

8.2.2. Identification Number. Every facility owner or operator must apply to EPA for an EPA identification number in

accordance with the EPA notification procedures.

8.2.3. Required Notices.

8.2.3.a. The owner or operator of a facility that has arranged to receive hazardous waste from a foreign source must notify the chief in writing at least four (4) weeks in advance of the date the waste is expected to arrive at the facility. Notice of subsequent shipments of the same waste from the foreign source is not required.

8.2.3.b. The owner or operator of a facility that receives hazardous waste from an off-site source (except where the owner or operator is also the generator) must inform the generator in writing that the facility has the appropriate permit(s) for and will accept, the waste the generator is shipping. The owner or operator must keep a copy of this written notice as part of the operating record.

8.2.3.c. Before transferring ownership or operation of a facility during its operating life, or of a disposal facility during the post-closure period, the owner or operator must notify the new owner or operator in writing of all applicable requirements.

8.2.3.d. An owner's or operator's failure to notify the new owner or operator of the requirements of Section 8 of these regulations in no way relieves the new owner or operator of the obligation to comply with all applicable requirements.

8.2.4. General Waste Analysis.

~~8.2.4.a.1.~~ 8.2.4.a. Before an owner or operator treats, stores, or disposes of any hazardous waste, a detailed chemical and physical analysis of a representative sample of the waste must be obtained.

8.2.4.a.1. At a minimum, ~~this~~ the analysis must contain all the information which must be known to treat, store, or dispose of the waste in accordance with the requirements of Section 8 of these regulations or with the conditions of a permit issued under Section 11 of these regulations.

Comment: Section 11.5 of these regulations requires that the waste analysis plan be submitted with Part B of the permit application.

8.2.4.a.2. The analysis may include data developed under Section 3 of these regulations, and existing published or documented data on the hazardous waste or on hazardous waste generated from similar processes.

8.2.4.a.3. The facility's records of analysis

performed on the waste before the effective date of these regulations, or studies conducted on hazardous waste generated from processes similar to that which generated the waste to be managed at the facility, may be included in the data base required to comply with Section 8.2.4.a.1 of these regulations. The owner or operator of an off-site facility may arrange for the generator of the hazardous waste to supply part or all of the information required by Section 8.2.4.a.1 of these regulations. If the generator does not supply the information, and the owner or operator chooses to accept a hazardous waste, the owner or operator is responsible for obtaining the information required to comply with Section 8.2.4 of these regulations.

8.2.4.a.4. The analysis must be repeated as necessary to ensure that it is accurate and up-to-date. At a minimum, the analysis must be repeated:

8.2.4.a.4.A. When the owner or operator is notified, or has reason to believe, that the process or operation generating the hazardous waste has changed; and

8.2.4.a.4.B. For off-site facilities, when the results of the inspection required in Section 8.2.4.a.5 of these regulations indicate that the hazardous waste received at the facility does not match the waste designated on the accompanying manifest or shipping paper.

8.2.4.a.5. The owner or operator of an off-site facility must inspect and, if necessary, analyze each hazardous waste movement received at the facility to determine whether it matches the identity of the waste specified on the accompanying manifest or shipping paper.

8.2.4.b. The owner or operator must develop and follow a written waste analysis plan which describes the procedures which will comply with Section 8.2.4.a of these regulations. This plan must be kept at the facility. At a minimum, the plan must specify:

8.2.4.b.1. The parameters for which each hazardous waste will be analyzed and the rationale for the selection of the parameters (i.e., how analysis for these parameters will provide sufficient information on the waste's properties to comply with Section 8.2.4.a of these regulations.

8.2.4.b.2. The test methods which will be used to test for these parameters.

8.2.4.b.3. The sampling method which will be used to obtain a representative sample of the waste to be analyzed. A representative sample may be obtained using either:

8.2.4.b.3.A. One of the sampling methods described

in Appendix I of these regulations; or

8.2.4.b.3.B. An equivalent sampling method.

8.2.4.b.4. The frequency which the initial analysis of the waste will be reviewed or repeated to ensure that the analysis is accurate and up-to-date.

8.2.4.b.5. For off-site facilities, the waste analyses that hazardous waste generators have agreed to supply.

8.2.4.b.6. Where applicable, the methods which will be used to meet the additional waste analysis requirements for specific waste management methods as specified in Sections 8.2.8 of these regulations and in Title 45, Air Pollution Control Commission, Series 25 (45 C.S.R. 25).

8.2.4.c. For off-site facilities, the waste analysis plan required in Section 8.2.4.b of these regulations must also specify the procedures which will be used to inspect and, if necessary, analyze each movement of hazardous waste received at the facility to ensure that it matches the identity of the waste designated on the accompanying manifest or shipping paper. At a minimum, the plan must describe:

8.2.4.c.1. The procedures which will be used to determine the identity of each movement of waste managed at the facility; and

8.2.4.c.2. The sampling method which will be used to obtain a representative sample of the waste to be identified, if the identification method includes sampling.

8.2.5. Security.

8.2.5.a. The owner or operator must prevent the unknowing entry, and minimize the possibility for the unauthorized entry, of persons or livestock onto the active portion of the facility unless it can be demonstrated to the chief that:

8.2.5.a.1. Physical contact with the waste, structures, or equipment within the active portion of the facility will not injure unknowing or unauthorized persons or livestock which may enter the active portion of a facility.

8.2.5.a.2. Disturbance of the waste or equipment by the unknowing or unauthorized entry of persons or livestock onto the active portion of a facility will not cause a violation of the requirements of Section 8 of these regulations.

8.2.5.a.3. The owner or operator who wishes to make the demonstration referred to above must do so with Part B of the permit application.

8.2.5.b. Unless the owner or operator has made a successful demonstration under Sections 8.2.5.a.1 and 8.2.5.a.2 of these regulations, a facility must have:

8.2.5.b.1. A twenty-four hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel) which continuously monitors and controls entry onto the active portion of the facility; or

8.2.5.b.2.A. An artificial or natural physical barrier (e.g., a fence in good repair or a fence combined with a cliff), which completely surrounds the active portions of the facility; and

8.2.5.b.2.B. A means to control entry, at all times, through the gates or other entrances to the active portion of the facility (e.g., an attendant, television monitors, locked entrance, or controlled roadway access to the facility).

8.2.5.b.3. The requirements of Section 8.2.5.b of these regulations are satisfied if the facility or plant within which the active portion is located itself has a surveillance system, or a barrier and a means to control entry, which complies with the requirements of Section 8.2.5.b.1 or 8.2.5.b.2 of these regulations.

8.2.5.c. Unless the owner or operator has made a successful demonstration under Sections 8.2.5.a.1 and 8.2.5.a.2 of these regulations, a sign with the legend, "DANGER - UNAUTHORIZED PERSONNEL KEEP OUT," must be posted at each entrance to the active portion of a facility, and at other locations, in sufficient numbers to be seen from any approach to this active portion. The legend must be written in English and in any other language predominant in the area surrounding the facility, and must be legible from a distance of at least twenty-five (25) feet. Existing signs with a legend other than "DANGER - UNAUTHORIZED PERSONNEL KEEP OUT" may be used if the legend on the sign indicates that only authorized personnel are allowed to enter the active portion, and that entry onto the active portion can be dangerous.

8.2.6. General Inspection Requirements.

~~8-2-6-a--The-owner-or-operator-must-inspect-the-facility for--malfunctions--and--deterioration,--operator--errors,--and discharges-which-may-be-causing-or-may-lead-to:~~

~~8-2-6-a-1--Release-of-hazardous-waste-constituents-to the-environment,--or~~

~~8-2-6-a-2--A-threat-to-human-health:~~

~~The-owner-or--operator--must--conduct--these--inspections~~

~~often--enough--to-identify-problems-in-time-to-correct-them-before they-harm-human-health-or-the-environment.~~

8.2.6.a. The owner or operator must inspect the facility for malfunctions and deterioration, operator errors, and discharges which may be causing or may lead to a release of hazardous waste constituents to the environment or a threat to human health. The owner or operator must conduct these inspections often enough to identify problems in time to correct them before they harm human health or the environment.

8.2.6.b. Inspection Schedule.

8.2.6.b.1. The owner or operator must develop and follow a written schedule for inspecting monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment (such as dikes and sump pumps) that are important to preventing, detecting, or responding to environmental or human health hazards.

8.2.6.b.2. This schedule must be kept at the facility.

8.2.6.b.3. The schedule must identify the types of problems (e.g., malfunctions or deterioration) which are to be looked for during the inspection (e.g., inoperative sump pump, leaking fitting, eroding dike ~~etc.~~).

8.2.6.b.4. The frequency of inspection may vary for the items on the schedule. However, it should be based on the rate of possible deterioration of the equipment and the probability of an environmental or human health incident if the deterioration or malfunction or any operator error goes undetected between inspections. Areas subject to spills, such as loading and unloading areas, must be inspected daily when in use. At a minimum, the inspection schedule must include the terms and frequencies called for in 40 C.F.R. §264.347 and Sections 8.7.6, 8.8.4, 8.8.6, 8.9.5, 8.10.4, 8.10.5, ~~and 8.11.3~~ 8.11.3, and 8.14.3 of these regulations, where applicable.

8.2.6.b.5. A copy of the inspection schedule as required by Section 8.2.6.b of these regulations must be submitted to the chief with Part B of the permit application to ensure that it adequately protects human health and the environment. As part of this review, the chief may modify or amend the schedule as may be necessary.

8.2.6.c. The owner or operator must remedy any deterioration or malfunction of equipment or structures which the inspection reveals to ensure that the problem does not lead to an environmental or human health hazard. A schedule for remedial action may be allowed by the chief. Where a hazard is imminent or has already occurred, remedial action must be taken immediately.

8.2.6.d. The owner or operator must record inspections in an inspection log or summary. These records must be kept for the life of the facility. At a minimum, these records must include the date and time of the inspection, the name of the inspector, a notation of the observations made, and the date and nature of any repairs or other remedial actions.

8.2.7. Personnel Training.

8.2.7.a. Training Program.

8.2.7.a.1. Facility personnel must successfully complete a program of classroom instruction or on-the-job training that teaches them to perform their duties in a way that ensures the facility's compliance with the requirements of Section 8 of these regulations. The owner or operator must ensure that this program includes all the elements described in the document required under Section 8.2.7.d.3 of these regulation.

8.2.7.a.2. This program must be directed by a person trained in hazardous waste management procedures, and must include instruction which teaches facility personnel hazardous waste management procedures (including contingency plan implementation) relevant to the positions in which they are employed.

8.2.7.a.3. At a minimum, the training program must be designed to ensure that the facility personnel are able to respond effectively to emergency by familiarizing them with emergency procedures, emergency equipment and emergency systems, including where applicable:

8.2.7.a.3.A. Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment;

8.2.7.a.3.B. Key parameters for automatic waste feed cutoff systems;

8.2.7.a.3.C. Communications or alarm systems;

8.2.7.a.3.D. Response to fires or explosions;

8.2.7.a.3.E. Response to groundwater contamination incidents; and

8.2.7.a.3.F. Shutdown of operations.

8.2.7.a.4. An outline of the training program required by ~~Section 8.2.7~~ Section 8.2.7.a of these regulations and a description of how the training program is designed to meet actual job tasks, must be submitted to the chief with Part B of the permit application.

8.2.7.b. Facility personnel must successfully complete the program required in Section 8.2.7.a of these regulations within six (6) months after the date of their employment or assignment to a facility, or to a new position at a facility, whichever is later. Employees hired after the effective date of these regulations must not work in unsupervised positions until they have completed the requirements of Section 8.2.7.a of these regulations.

8.2.7.c. Facility personnel must take part in an annual review of the initial training required in Section 8.2.7.a of these regulations.

8.2.7.d. The owner or operator must maintain the following documents and records at the facility:

8.2.7.d.1. The job title for each position at the facility related to hazardous waste management, and the name of the employee filling each job.

8.2.7.d.2. A written job description for each position listed under Section 8.2.7.d.1 of these regulations. This description may be consistent in its degree of specificity with descriptions for other similar positions in the same company location or bargaining unit, but must include the requisite skill, education, or other qualifications and duties of employees assigned to each position.

8.2.7.d.3. A written description of the type and amount of both introductory and continuing training that will be given to each person filling a position listed under Section 8.2.7.d.1 of these regulations.

8.2.7.d.4. Records that document that the training or job experience required under Sections 8.2.7.a, 8.2.7.b, and 8.2.7.c of these regulations has been given to, and completed by, facility personnel.

8.2.7.e. Training records on current personnel must be kept until closure of the facility; training records on former employees must be kept for three (3) years from the date the employee last worked at the facility. Personnel training records may accompany personnel transferred within the same company.

8.2.8. General Requirements for Ignitable, Reactive, or Incompatible Wastes.

8.2.8.a. The owner or operator must take precautions to prevent accidental ignition or reaction of ignitable or reactive waste. This waste must be separated and protected from sources of ignition or reaction including but not limited to: open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks (static, electrical or mechanical), spontaneous ignition

(e.g., from heat-producing chemical reactions), and radiant heat. While ignitable or reactive waste is being handled, the owner or operator must confine smoking and open flame to specially designated locations. "NO SMOKING" signs must be conspicuously placed wherever there is a hazard from ignitable or reactive waste.

8.2.8.b. Where specifically required by other sections of these regulations, the owner or operator of a facility that treats, stores or disposes ignitable or reactive waste, or mixes incompatible wastes or incompatible wastes and other materials, must take precautions to prevent reactions which:

8.2.8.b.1. Generate extreme heat or pressure, fire or explosions, or violent reactions.

8.2.8.b.2. Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health or the environment.

8.2.8.b.3. Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions.

8.2.8.b.4. Damage the structural integrity of the device or facility.

8.2.8.b.5. Through other like means threaten human health or the environment.

8.2.8.c. When required to comply with Sections 8.2.8.a and 8.2.8.b of these regulations, the owner or operator must document that compliance. This documentation may be based on references to published scientific or engineering literature, data from trial tests (e.g., bench scale or pilot scale tests), waste analyses (as specified in Section 8.2.4 of these regulations), or the results of the treatment of similar wastes by similar treatment processes and under similar operating conditions.

8.3. Preparedness and Prevention.

8.3.1. Applicability. The regulations in Section 8.3 of these regulations apply to owners and operators of all hazardous waste management facilities except as Section 8.1 of these regulations provides otherwise.

8.3.2. Design and Operation of Facility. Facilities shall be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or State waters which could threaten human health or the environment.

8.3.3. Required Equipment. All facilities shall be equipped with the following, unless it can be demonstrated to the chief in accordance with Section 11.5 of these regulations at the time of submission of Part B of the permit application, that none of the hazards posed by the waste handled at the facility could require a particular kind of equipment specified below:

8.3.3.a. An internal communications or alarm system capable of providing immediate emergency instruction (voice or signal) to facility personnel.

8.3.3.b. A device, such as a telephone (immediately available at the scene of operations) or a hand-held two-way radio, capable of summoning emergency assistance from local police departments, fire departments, or State or local emergency response teams.

8.3.3.c. Portable fire extinguishers, fire control equipment, spill control equipment, and decontamination equipment.

8.3.3.d. Water at adequate volume and pressure to supply expected fire fighting demands, foam producing equipment, automatic sprinklers, or water spray systems.

8.3.4. Testing and Maintenance of Equipment. All required facility communications or alarms systems, fire protection equipment, spill control equipment, and decontamination equipment shall be tested and maintained as necessary to assure its proper operation in time of emergency. A record of tests or inspections will be maintained on a log at that facility or other reasonably accessible and convenient location.

8.3.5. Access to Communications or Alarm Systems.

8.3.5.a. Whenever hazardous waste is being poured, mixed, spread, or otherwise handled, all personnel involved in the operation shall have immediate access to an internal alarm or emergency communication device, either directly or through visual or voice contact with another employee, unless such device is not required under Section 8.3.3 of these regulations.

8.3.5.b. If there is ever just one employee on the premises while the facility is operating, there must be immediate access to a device, such as a telephone (immediately available at the scene of operation) or a hand-held two-way radio, capable of summoning external emergency assistance, unless the chief has ruled that such device is not required under Section 8.3.3 of these regulations.

8.3.6. Required Aisle Space. The owner or operator shall maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of the facility operation in

an emergency, unless it can be demonstrated to the chief in accordance with Section 11.5 of these regulations that aisle space is not needed for any of these purposes.

Comment: Any owner or operator who wishes to make the demonstration referred to above must do so with Part B of the permit application.

8.3.7. Arrangements With Local Authorities.

8.3.7.a. The owner or operator shall attempt to make the following arrangements, as appropriate, for the type of waste handled at the facility and the potential need for the services of these organizations.

8.3.7.a.1. Arrangements to familiarize police, fire departments, and emergency response teams with the layout of the facility, properties of hazardous waste handled at the facility and associated hazards, places where facility personnel would normally be working, entrances to and roads inside the facility, and possible evacuation routes.

8.3.7.a.2. Where more than one police and fire department might respond to an emergency, agreements designating primary emergency authority to a specific police and a specific fire department, and agreements with any others to provide support to the primary emergency authority.

8.3.7.a.3. Agreements with state emergency response teams, emergency response contractors, and equipment suppliers.

8.3.7.a.4. Arrangements to familiarize local hospitals with the properties of hazardous waste handled at the facility and types of injuries or illnesses which could result from fire, explosions, or releases at the facility.

8.3.7.b. Where state or local authorities decline to enter into such arrangements, the owner or operator shall document the refusal in the operating record.

8.4. Contingency Plan and Emergency Procedures.

8.4.1. Applicability. The regulations of Section 8.4 of these regulations apply to owners and operators of all hazardous waste facilities except as Section 8.1 of these regulations provides otherwise.

8.4.2. Purpose and Implementation of Contingency Plan.

8.4.2.a. Each owner or operator shall have a contingency plan for the facility. The contingency plan shall be designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of

hazardous waste or hazardous waste constituents to air, soil, or State waters.

8.4.2.b. The provisions of the plan shall be carried out immediately whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment.

8.4.3. Content of Contingency Plan.

8.4.3.a. The contingency plan shall describe the actions that facility personnel shall take to comply with Sections 8.4.2 and 8.4.7 of these regulations in response to fires, explosions or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or State waters.

8.4.3.b. The owner or operator has already prepared a Spill Prevention, Control, and Countermeasures (SPCC) Plan in accordance with 40 C.F.R. Part 112 or 1510, or some other emergency or contingency plan, amendments to the plan need only to incorporate hazardous waste management provisions that are sufficient to comply with the requirements of Section 8.4 of these regulations.

8.4.3.c. The plan shall describe arrangements agreed to by local police departments, fire departments, hospitals, contractors, and State and local emergency response teams to coordinate emergency services, as required.

8.4.3.d. The plan shall list names, addresses, and office and home phone numbers of all persons qualified to act as emergency coordinators and this list shall be kept up-to-date. Where more than one person is listed, one shall be named a primary emergency coordinator and others shall be listed in the order in which they will assume responsibilities as alternates. For new facilities, the list is to be supplied at the time of certification.

8.4.3.e. The plan shall include a list of all required emergency equipment at the facility. This list shall be kept up-to-date. In addition, the plan shall include the location and a physical description of each item on the list and a brief outline of its capabilities.

8.4.3.f. The plan shall include an evacuation plan for facility personnel where there is a possibility that evacuation could be necessary. This plan shall describe signal(s) to be used to begin evacuation, evacuation routes, and alternate evacuation routes in cases where the primary routes could be blocked by releases of hazardous waste, hazardous waste constituents, or fires.

8.4.4. Copies of Contingency Plan. A copy of the

contingency plan and all revisions to the plan shall be:

8.4.4.a. Maintained at the facility.

8.4.4.b. Submitted to all local police departments, fire departments, hospitals, and State and local emergency response teams that may be called upon to provide emergency services.

Comment: The contingency plan must be submitted to the chief with Part B of the permit application under Section 11 of these regulations and, after modification or approval, will become a condition of the permit.

8.4.5. Amendment of Contingency Plan. The contingency plan shall be reviewed, and immediately amended if necessary, whenever:

8.4.5.a. The facility permit is revised.

8.4.5.b. The plan fails in an emergency.

8.4.5.c. The facility changes in its design, construction operation, maintenance, or other circumstances -- in a way that materially increases the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or changes the response necessary in an emergency.

8.4.5.d. The list of emergency coordinators changes.

8.4.5.e. The list of emergency equipment changes.

Comment: A change in the lists of facility emergency coordinators or equipment in the contingency plan constitutes a minor modification to the facility permit to which the plan is a condition.

8.4.6. Emergency Coordinator. At all times, there shall be at least one employee either on the facility premises or on call (i.e., available to respond to an emergency by reaching the facility within a short period of time) and able to reach the area in a short time, with the responsibility for coordinating all emergency response measures. This emergency coordinator shall be thoroughly familiar with all aspects of the facility contingency plan, all operations and activities at the facility, the location and characteristics of waste handled, the location of all records within the facility, and the facility layout. In addition, the person shall have the authority to commit the resources needed to carry out the contingency plan.

8.4.7. Emergency Procedures.

8.4.7.a. Whenever there is an imminent or actual emergency situation, the emergency coordinator, or the designee when the emergency coordinator is on call, shall immediately:

8.4.7.a.1. Activate internal facility alarms or communication systems, where applicable, to notify all affected facility personnel; and

8.4.7.a.2. Notify appropriate state or local agencies with designated response roles if their help is needed.

8.4.7.b. If there is a release, fire, or explosion, the emergency coordinator shall immediately identify the character, exact sources, amount, and areal extent of any released materials. This may be done by observation or review of facility records or manifests and, if necessary, by chemical analysis.

8.4.7.c. Concurrently, the emergency coordinator shall assess possible hazards to human health or the environment that may result from the release, fire, or explosion. This assessment shall consider both direct and indirect effects of the release, fire, or explosion (e.g., the effect of any toxic, irritating, or asphyxiating gases that are generated, or the effects of any hazardous surface water runoff from water or chemical agents used to control fire and heat-induced explosions).

8.4.7.d. If the emergency coordinator determines that the facility has had a release, fire, or explosion which could threaten human health, to the environment outside the facility the finding shall be reported as follows:

8.4.7.d.1. If the assessment indicates that evacuation of local areas may be advisable, immediate notification shall be given to appropriate local authorities. The emergency coordinator shall be available to help appropriate officials decide whether local areas should be evacuated.

8.4.7.d.2. The emergency coordinator shall immediately notify the County director for the office of emergency services designated as the on-scene coordinator for that area and the ~~Division of Water Resources~~ Division's Emergency Notification Number 1-800-642-3074. The notification shall include:

8.4.7.d.2.A. Name and telephone number of notifier;

8.4.7.d.2.B. Name and address of facility;

8.4.7.d.2.C. Time and type of incident;

8.4.7.d.2.D. Name and quantity of material(s) involved to the extent known;

8.4.7.d.2.E. The extent of injuries, if any; and

8.4.7.d.2.F. The possible hazards to human health or the environment outside the facility.

8.4.7.e. During an emergency, the emergency coordinator shall take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous waste at the facility. These measures shall include, where applicable, stopping processes and operations, collecting and containing released wastes, and removing or isolating containers.

8.4.7.f. If the facility stops operations in response to a fire, explosion, or release, the emergency coordinator shall monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment, wherever this is appropriate.

8.4.7.g. Immediately after an emergency, the emergency coordinator shall provide for treating, storing, or disposing of recovered waste, contaminated soil or waters, or any other material that results from a release, fire, or explosion at the facility.

8.4.7.h. The emergency coordinator shall ensure that in the affected area(s) of the facility:

8.4.7.h.1. No waste that may be incompatible with the released material is treated, stored, or disposed of until clean-up procedures are completed.

8.4.7.h.2. All emergency equipment listed in the contingency plan is clean and fit for its intended use before operations are resumed.

8.4.7.i. The owner or operator shall notify the chief that the facility is in compliance with Sections 8.4.7.f through 8.4.7.j of these regulations before operations are resumed in the affected area(s) of the facility.

8.4.7.j. The owner or operator shall note in the operating record the time, date, and details of any incident that requires implementing the contingency plan. Within fifteen (15) days after the incident, a written report shall be submitted to the chief. The report shall include:

8.4.7.j.1. Name, address, and telephone number of the owner or operator;

8.4.7.j.2. Name, address, and telephone number of the facility;

8.4.7.j.3. Date, time, and type of incident;

8.4.7.j.4. Name and quantity of material(s) involved;

8.4.7.j.5. The extent of injuries, if any;

8.4.7.j.6. An assessment of actual or potential hazards to human health or the environment, where this is applicable;

8.4.7.j.7. Estimated quantity and disposition of recovered material that resulted from the incident;

8.4.7.j.8. Measures taken to prevent recurrence of the emergency; and

8.4.7.j.9. Such other information specifically requested by the chief which is reasonably necessary and relevant to the purpose of an operating record.

8.5. Manifest System, Record Keeping, and Reporting.

8.5.1. Applicability. The regulations in Section 8.5 of these regulations apply to owners and operators of both on-site and off-site facilities, except as Section 8.1 of these regulations provides otherwise. Sections 8.5.2, 8.5.3, and 8.5.7 of these regulations do not apply to owners and operators of on-site facilities that do not receive a hazardous waste from off-site sources.

8.5.2. Use of the Manifest System.

8.5.2.a. If a facility receives hazardous waste accompanied by a manifest, the owner or operator, or his agent, must:

8.5.2.a.1. Sign and date each copy of the manifest to certify that the hazardous waste covered by the manifest was received;

8.5.2.a.2. Note any significant discrepancies in the manifest as defined in ~~Section 8.5.3~~ Section 8.5.3 of these regulations on each copy of the manifest;

8.5.2.a.3. Immediately give the transporter at least one copy of the signed manifest;

8.5.2.a.4. Within thirty (30) days after the delivery, send a copy of the manifest to the generator; and

8.5.2.a.5. Retain at the facility a copy of each manifest for at least three (3) years from the date of delivery.

8.5.2.b. If a facility receives, from a rail or water (bulk shipment) transporter, hazardous waste which is accompanied by a shipping paper containing all the information required on the manifest (excluding the EPA identification numbers, generator's certification, and signatures), the owner or operator, or his agent, must:

8.5.2.b.1. Sign and date each copy of the manifest or shipping paper (if the manifest has not been received) to certify that the hazardous waste covered by the manifest or shipping paper was received;

8.5.2.b.2. Note any significant discrepancies (as defined in ~~Section 8.5.3-a~~ Section 8.5.3 of these regulations) in the manifest or shipping paper (if the manifest has not been received) on each copy of the manifest or shipping paper;

8.5.2.b.3. Immediately give the rail or water (bulk shipment) transporter at least one copy of the manifest or shipping paper (if the manifest has not been received);

8.5.2.b.4. Within thirty (30) days after the delivery, send a copy of the signed and dated manifest to the generator; however, if the manifest has not been received within thirty (30) days after delivery, the owner or operator, or his agent, must send a copy of the shipping paper signed and dated to the generator; and

8.5.2.b.5. Retain at the facility a copy of the manifest and shipping paper (if signed in lieu of the manifest at the time of delivery) for at least three (3) years from the date of delivery.

8.5.2.c. Whenever a shipment of hazardous waste is initiated from a facility, the owner or operator of that facility must comply with the requirements of Section 6 of these regulations.

~~8.5.3--Manifest-Discrepancies-~~

~~8.5.3-a--Manifest-discrepancies-are-differences--between-the-quantity-or-type-of-hazardous-waste-designated-on-the-manifest-or--shipping--paper--and-the-quantity-or-type-of-hazardous-waste-a-facility-actually-receives.--Significant-discrepancies-in-quantity-are:~~

~~8.5.3-a.1--For-bulk-waste,-variations-greater-than-10-percent-(±10%)-in-weight-~~

~~8.5.3-a.2--For-batch-waste,-any--variation--in--piece-count,-such-as-a-discrepancy-of-one-drum-in-a-truckload-~~

~~Significant-discrepancies-in-type-are-obvious-differences-which--can--be-discovered-by-inspection-or-waste-analysis,-such-as-waste-solvent-substituted-for-waste-acid-or-toxic-constituents-not-reported-on-the-manifest-or-shipping-paper-~~

~~8.5.3-b--Upon-discovery-of--a--significant--discrepancy,-the--owner--or--operator-must-attempt-to-reconcile-the-discrepancy-with-the-waste-generator--or--transporter--(e.g.,-with--telephone~~

conversations). If the discrepancy is not resolved within fifteen (15) days after receiving the waste, the owner or operator must immediately submit to the chief a letter describing the discrepancy and attempts to reconcile it and a copy of the manifest or shipping paper at issue.

8.5.3. Manifest Discrepancies. Manifest discrepancies are differences between the quantity or type of hazardous waste designated on the manifest or shipping paper and the quantity or type of hazardous waste a facility actually receives.

8.5.3.a. Significant discrepancies in quantity are:

8.5.3.a.1. For bulk waste, variations greater than 10 percent (10%) in weight; and

8.5.3.a.2. For batch waste, any variation in piece count, such as a discrepancy of one drum in a truckload.

8.5.3.b. Significant discrepancies in type are obvious differences which can be discovered by inspection or waste analysis, such as waste solvent substituted for waste acid or toxic constituents not reported on the manifest or shipping paper.

8.5.3.c. Upon discovery of a significant discrepancy, the owner or operator must attempt to reconcile the discrepancy with the waste generator or transporter (e.g., with telephone conversations). If the discrepancy is not resolved within fifteen (15) days after receiving the waste, the owner or operator must immediately submit to the chief a letter describing the discrepancy and attempts to reconcile it and a copy of the manifest or shipping paper at issue.

8.5.4. Operating Record.

8.5.4.a. The owner or operator shall keep a written operating record at the facility.

8.5.4.b. The following information shall be recorded, as it becomes available, and maintained in the operating record until closure of the facility:

8.5.4.b.1. A description and the quantity of each hazardous waste received and the method(s) and date(s) of its treatment, storage or disposal at the facility, as required by Appendix X of these regulations;

8.5.4.b.2. The location of each hazardous waste within the facility and the quantity of each location. For disposal facilities, the location and quantity of each hazardous waste must be recorded on a map or diagram of each cell or disposal area. For all facilities, this information must include cross-references to specific manifest document numbers, if the

waste was accompanied by manifest;

8.5.4.b.3. Records and results of waste analyses performed as specified in Sections 8.2.4 and 8.2.8 of these regulations;

8.5.4.b.4. Summary reports and details of all incidents that require implementing the contingency plan, as required by Section 8.4.7.j of these regulations;

8.5.4.b.5. Records and results of inspections as required by Section 8.2.6 of these regulations;

~~8.5.4.b.6. Monitoring, testing, or analytical data where required by Sections 8.8.2, 8.8.4, 8.8.6, 8.9.5, 8.10.4, 8.10.5, 8.11.3, 8.11.10, 8.12.7, 8.12.9, 8.12.11, and 8.13 of these regulations and by Title 45, Air Pollution Control Commission, Series 25, Section 9 (45 C.S.R. 25 §9);~~

~~8.5.4.b.7. All closure cost estimates and, for disposal facilities, all post-closure cost estimates;~~

~~8.5.4.b.8. Monitoring, testing, or analytical data where required by Sections 8.9.5, 8.10.4, 8.10.5, 8.11.3.a, 8.11.3.b, 8.11.10.a, 8.11.10.b, 8.12.7, 8.12.9, 8.12.11, and 8.13 of these regulations; and~~

8.5.4.b.6. Monitoring, testing, or analytical data where required by Sections 8.8.2, 8.8.4, 8.8.6, 8.9.5, 8.10.4, 8.10.5, 8.11.3, 8.11.10, 8.12.7, 8.12.9, 8.12.11, 8.13, and 8.14.3 of these regulations;

8.5.4.b.7. Monitoring, testing, or analytical data where required by Title 45, Air Pollution Control Commission, Series 25, Section 9 (45 C.S.R. 25 §9);

8.5.4.b.8. All closure cost estimates and, for disposal facilities, all post-closure cost estimates; and

8.5.4.b.9. A certification by the permittee no less often than annually that the permittee has a program in place to reduce the volume and toxicity of hazardous waste that he generates to the degree determined by the permittee to be economically practicable and that the proposed method of treatment, storage, or disposal is that practicable method currently available to the permittee which minimizes the present and future threat to human health and the environment.

8.5.5. Availability, Retention, and Disposition of Records.

8.5.5.a. All records, including plans required under Section 8 of these regulations, shall be furnished upon request and made available at reasonable times for inspection by the chief

or any authorized representative, employee, or agent of the Division.

8.5.5.b. The retention period for all records required under this Section is extended automatically during the course of any unresolved enforcement action regarding the facility or as requested by the chief.

8.5.5.c. A copy of records of waste disposal locations and quantities under Section 8.5.4.b.2 of these regulations shall be submitted to the chief and to the appropriate land authority upon closure of the facility.

8.5.6. Annual Report. The owner or operator shall prepare and submit a single copy of an annual report for the preceding year (January 1 - December 31) to the chief by March of each year. A form prescribed by the chief shall be used for this report. The annual report shall cover facility activities during the previous calendar year and shall include the following information:

8.5.6.a. The EPA identification number, name, and address of the facility;

8.5.6.b. The calendar year covered by the report;

8.5.6.c. For off-site facilities, the EPA identification number of each hazardous waste generator from which the facility received hazardous waste during the year; for imported shipments, the report shall give the name and address of the foreign generator;

8.5.6.d. A description and the quantity of each hazardous waste the facility received during the year. For off-site facilities, this information shall be listed by the EPA identification number of each generator;

8.5.6.e. The method of treatment, storage, or disposal for each hazardous waste;

8.5.6.f. Groundwater monitoring data on a form prescribed by the chief;

8.5.6.g. The most recent closure cost estimate and, for disposal facilities, the most recent post-closure cost estimate; and

8.5.6.h. The certification signed by the owner or operator of the facility or an authorized representative.

8.5.7. Unmanifested Waste Report. If a facility accepts for treatment, storage, or disposal any hazardous waste from an off-site source without an accompanying manifest or shipping paper and if the waste is not excluded from the manifest requirement by

Section 10 of these regulations, then the owner or operator shall prepare and submit a single copy of a report to the chief within fifteen (15) days after receiving the waste, on a form prescribed by the chief. The report must be designated "Unmanifested Waste Report" and shall include the following information:

8.5.7.a. The EPA identification number, name, and address of the facility;

8.5.7.b. The date the facility received the waste;

8.5.7.c. The EPA identification number, name, and address of the generator and the transporter, if available;

8.5.7.d. A description and the quantity of each unmanifested hazardous waste the facility received;

8.5.7.e. The method of treatment, storage, or disposal for each hazardous waste;

8.5.7.f. The certification signed by the owner or operator of the facility or an authorized representative; and

8.5.7.g. A brief explanation of why the waste was unmanifested, if known.

Comment: Small quantities of hazardous waste are excluded from regulation under Section 8.5.7 of these regulations and do not require a manifest. Where a facility receives unmanifested hazardous wastes, the owner or operator must obtain from each generator a certification that the waste qualifies for exclusion. Otherwise, the owner or operator is required to file an unmanifested waste report for the hazardous waste movement.

8.5.8. Additional Reports. In addition to submitting the annual report and unmanifested waste reports, the owner or operator shall also report to the chief:

8.5.8.a. Releases, fires, and explosions as specified in Section 8.4.7 of these regulations.

8.5.8.b. Facility closure as specified in Section 8.6 of these regulations.

8.5.8.c. As otherwise required by Sections 8.9, 8.10, 8.11, 8.12, and 8.13 of these regulations.

8.6. Closure and Post-Closure.

8.6.1. Applicability. Except as Section 8.1 of these regulations provides otherwise:

8.6.1.a. Sections 8.6.2 through 8.6.6, 15.3, and 15.4 of

these regulations (which concern closure) apply to the owners and operators of all hazardous waste management facilities; and

8.6.1.b. Sections 8.6.7 through 8.6.9, 15.3, and 15.4 of these regulations (which concern post-closure care) apply to the owners and operators of:

8.6.1.b.1. All hazardous waste disposal facilities;

8.6.1.b.2. Waste piles and surface impoundments from which the owner or operator intends to remove that wastes at closure to the extent that these sections are made applicable to such facilities in Sections 8.9.7 and 8.10.9 of these regulations; and

8.6.1.b.3. Tank systems that are required under Section 8.8.8 of these regulations to meet the requirements for landfills.

8.6.2. Closure Performance Standard. The owner or operator must close the facility in a manner that:

8.6.2.a. Minimizes the need for further maintenance;

8.6.2.b. Controls, minimizes, or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous ~~waste~~-constituents, leachate, contaminated runoff, or hazardous waste decomposition products to the State waters or to the atmosphere; and

8.6.2.c. Complies with the closure requirements of this Section 8.6.2 of these regulations including, but not limited to, the requirements of Sections 8.7.10, 8.8.8, 8.9.7, 8.10.9, 8.11.11, and ~~8.12.11~~ 8.12.11, 8.14.2, 8.14.3, and 8.14.4 of these regulations and Title 45, Air Pollution Control Commission, Series 25, Section 24.01 (45 C.S.R. 25 §24.01).

8.6.3. Closure Plan; Amendment of Plan.

8.6.3.a. Written Plan.

8.6.3.a.1. The owner or operator of a hazardous waste management facility must have a written closure plan. In addition, certain surface impoundments from which the owner or operator intends to remove or decontaminate the hazardous waste at partial or final closure are required by Section 8.9.7.c of these regulations to have a contingent closure plan. The plan must be submitted with Part B of the permit application in accordance with Section 11.5.1 of these regulations and approved by the chief as part of the permit issuance procedures under Section 11 of these regulations and will become a condition of the permit.

8.6.3.a.2. The chief's approval of the plan must ensure that the approved closure plan is consistent with Sections 8.6.2 through 8.6.6 of these regulations, the applicable requirements of Sections 8.7.10, 8.8.8, 8.9.7, 8.9.10, 8.10.9, 8.11.11, 8.12.11, 8.13, 8.14.2, and 13 of these regulations, and the requirements of Title 45, Air Pollution Control Commission, Series 25, Section 24.01 (45 C.S.R. 25 §24.01). Until final closure is completed and certified, a copy of the approved plan and all revisions of the plan must be furnished to the chief upon request (including request by mail).

8.6.3.b. Content of Plan. The plan must identify steps necessary to perform partial or final closure, or both, of the facility at any point during its active life. The closure plan must include at least:

8.6.3.b.1. A description of how each hazardous waste management unit at the facility will be closed in accordance with Section 8.6.2 of these regulations;

8.6.3.b.2. A description of how final closure of the facility will be conducted in accordance with Section 8.6.2 of these regulations. The description must identify the maximum extent of the operations which will be unclosed during the active life of the facility;

8.6.3.b.3. An estimate of the maximum inventory of hazardous wastes ever on-site over the active life of the facility and a detailed description of the methods to be used during partial closures and final closure including, but not limited to, methods for removing, transporting, treating, storing, or disposing of all hazardous wastes and identification of the type(s) of the off-site hazardous waste management units to be used, if applicable;

8.6.3.b.4. A detailed description of the steps needed to remove or decontaminate all hazardous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standards;

8.6.3.b.5. A detailed description of other activities necessary during the closure period to ensure that all partial closures and final closure satisfy the closure performance standards including, but not limited to, groundwater monitoring, leachate collection, and run-on and runoff control; and

8.6.3.b.6. A schedule for closure of each hazardous waste management unit and for final closure of the facility. The schedule must include, at a minimum, the total time required to

close each hazardous waste management unit and the time required for intervening closure activities which will allow tracking of the progress of partial and final closure. For example, in the case of a landfill unit, estimates of the time required to treat or dispose of all hazardous waste inventory and the time required to place a final cover must be included.

8.6.3.b.7. For facilities that use trust funds to establish financial assurance under Section 13 of these regulations, and that are expected to close prior to the expiration of the permit, the closure plan must also include an estimate of the expected year of final closure.

8.6.3.c. Amendment of Plan. The owner or operator must submit a written request for a permit modification to authorize a change in operating plans, facility design, or the approved closure plan in accordance with the procedures in Section 11 of these regulations. The written request must include a copy of the amended closure plan for approval by the chief.

8.6.3.c.1. The owner or operator may submit a written request to the chief for a permit modification to amend the closure plan at any time prior to the notification of partial or final closure of the facility.

8.6.3.c.2. The owner or operator must submit a written request for a permit modification to authorize a change in the approved closure plan whenever:

8.6.3.c.2.A. Changes in operating plans or facility design affect the closure plan;

8.6.3.c.2.B. There is a change in the expected year of closure, if applicable; or

8.6.3.c.2.C. In conducting partial or final closure activities, unexpected events require a modification of the approved closure plan.

8.6.3.c.3. The owner or operator must submit a written request for a permit modification including a copy of the amended closure plan for approval at least sixty (60) days prior to the proposed change in facility design or operation, or no later than sixty (60) days after an unexpected event has occurred which has affected the closure plan.

8.6.3.c.4. If an unexpected event occurs during the partial or final closure period, the owner or operator must request a permit modification no later than thirty (30) days after the unexpected event.

8.6.3.c.5. An owner or operator of a surface impoundment who intends to remove all hazardous waste at closure

and who is not otherwise required to prepare a contingent closure plan under Section 8.9.7.c of these regulations must submit an amended closure plan to the chief no later than sixty (60) days from the date that the owner or operator or the chief determines that the hazardous waste management unit must be closed as a landfill, subject to the requirements of Section 8.11.11 of these regulations, or no later than thirty (30) days from that date if the determination is made during partial or final closure.

8.6.3.c.6. The owner or operator of a waste pile who intends to remove all hazardous waste at closure must submit an amended closure plan to the chief no later than sixty (60) days from the date that the owner or operator or the chief determines that the hazardous waste management unit must be closed as a landfill, subject to the requirements of Section 8.11.11 of these regulations, or no later than thirty (30) days from that date if the determination is made during partial or final closure.

8.6.3.c.7. The chief will approve, disapprove, or modify the amended plan in accordance with the procedures in Section 11 of these regulations. In accordance with Section 11.5.1 of these regulations, the approved closure plan will become a condition of any permit issued.

8.6.3.c.8. The chief may request modifications to the plan under the conditions described in Section 8.6.3.c.2 of these regulations. The owner or operator must submit the modified plan within sixty (60) days of the chief's request, or within thirty (30) days if the change in facility conditions occurs during partial or final closure. Any modifications requested by the chief will be approved in accordance with the procedures in Section 11 of these regulations.

8.6.3.d. Notification of Partial Closure and Final Closure.

8.6.3.d.1. The owner or operator must notify the chief in writing at least sixty (60) days prior to the date on which he expects to begin closure of a surface impoundment, a waste pile, or a land treatment or landfill unit or the final closure of a facility with such a unit. The owner or operator must notify the chief in writing at least forty-five (45) days prior to the date on which he expects to begin final closure of a facility with only treatment or storage tanks, container storage, or incinerator units to be closed.

8.6.3.d.2. The date when he "expects to begin closure" must be either no later than thirty (30) days after the date on which any hazardous waste management unit receives the known final volume of hazardous wastes or, if there is a reasonable possibility that the hazardous waste management unit will receive additional hazardous wastes, no later than one (1) year after the date on which the unit received the most recent

volume of hazardous waste. If the owner or operator of a hazardous waste management unit can demonstrate to the chief that the hazardous waste management unit or facility has the capacity to receive additional hazardous wastes and that he has taken and will continue to take all steps to prevent threats to human health and the environment, including compliance with all applicable permit requirements, the chief may approve an extension to this one-year limit.

8.6.3.d.3. If the facility's permit is terminated, or if the facility is otherwise ordered by judicial decree or final order under Section 3008 of RCRA, to cease receiving hazardous wastes or to close, then the requirements of Section 8.6.3.d of these regulations do not apply. However, the owner or operator must close the facility in accordance with the deadlines established in Section 8.6.4 of these regulations.

8.6.3.e. Removal of Wastes and Decontamination or Dismantling of Equipment. Nothing in Section 8.6.3 of these regulations shall preclude the owner or operator from removing hazardous wastes and decontaminating or dismantling equipment in accordance with the approved partial or final closure plan at any time before or after notification of partial or final closure.

8.6.4. Closure; Time Allowed for Closure.

8.6.4.a. Within ninety (90) days after receiving the final volume of hazardous wastes at a hazardous waste management unit or facility, the owner or operator must treat, remove from the unit or facility, or dispose of on-site, all hazardous wastes in accordance with the approved closure plan. The chief may approve a longer period if the owner or operator complies with all applicable requirements for requesting a modification of the permit and demonstrates that:

8.6.4.a.1. The activities required to comply with this subsection will, of necessity, take longer than ninety (90) days to complete; or

8.6.4.a.2.A. The hazardous waste management unit or facility has the capacity to receive additional hazardous wastes;

8.6.4.a.2.B. There is a reasonable likelihood that he or another person will recommence operation of the hazardous waste management unit or the facility within one (1) year; and

8.6.4.a.2.C. Closure of the hazardous waste management unit or facility would be incompatible with continued operation of the site; and

8.6.4.a.3. He has taken, and will continue to take, all steps to prevent threats to human health and the environment,

including compliance with all applicable permit requirements.

8.6.4.b. The owner or operator must complete partial and final closure activities in accordance with the approved closure plan and within one hundred and eighty (180) days after receiving the final volume of hazardous wastes at the hazardous waste management unit or facility. The chief may approve an extension to the closure period if the owner or operator complies with all applicable requirements for requesting a modification to the permit and demonstrates that:

8.6.4.b.1. The partial or final closure activities will, of necessity, take longer than one hundred and eighty (180) days to complete; or

8.6.4.b.2.A. The hazardous waste management unit or facility has the capacity to receive additional hazardous wastes;

8.6.4.b.2.B. There is reasonable likelihood that he or another person will recommence operation of the hazardous waste management unit or facility within one (1) year; and

8.6.4.b.2.C. Closure of the hazardous waste management unit or facility would be incompatible with continued operation of the site; and

8.6.4.b.3. He has taken and will continue to take all steps to prevent threats to human health and the environment from the unclosed but not operating hazardous waste management unit or facility including compliance with all applicable permit requirements.

8.6.4.c. Notwithstanding the provisions of Section 8.6.4.b of these regulations, the owner or operator of a surface impoundment used for disposal of hazardous waste ceasing the receipt of hazardous waste prior to November 8, 1988 need not close such surface impoundment within one hundred and eighty (180) days after receiving the final volume of hazardous waste but may continue to receive waste provided that the owner or operator can satisfy the chief that the following requirements are or will be met:

8.6.4.c.1. The owner or operator of such surface impoundment will complete closure activities in accordance with the approved closure plan and within one hundred and eighty (180) days after receiving the final volume of waste at the surface impoundment. The chief may approve a longer period if the owner or operator complies with all applicable requirements for requesting a modification of the permit and demonstrates that the closure activities will, of necessity, take longer than one hundred and eighty (180) days to complete;

8.6.4.c.2. The owner or operator has a hazardous waste management permit with an approved closure plan for such facility requiring compliance with all applicable provisions of these regulations as though it were an operating hazardous waste surface impoundment;

8.6.4.c.3. The owner or operator institutes approved operating procedures designed to minimize the head created by any liquid in the surface impoundment; and either

8.6.4.c.4. The owner or operator makes a demonstration which is approved by the chief under ~~Section 8.9.2.f.4.v~~ Section 8.9.2.i.4 of these regulations; or

8.6.4.c.5. The surface impoundment contains a liner which is either:

8.6.4.c.5.A. A synthetic liner for which there is no evidence of leakage;

8.6.4.c.5.B. A liner of compacted material at least three (3) feet thick with a permeability of no more than 1×10^{-7} centimeters per second; or

8.6.4.c.5.C. If the owner or operator demonstrates to the chief and the chief finds for the surface impoundment that alternative design and operating practices, together with location characteristics, will prevent the migration of any hazardous constituents into the groundwater or surface water beyond the point of compliance at least as effectively as such liners.

8.6.4.d. The demonstration referred to in Sections 8.6.4.a, 8.6.4.b, and 8.6.4.c.1 of these regulations must be made as follows:

8.6.4.d.1. The demonstrations in Section 8.6.4.a of these regulations must be made at least thirty (30) days prior to the expiration of the ninety-day period in Section 8.6.4.a of these regulations; and

8.6.4.d.2. The demonstration in Sections 8.6.4.b and 8.6.4.c.1 of these regulations must be made at least thirty (30) days prior to the expiration of the one hundred eighty-day period in Section 8.6.4.b of these regulations.

8.6.5. Disposal or Decontamination of Equipment. During the partial and final closure periods, all contaminated equipment, structures, and soils must be properly disposed of or decontaminated unless otherwise specified in Section 8.9.7, 8.10.9, 8.11.11, or 8.12.11 of these regulations or under the authority of Sections 8.14.2 and 8.14.4 of these regulations. By removing any hazardous wastes or hazardous constituents during partial or final closure, the owner or operator may become a

generator of hazardous waste and must handle that waste in accordance with all applicable requirements of Section 6 of these regulations.

8.6.6. Certification of Closure. Within sixty (60) days of completion of closure of each hazardous waste surface impoundment, waste pile, and land treatment or landfill unit, and within sixty (60) days of the completion of final closure, the owner or operator must submit to the chief by registered mail a certification that the hazardous waste management unit or facility has been closed in accordance with the specifications in the approved closure plan. The certification must be signed by the owner or operator and by an independent registered professional engineer. Documentation supporting the independent registered professional engineer's certification must be furnished to the chief upon request until he releases the owner or operator from the financial assurance requirements for closure under Section 13 of these regulations.

8.6.7. Post-Closure Care and Use of Property.

~~8.6.7.a.1. Post-closure care for each hazardous waste management unit subject to the requirements of Sections 8.6.7 through 8.6.9 and 15.4 of these regulations must begin after the completion of closure of the unit and continue for thirty (30) years after that date and must consist of at least the following:~~

8.6.7.a. Except as provided in Section 8.6.7.a.2 of these regulations, post-closure care for each hazardous waste management unit subject to the requirements of Sections 8.6.7 through 8.6.9 and 15.4 of these regulations must begin after the completion of closure of the unit and continue for thirty (30) years after that date.

8.6.7.a.1. Post-closure care must consist of at least the following:

8.6.7.a.1.A. Groundwater monitoring and reporting as applicable;

8.6.7.a.1.B. Maintenance of monitoring and waste containment systems as applicable; and

8.6.7.a.1.C. All applicable post-closure regulations of Sections 8.9, 8.10, 8.11, 8.12, and 8.13 of these regulations.

8.6.7.a.2. Any time preceding partial closure of a hazardous waste management unit subject to post-closure care requirements or final closure, or any time during the post-closure period for a particular unit, the chief may, in accordance with the permit modification procedures in Section 11 of these regulations:

8.6.7.a.2.A. Shorten the post-closure care period applicable to the hazardous waste management unit or facility if all disposal units have been closed if he finds that the reduced period is sufficient to protect human health and the environment. For example, leachate or groundwater monitoring results, characteristics of the hazardous wastes, application of advanced technology, or alternative disposal, treatment, or re-use techniques indicate that the hazardous waste management unit or facility is secure; or

8.6.7.a.2.B. Extend the post-closure care period applicable to the hazardous waste management unit or facility if he finds that the extended period is necessary to protect human health and the environment. For example, leachate or groundwater monitoring results indicate a potential for migration of hazardous wastes at levels which may be harmful to human health and the environment.

8.6.7.b. The chief may require at partial and final closure the continuation of any of the security requirements of Section 8.2.5 of these regulations during part or all of the post-closure period when:

8.6.7.b.1. Hazardous wastes may remain exposed after completion of partial or final closure; or

8.6.7.b.2. Access by the public or domestic livestock may pose a hazard to human health.

8.6.7.c. Post-closure use of property on or in which hazardous wastes remain after closure must never be allowed to disturb the integrity of the final cover, liner(s), or any other components of any containment system, or the function of the facility's monitoring systems, unless the chief finds that the disturbance:

8.6.7.c.1. Is necessary to the proposed use of the property, and will not increase the potential hazard to human health or the environment; or

8.6.7.c.2. Is necessary to reduce a threat to human health or the environment.

8.6.7.d. All post-closure care activities must be in accordance with the provisions of the approved post-closure plan as specified in Section 8.6.8 of these regulations.

8.6.8. Post-Closure Plan; Amendment of Plan.

8.6.8.a. Written Plan. The owner or operator of a hazardous waste disposal unit must have a written post-closure plan. In addition, certain surface impoundments from which the owner or operator intends to remove or decontaminate the hazardous

wastes at partial or final closure are required by Section 8.9.7.c of these regulations to have contingent post-closure plan. Owners or operators of surface impoundments not otherwise required to prepare contingent post-closure plans and owner and operators of waste piles must submit a post-closure plan to the chief within ninety (90) days from the date that the owner or operator or the chief determines that the hazardous waste management unit must be closed as a landfill subject to the requirements of Sections 8.6.7 through 8.6.8 and 15.4 of these regulations. The plan must be submitted with the Part B of the permit application in accordance with Section 11.5.1 of these regulations and will become a condition of the permit.

8.6.8.b. For each hazardous waste management unit subject to the requirements of Section 8.6.8 of these regulations, the post-closure plan must identify the activities that will be carried on after closure of each disposal unit and frequency of these activities, and include at least:

8.6.8.b.1. A description of the planned groundwater monitoring activities and frequencies at which they will be performed;

8.6.8.b.2. A description of the planned maintenance activities and frequencies at which they will be performed to ensure:

8.6.8.b.2.A. The integrity of the cap and final cover or other containment systems; and

8.6.8.b.2.B. The functioning of the monitoring equipment; and

8.6.8.b.3. The name, address, and telephone number of the person or office to contact about the hazardous waste disposal unit or facility during the post-closure care period.

8.6.8.c. Until the final closure of a facility, a copy of the approved post-closure plan must be furnished to the chief upon request, including request by mail. After final closure has been certified, the person or office specified in Section 8.6.8.b.3 of these regulations must keep the approved post-closure plan during the remainder of the post-closure period.

8.6.8.d. Amendment of Plan. The owner or operator must request a permit modification to authorize a change in the approved post-closure plan in accordance with Section 11 of these regulations. The written request must include a copy of the amended post-closure plan for approval by the chief.

8.6.8.d.1. The owner or operator may submit a written request to the chief for a permit modification to amend the post-closure plan at any time during the active life of the facility or

during the post-closure care period.

8.6.8.d.2. The owner or operator must submit a written request for a permit modification to authorize a change in the approved post-closure plan whenever:

8.6.8.d.2.A. Changes in operating plans or facility design affect the approved post-closure plan;

8.6.8.d.2.B. There is a change in the expected year of final closure, if applicable; or

8.6.8.d.2.C. Events which occur during the active life of the facility, including partial and final closures, affect the approved post-closure plan.

8.6.8.d.3. The owner or operator must submit a written request for a permit modification at least sixty (60) days prior to the proposed change in facility design or operation, or no later than sixty (60) days after an unexpected event has occurred which has affected the post-closure plan. The owner or operator of a surface impoundment that intends to remove all hazardous waste at closure and is not otherwise required to submit a contingent post-closure plan under Section 8.9.7.c of these regulations and owners and operators of waste piles must submit a post-closure plan to the chief no later than ninety (90) days after the date that the owner or operator or the chief determines that the hazardous waste management unit must be closed as a landfill, subject to the requirements of Section 8.11.11 of these regulations. The chief will approve, disapprove, or modify this plan in accordance with the procedures in Section 11 of these regulations and the approved post-closure plan will become a part of the permit.

8.6.8.d.4. The chief may request modifications to the plan under the conditions described in Section 8.6.8.d.2 of these regulations. The owner or operator must submit the modified plan no later than sixty (60) days after the chief's request, or no later than ninety (90) days if the unit is a waste pile or a surface impoundment not previously required to prepare a contingent post-closure plan. Any modifications requested by the chief will be approved, disapproved, or modified in accordance with the procedures in Section 11 of these regulations.

8.6.9. Certification of Completion of Post-Closure Care. No later than sixty (60) days after completion of the established post-closure care period for each hazardous waste disposal unit, the owner or operator must submit to the chief by registered mail, a certification that the post-closure care period for the hazardous waste disposal unit was performed in accordance with the specifications in the approved post-closure plan. The certification must be signed by the owner or operator and an independent registered professional engineer. Documentation

supporting the independent registered professional engineer's certification must be furnished to the chief upon request until he releases the owner or operator from the financial assurance requirements for post-closure care under Section 13 of these regulations.

8.7. Use and Management of Containers.

8.7.1. Applicability. The regulations in Section 8.7 of these regulations apply to owners and operators of all hazardous waste management facilities that store containers of hazardous waste, except as Section 8.1 of these regulations provides otherwise.

Comment: Under Sections 3.1.7 and 3.4.4.c of these regulations if a hazardous waste is emptied from a container the residue remaining in the container is not considered a hazardous waste if the container is "empty" as defined in Section 3.1.7 of these regulations. In that event, management of the container is exempt from the requirements of Section 8.7 of these regulations.

8.7.2. Conditions of Containers. If a container holding hazardous waste is not in good condition (e.g., severe rusting or apparent structural defects) or if it begins to leak, the owner or operator must transfer the hazardous waste from this container to a container that is in good condition or manage the waste in some other way that complies with the requirements of these regulations.

8.7.3. Compatibility of Waste With Containers. The owner or operator must use a container made of or lined with materials which will not react with, and are otherwise compatible with the hazardous waste to be stored, so that the ability of the container to contain the waste is not impaired.

8.7.4. Management of Containers.

8.7.4.a. A container holding hazardous waste must always be closed during storage, except when it is necessary to add or remove waste.

8.7.4.b. A container holding hazardous waste must not be opened, handled, or stored in a manner which may rupture the container or cause it to leak.

8.7.5. (Reserved).

8.7.6. Inspections. At least weekly, the owner or operator must inspect areas where containers are stored, looking for leaking containers and for deterioration of containers and the containment system caused by corrosion or other factors.

Comment: See Section 8.2.6.c and Section 8.7.2 of these regulations for remedial action required if deterioration or leaks

are detected.

8.7.7. Containment.

8.7.7.a. Container storage areas must have a containment system that is designed and operated in accordance with Section 8.7.7.b of these regulations, except as otherwise provided by Section 8.7.7.c of these regulations.

8.7.7.b. A containment system must be designed and operated as follows:

8.7.7.b.1. A base must underlie the containers which is free of cracks or gaps and is sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed;

8.7.7.b.2. The base must be sloped or the containment system must be otherwise designed and operated to drain and remove liquids resulting from leaks, spills, or precipitation, unless the containers are elevated or are otherwise protected from contact with accumulated liquids;

8.7.7.b.3. The containment system must have sufficient capacity to contain ten percent (10%) of the volume of containers or the volume of the largest container, whichever is greater. Containers that do not contain free liquids need not be considered in this determination;

8.7.7.b.4. Run on into the containment system must be prevented unless the chief waives this requirement in the permit after determining that the collection system has sufficient excess capacity in addition to that required in Section 8.7.7.b.3 of these regulations to contain any run-on which might enter the system; and

8.7.7.b.5. Spilled or leaked waste and accumulated precipitation must be removed from the sump or collection area in as timely a manner as is necessary to prevent overflow of the collection system.

8.7.7.b.6. If the collected material is a hazardous waste under Section 3 of these regulations, it must be managed as a hazardous waste in accordance with all applicable requirements. If the collected material is discharged through a point source to ~~waters-of-the-State~~ State waters, it is subject to the State Water Pollution Control Act and regulations promulgated thereunder.

8.7.7.c. Storage areas that store containers holding only wastes that do not contain free liquids need not have a containment system defined by Section 8.7.7.b of these regulations, provided that:

8.7.7.c.1. The storage area is sloped or otherwise designed and operated to drain and remove liquid resulting from precipitation; and

8.7.7.c.2. The containers are elevated or are otherwise protected from contact with accumulated liquid.

8.7.8. Special Requirements for Ignitable or Reactive Wastes. Containers holding ignitable or reactive waste must be located at least 15 meters (50 feet) from the facility's property line.

8.7.9. Special Requirements for Incompatible Wastes.

8.7.9.a. Incompatible wastes, or incompatible wastes and other materials, must not be placed in the same container, unless Section 8.2.8 of these regulations is complied with.

8.7.9.b. Hazardous waste must not be placed in an unwashed container that previously held an incompatible waste or material.

8.7.9.c. A storage container holding a hazardous waste that is incompatible with any waste or other material stored nearby in other containers, piles, open tanks, or surface impoundments must be separated from the other materials or protected from them by means of a dike, berm, wall, or other device.

8.7.10. Closure. At closure, all hazardous waste and hazardous waste residues must be removed from the containment system. Remaining containers, liners, bases, and soil containing or contaminated with hazardous waste or hazardous waste residues must be decontaminated.

Comment: At closure, as throughout the operating period, unless the owner or operator can demonstrate in accordance with Section 3.1.2.d of these regulations that the waste removed from the containment system is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and must manage it in accordance with all applicable requirements.

8.8. Tanks.

8.8.1. Applicability. The requirements of Section 8.8 of these regulations apply to owners and operators of facilities that use tank systems for storing or treating hazardous waste, except as otherwise provided in Section 8.8.1.a, 8.8.1.b, or 8.1.2 of these regulations.

8.8.1.a. Tanks that are used to store or treat hazardous waste which contains no free liquids and are situated inside a building with an impermeable floor are exempted from the

requirements in Section 8.8.4 of these regulations. To demonstrate the absence or presence of free liquids in the stored or treated waste, EPA Method 9095 (Paint Filter Liquids Test) as described in SW-846 must be used.

8.8.1.b. Tanks, including sumps, as defined in Section 2 of these regulations, that serve as part of a secondary containment system to collect or contain releases of hazardous wastes are exempted from the requirements in Section 8.8.4 of these regulations.

8.8.2. Assessment of Existing Tank System's Integrity.

8.8.2.a. For each existing tank system that does not have secondary containment meeting the requirements of Section 8.8.4 of these regulations, the owner or operator must determine that the tank system is not leaking or unfit for use. Except as provided in Section 8.8.2.c of these regulations, within one (1) year of the effective date of these regulations the owner or operator must obtain and keep on file at the facility a written assessment reviewed and certified by an independent, qualified registered professional engineer, in accordance with Section 11.7.4 of these regulations, that attests to the tank system's integrity.

8.8.2.b. This assessment must determine that the tank system is adequately designed and has sufficient structural strength and compatibility with the waste(s) to be stored or treated, to ensure that it will not collapse, rupture, or fail. At a minimum, this assessment must consider the following:

8.8.2.b.1. Design standard(s), if available, according to which the tank and ancillary equipment were constructed;

8.8.2.b.2. Hazardous characteristics of the waste(s) that have been and will be handled;

8.8.2.b.3. Existing corrosion protection measures;

8.8.2.b.4. Documented age of the tank system, if available (otherwise, an estimate of the age); and

8.8.2.b.5. Results of a leak test, internal inspection, or other tank integrity examination such that:

8.8.2.b.5.A. For non-enterable underground tanks, the assessment must include a leak test that is capable of taking into account the effects of temperature variations, tank end deflections, vapor pockets, and high water table effects; and

8.8.2.b.5.B. For other than non-enterable underground tanks and for ancillary equipment, this assessment

must include either a leak test, as described above, or other integrity examination, that is certified by an independent, qualified registered professional engineer, in accordance with Section 11.7.4 of these regulations, that addresses cracks, leaks, corrosion, and erosion.

Note: The practices described in the American Petroleum Institute (API) Publication, "Guide for Inspection of Refinery Equipment," Chapter XIII, "Atmospheric and Low-Pressure Storage Tanks," 4th Edition, 1981, may be used where applicable as guidelines in conducting other than a leak test.

8.8.2.c. Tank systems that store or treat materials that become hazardous wastes subsequent to the effective date of these regulations must conduct this assessment within twelve (12) months after the date that the waste becomes a hazardous waste.

8.8.2.d. If as a result of the assessment conducted in accordance with Section 8.8.2.a of these regulations a tank system is found to be leaking or unfit for use, the owner or operator must comply with the requirements of Section 8.8.7 of these regulations.

8.8.3. Design and Installation of New Tank Systems or Components.

8.8.3.a. Owners or operators of new tank systems or components must obtain and submit to the chief, at the time of submittal of Part B information, a written assessment, reviewed and certified by an independent, qualified registered professional engineer, in accordance with Section 11.7.4 of these regulations, attesting that the tank system has sufficient structural integrity and is acceptable for the storing and treating of hazardous waste. The assessment must show that the foundation, structural support, seams, connections, and pressure controls (if applicable) are adequately designed and that the tank system has sufficient structural strength, compatibility with the waste(s) to be stored or treated, and corrosion protection to ensure that it will not collapse, rupture, or fail. This assessment, which will be used by the chief to review and approve or disapprove the acceptability of the tank system design, must include, at a minimum, the following information:

8.8.3.a.1. Design standard(s) according to which the tank(s) or the ancillary equipment are constructed;

8.8.3.a.2. Hazardous characteristics of the waste(s) to be handled;

8.8.3.a.3. For new tank systems or components in which the external shell of a metal tank or any external metal component of the tank system will be in contact with the soil or with water, a determination by a corrosion expert of:

8.8.3.a.3.A. Factors affecting the potential for corrosion, including but not limited to:

- 8.8.3.a.3.A.i. Soil moisture content;
- 8.8.3.a.3.A.ii. Soil pH;
- 8.8.3.a.3.A.iii. Soil sulfides level;
- 8.8.3.a.3.A.iv. Soil resistivity;
- 8.8.3.a.3.A.v. Structure to soil potential;
- 8.8.3.a.3.A.vi. Influence of nearby underground metal structures (e.g., piping);
- 8.8.3.a.3.A.vii. Existence of stray electric current; and
- 8.8.3.a.3.A.viii. Existing corrosion-protection measures (e.g., coating, cathodic protection); and

8.8.3.a.3.B. The type and degree of external corrosion protection that is needed to ensure the integrity of the tank system during the use of the tank system or component, consisting of one or more of the following:

8.8.3.a.3.B.i. Corrosion-resistant materials of construction such as special alloys or fiberglass reinforced plastic; ~~etc--~~

8.8.3.a.3.B.ii. Corrosion-resistant coating (such as epoxy or fiberglass ~~etc--~~) with cathodic protection (e.g., impressed current or sacrificial anodes); and

8.8.3.a.3.B.iii. Electrical isolation devices ~~such-as-insulating-joints,-flanges,-etc-~~ (e.g., insulating joints, flanges);

Note: The practices described in the National Association of Corrosion Engineers (NACE) Standard, "Recommended Practice (RP-02-85) - Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems," and the American Petroleum Institute (API) Publication 1632, "Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems," may be used where applicable as guidelines in providing corrosion protection for tank systems.

8.8.3.a.4. For underground tank system components that are likely to be adversely affected by vehicular traffic, a determination of design or operational measures that will protect the tank system against potential damage; and

8.8.3.a.5. Design considerations to ensure that:

8.8.3.a.5.A. Tank foundations will maintain the load of a full tank;

8.8.3.a.5.B. Tank systems will be anchored to prevent flotation or dislodgement where the tank system is placed in a saturated zone, or is located within a seismic fault zone subject to the standards of Section 12.1.1 of these regulations; and

8.8.3.a.5.C. Tank systems will withstand the effects of frost heave.

8.8.3.b. The owner or operator of a new tank system must ensure that proper handling procedures are adhered to in order to prevent damage to the system during installation. Prior to covering, enclosing, or placing a new tank system or component in use, an independent, qualified installation inspector or an independent, qualified registered professional engineer, either of whom is trained and experienced in the proper installation of tank systems or components, must inspect the system for the presence of any of the following items:

8.8.3.b.1. Weld breaks;

8.8.3.b.2. Punctures;

8.8.3.b.3. Scrapes of protective coatings;

8.8.3.b.4. Cracks;

8.8.3.b.5. Corrosion; or

8.8.3.b.6. Other structural damage, inadequate construction, or inadequate installation.

8.8.3.c. All discrepancies discovered during the inspection under Section 8.8.3.b of these regulations must be remedied before the tank system is covered, enclosed, or placed in use.

8.8.3.d. New tank systems or components that are placed underground and that are backfilled must be provided with a backfill material that is a noncorrosive, porous homogeneous substance and that is installed so that the backfill is placed completely around the tank and compacted to ensure that the tank and piping are fully and uniformly supported.

8.8.3.e. All new tanks and ancillary equipment must be tested for tightness prior to being covered, enclosed, or placed in use. If a tank system is found not to be tight, all repairs necessary to remedy the leak(s) in the system must be performed

prior to the tank system being covered, enclosed, or placed into use.

8.8.3.f. Ancillary equipment must be supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction.

Note: The piping system installation procedures described in American Petroleum Institute (API) Publication 1615, "Installation of Underground Petroleum Storage Systems," November 1979, or ANSI Standard B31.3. "Petroleum Refinery Piping" and ANSI Standard B31.4. "Liquid Petroleum Transportation Piping System" may be used where applicable as guidelines for proper installation of piping systems.

8.8.3.g. The owner or operator must provide the type and degree of corrosion protection recommended by an independent corrosion expert, based on the information provided under Section 8.8.3.a.3 of these regulations, or other corrosion protection if the chief believes other corrosion protection is necessary to ensure the integrity of the tank system during use of the tank system. The installation of a corrosion protection system that is field-fabricated must be supervised by an independent corrosion expert to ensure proper installation.

8.8.3.h. The owner or operator must obtain, and keep on file at the facility, written statements by those persons required to certify the design of the tank system and supervise the installation of the tank system in accordance with the requirements of Sections 8.8.3.a through 8.8.3.f of these regulations that attest that the tank system was properly designed and installed and that repairs pursuant to Sections 8.8.3.a and 8.8.3.d of these regulations were performed. These written statements must also include the certification statement as required in Section 11.7.4 of these regulations.

8.8.4. Containment and Detection of Releases.

8.8.4.a. In order to prevent the release of hazardous waste or hazardous constituents to the environment, secondary containment that meets the requirements of Section 8.8.4 of these regulations must be provided (except as provided in Sections 8.8.4.f and 8.8.4.g of these regulations):

8.8.4.a.1. For all new tank systems or components, prior to their being put into service.

8.8.4.a.2. (Reserved).

8.8.4.a.3. For those existing tank systems of known and documented age, within two (2) years after the effective date of these regulations, or when the tank system has reached fifteen (15) years of age, whichever comes later.

8.8.4.a.4. For those existing tank systems for which the age cannot be documented, within eight (8) years of the effective date of these regulations; but, if the age of the facility is greater than seven (7) years, secondary containment must be provided by the time the facility reaches fifteen (15) years of age, or within two (2) years of the effective date of these regulations, whichever comes later.

8.8.4.a.5. For tank systems that store or treat materials that become hazardous wastes subsequent to the effective date of these regulations, within the time intervals required in Sections 8.8.4.a.1 through 8.8.4.a.4 of these regulations, except that the date that a material becomes a hazardous waste must be used in place of the effective date of these regulations.

8.8.4.b. Secondary containment systems must be:

8.8.4.b.1. Designed, installed, and operated to prevent any migration of wastes or accumulated liquid out of the system to the soil, groundwater, or surface water at any time during the use of the tank system; and

8.8.4.b.2. Capable of detecting and collecting releases and accumulated liquids until the collected material is removed.

8.8.4.c. To meet the requirements of Section 8.8.4.b of these regulations, secondary containment systems must be at a minimum:

8.8.4.c.1. Constructed of or lined with materials that are compatible with the wastes to be placed in the tank system and must have sufficient strength and thickness to prevent failure owing to pressure gradients (including static head and external hydrological forces), physical contact with the waste to which it is exposed, climatic conditions, and the stress of daily operation (including stresses from nearby vehicular traffic);

8.8.4.c.2. Placed on a foundation or base capable of providing support to the secondary containment system, resistance to pressure gradients above and below the system, and capable of preventing failure due to settlement, compression, or uplift;

8.8.4.c.3. Provided with a leak detection system that is designed and operated so that it will detect the failure of either the primary or secondary containment structure or the presence of any release of hazardous waste or accumulated liquid in the secondary containment system within twenty-four (24) hours, or at the earliest practicable time if the owner or operator can demonstrate to the chief that existing detection technologies or site conditions will not allow detection of a release within twenty-four (24) hours; and

8.8.4.c.4. Sloped or otherwise designed or operated to drain and remove liquids resulting from leaks, spills, or precipitation. Spilled or leaked waste and accumulated precipitation must be removed from the secondary containment system within twenty-four (24) hours, or in as timely a manner as is possible to prevent harm to human health and the environment if the owner or operator can demonstrate to the chief that removal of the released waste or accumulated precipitation cannot be accomplished within twenty-four (24) hours.

Note: If the collected material is a hazardous waste under Section 3.1.2 of these regulations, it is subject to management as a hazardous waste in accordance with all applicable requirements of these regulations. ~~If the collected material is discharged through a point source to waters of the United States, it is subject to the requirements of Sections 301, 304, and 402 of the Clean Water Act, as amended. If discharged to a POTW, it is subject to the requirements of Section 307 of the Clean Water Act, as amended.~~ If the collected material is discharged through a point source to waters of the United States, it is subject to the requirements of CWA Sections 301, 304, and 402; if discharged to a POTW, it is subject to the requirements of CWA Section 307. If the collected material is released to the environment, it may be subject to the reporting requirements of 40 C.F.R. Part 302.

8.8.4.d. Secondary containment for tanks must include one or more of the following devices:

8.8.4.d.1. A liner (external to the tank);

8.8.4.d.2. A vault;

8.8.4.d.3. A double-walled tank; or

8.8.4.d.4. An equivalent device as approved by the chief.

8.8.4.e. In addition to the requirements of Sections 8.8.4.b through 8.8.4.d of these regulations, secondary containment systems must satisfy the following requirements:

8.8.4.e.1. External liner systems must be:

8.8.4.e.1.A. Designed or operated to contain one hundred percent (100%) of the capacity of the largest tank within its boundary;

8.8.4.e.1.B. Designed or operated to prevent run-on or infiltration of precipitation into the secondary containment system unless the collection system has sufficient excess capacity to contain run-on or infiltration. Such additional capacity must be sufficient to contain precipitation from a 25-year, 24-hour rainfall event;

8.8.4.e.1.C. Free of cracks or gaps; and

8.8.4.e.1.D. Designed and installed to surround the tank completely and to cover all surrounding earth likely to come into contact with the waste if the waste is released from the tank(s) (i.e., capable of preventing lateral as well as vertical migration of the waste).

8.8.4.e.2. Vault systems must be:

8.8.4.e.2.A. Designed or operated to contain one hundred percent (100%) of the capacity of the largest tank within its boundary;

8.8.4.e.2.B. Designed or operated to prevent run-on or infiltration of precipitation into the secondary containment system unless the collection system has sufficient excess capacity to contain run-on or infiltration. Such additional capacity must be sufficient to contain precipitation from a 25-year, 24-hour rainfall event;

8.8.4.e.2.C. Constructed with chemical-resistant water stops in place at all joints (if any);

8.8.4.e.2.D. Provided with an impermeable interior coating or lining that is compatible with the stored waste and that will prevent migration of waste into the concrete;

8.8.4.e.2.E. Provided with a means to protect against the formation of and ignition of vapors within the vault, if the waste being stored or treated:

8.8.4.e.2.E.i. Meets the definition of ignitable waste under Section 3.3.2 of these regulations; or

8.8.4.e.2.E.ii. Meets the definition of reactive waste under Section 3.3.4 of these regulations, and may form an ignitable or explosive vapor; and

8.8.4.e.2.F. Provided with an exterior moisture barrier or be otherwise designed or operated to prevent migration of moisture into the vault if the vault is subject to hydraulic pressure.

8.8.4.e.3. Double-walled tanks must be:

8.8.4.e.3.A. Designed as an integral structure (i.e., an inner tank completely enveloped within an outer shell) so that any release from the inner tank is contained by the outer shell;

8.8.4.e.3.B. Protected, if constructed of metal, from both corrosion of the primary tank interior and of the

external surface of the outer shell; and

8.8.4.e.3.C. Provided with a built-in continuous leak detection system capable of detecting a release within twenty-four (24) hours, or at the earliest practicable time if the owner or operator can demonstrate to the chief, and the chief concludes, that the existing detection technology or site conditions would not allow detection of a release within twenty-four (24) hours.

Note: The provisions outlined in the Steel Tank Institute's (STI) "Standard for Dual Wall Underground Steel Storage Tanks" may be used as guidelines for aspects of the design of underground steel double-walled tanks.

8.8.4.f. Ancillary equipment must be provided with secondary containment (e.g., trench, jacketing, doublewalled piping) that meets the requirements of Sections 8.8.4.b and 8.8.4.c of these regulations except for:

8.8.4.f.1. Aboveground piping -- exclusive of flanges, joints, valves, and other connections -- that are visually inspected for leaks on a daily basis;

8.8.4.f.2. Welded flanges, welded joints, and welded connections that are visually inspected for leaks on a daily basis;

8.8.4.f.3. Sealless or magnetic coupling pumps that are visually inspected for leaks on a daily basis; and

8.8.4.f.4. Pressurized aboveground piping systems with automatic shut-off devices (e.g., excess flow checks valves, flow metering shutdown devices, loss of pressure actuated shut-off devices) that are visually inspected for leaks on a daily basis.

8.8.4.g. The owner or operator may obtain a variance from the requirements of Section 8.8.4 of these regulations if the chief finds, as a result of a demonstration by the owner or operator, that alternative design and operating practices together with location characteristics will prevent the migration of any hazardous waste or hazardous constituents into the groundwater or surface water at least as effectively as secondary containment during the active life of the tank system or that, in the event of a release that does migrate to groundwater or surface water, no substantial present or potential hazard will be posed to human health or the environment. New underground tank systems may not, per a demonstration in accordance with Section 8.8.4.g.2 of these regulations, be exempted from the secondary containment requirements of Section 8.8.4 of these regulations.

8.8.4.g.1. In deciding whether to grant a variance based on a demonstration of equivalent protection of groundwater

and surface water, the chief will consider:

8.8.4.g.1.A. - The nature and quantity of the wastes;

8.8.4.g.1.B. The proposed alternate design and operation;

8.8.4.g.1.C. The hydrogeologic setting of the facility, including the thickness of soils present between the tank system and groundwater; and

8.8.4.g.1.D. All other factors that would influence the quality and mobility of the hazardous constituents and the potential for them to migrate to groundwater or surface water.

8.8.4.g.2. In deciding whether to grant a variance based on a demonstration of no substantial present or potential hazard, the chief will consider:

8.8.4.g.2.A. The potential adverse effects on groundwater, surface water, and land quality taking into account:

8.8.4.g.2.A.i. The physical and chemical characteristics of the waste in the tank system, including its potential for migration;

8.8.4.g.2.A.ii. The hydrogeological characteristics of the facility and surrounding land;

8.8.4.g.2.A.iii. The potential for health risks caused by human exposure to waste constituents;

8.8.4.g.2.A.iv. The potential for damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and

8.8.4.g.2.A.v. The persistence and permanence of the potential adverse effects;

8.8.4.g.2.B. The potential adverse effects of a release on groundwater quality, taking into account:

8.8.4.g.2.B.i. The quantity and quality of groundwater and the direction of groundwater flow;

8.8.4.g.2.B.ii. The proximity and withdrawal rates of groundwater users;

8.8.4.g.2.B.iii. The current and future uses of groundwater in the area; and

8.8.4.g.2.B.iv. The existing quality of groundwater, including other sources of contamination and their cumulative impact on the groundwater quality;

8.8.4.g.2.C. The potential adverse effects of a release on surface water quality, taking into account:

8.8.4.g.2.C.i. The quantity and quality of groundwater and the direction of groundwater flow;

8.8.4.g.2.C.ii. The patterns of rainfall in the region;

8.8.4.g.2.C.iii. The proximity of the tank system to surface waters;

8.8.4.g.2.C.iv. The current and future uses of surface waters in the area and any water quality standards established for those surface waters; and

8.8.4.g.2.C.v. The existing quality of surface water, including other sources of contamination and the cumulative impact on surface water quality; and

8.8.4.g.2.D. The potential adverse effects of a release on the land surrounding the tank system, taking into account:

8.8.4.g.2.D.i. The patterns of rainfall in the region; and

8.8.4.g.2.D.ii. The current and future uses of the surrounding land.

8.8.4.g.3. The owner or operator of a tank system, for which a variance from secondary containment had been granted in accordance with the requirements of Section 8.8.4.g.1 of these regulations, at which a release of hazardous waste has occurred from the primary tank system but has not migrated beyond the zone of engineering control, as established in the variance, must:

8.8.4.g.3.A. Comply with the requirements of Section 8.8.7 of these regulations, except as provided in Section 8.8.7.d of these regulations;

8.8.4.g.3.B. Decontaminate or remove contaminated soil to the extent necessary to:

8.8.4.g.3.B.i. Enable the tank system for which the variance was granted to resume operation with the capability for the detection of releases at least equivalent to the capability it had prior to the release; and

8.8.4.g.3.B.ii. Prevent the migration of hazardous waste or hazardous constituents to groundwater or surface water; and

8.8.4.g.3.C. If contaminated soil cannot be removed or decontaminated in accordance with Section 8.8.4.g.3.B of these regulations, comply with the requirement of Section 8.8.8.b of these regulations.

8.8.4.g.4. The owner or operator of a tank system, for which a variance from secondary containment had been granted in accordance with the requirements of Section 8.8.4.g.1 of these regulations, at which a release of hazardous waste has occurred from the primary tank system and has migrated beyond the zone of engineering control, as established in the variance, must:

8.8.4.g.4.A. Comply with the requirements of Sections 8.8.7.a through 8.8.7.d of these regulations;

8.8.4.g.4.B. Prevent the migration of hazardous waste or hazardous constituents to groundwater or surface water, if possible, and decontaminate or remove contaminated soil. If contaminated soil cannot be decontaminated or removed or if groundwater has been contaminated, the owner or operator must comply with the requirements of Section 8.8.8.b of these regulations; and

8.8.4.g.4.C. If repairing, replacing, or reinstalling the tank system, provide secondary containment in accordance with the requirements of Sections 8.8.4.a through 8.8.4.f of these regulations or reapply for a variance from secondary containment and meet the requirements for new tank systems in Section 8.8.3 of these regulations if the tank system is replaced. The owner or operator must comply with these requirements even if contaminated soil can be decontaminated or removed and groundwater or surface water has not been contaminated.

8.8.4.h. The following procedures must be followed in order to request a variance from secondary containment:

8.8.4.h.1. The chief must be notified in writing by the owner or operator that he intends to conduct and submit a demonstration for a variance from secondary containment as allowed in Section 8.8.4.g of these regulations according to the following schedule:

8.8.4.h.1.A. For existing tank systems, at least twenty-four (24) months prior to the date that secondary containment must be provided in accordance with Section 8.8.4.a of these regulations;

8.8.4.h.1.B. For new tank systems, at least thirty

(30) days prior to entering into a contract for installation;

8.8.4.h.2. As part of the notification, the owner or operator must also submit to the chief a description of the steps necessary to conduct the demonstration and a timetable for completing each of the steps. The demonstration must address each of the factors listed in Section 8.8.4.g.1 or 8.8.4.g.2 of these regulations;

8.8.4.h.3. The demonstration for a variance must be completed within one hundred and eighty (180) days after notifying the chief of an intent to conduct the demonstration; and

8.8.4.h.4. If a variance is granted under Section 8.8.4.h of these regulations, the chief will require the permittee to construct and operate the tank system in the manner that was demonstrated to meet the requirements for the variance.

8.8.4.h.4.A. All tank systems, until such time as secondary containment that meets the requirements of Section 8.8.4 of these regulations is provided, must comply with the following:

8.8.4.h.4.A.i. For non-enterable underground tanks, a leak test that meets the requirements of Section 8.8.2.b.5 of these regulations or other tank integrity method, as approved or required by the chief, must be conducted at least annually.

8.8.4.h.4.A.ii. For other than non-enterable underground tanks, the owner or operator must either conduct a leak test as in Section 8.8.4.h.4.A.i of these regulations or develop a schedule and procedure for an assessment of the overall condition of the tank system by an independent, qualified registered professional engineer. The schedule and procedure must be adequate to detect obvious cracks, leaks, and corrosion or erosion that may lead to cracks and leaks. The owner or operator must remove the stored waste from the tank, if necessary, to allow the condition of all internal tank surfaces to be assessed. The frequency of the assessments must be based on the material of construction of the tank and its ancillary equipment, the age of the system, the type of corrosion or erosion protection used, the rate of corrosion or erosion observed during the previous inspection, and the characteristics of the waste being stored or treated.

8.8.4.h.4.A.iii. For ancillary equipment, a leak test or other integrity assessment, as approved by the chief, must be conducted at least annually.

Note: The practices described in the American Petroleum Institute (API) Publication "Guide for Inspection of Refinery Equipment," Chapter XIII, "Atmospheric and Low-Pressure Storage Tanks", 4th Edition, 1981, may be used where applicable as

guidelines for assessing the overall condition of the tank system.

8.8.4.h.4.A.iv. The owner or operator must maintain on file at the facility a record of the results of the assessments conducted in accordance with Sections 8.8.4.h.4.A.i through 8.8.4.h.4.A.iii of these regulations.

8.8.4.h.4.A.v. If a tank system or component is found to be leaking or unfit for use as a result of the leak test or assessment made pursuant to Sections 8.8.4.h.4.A.i through 8.8.4.h.4.A.iii of these regulations, the owner or operator must comply with the requirements of Section 8.8.7 of these regulations.

8.8.5. General Operating Requirements.

8.8.5.a. Hazardous wastes or treatment reagents must not be placed in a tank system if they could cause the tank, its ancillary equipment, or the containment system to rupture, leak, corrode, or otherwise fail.

8.8.5.b. The owner or operator must use appropriate controls and practices to prevent spills and overflows from tank or containment systems. These include at a minimum:

8.8.5.b.1. Spill prevention controls (e.g., check valves, dry disconnect couplings);

8.8.5.b.2. Overfill prevention controls (e.g., level sensing devices, high level alarms, automatic feed cutoff, or bypass to a standby tank); and

8.8.5.b.3. Maintenance of sufficient freeboard in uncovered tanks to prevent overtopping by wave or wind action or by precipitation.

8.8.5.c. The owner or operator must comply with the requirements of Section 8.8.7 of these regulations if a leak or spill occurs in the tank system.

8.8.6. Inspections.

8.8.6.a. The owner or operator must develop and follow a schedule and procedure for inspecting overfill controls.

8.8.6.b. The owner or operator must inspect at least once each operating day:

8.8.6.b.1. Aboveground portions of the tank system, if any, to detect corrosion or releases of waste;

8.8.6.b.2. Data gathered from monitoring and leak detection equipment (e.g., pressure or temperature gauges,

monitoring wells) to ensure that the tank system is being operated according to its design; and

8.8.6.b.3. The construction materials and the area immediately surrounding the externally accessible portion of the tank system, including the secondary containment system (e.g., dikes), to detect erosion or signs of releases of hazardous waste (e.g., wet spots, dead vegetation).

Note: Section 8.2.6.c of these regulations requires the owner or operator to remedy any deterioration or malfunction he finds. Section 8.8.7 of these regulations requires the owner or operator to notify the chief within twenty-four (24) hours of confirming a leak. Also, 40 C.F.R. Part 302 may require the owner or operator to notify the National Response Center of a release.

8.8.6.c. The owner or operator must inspect cathodic protection systems if present according to, at a minimum, the following schedule to ensure that they are functioning properly:

8.8.6.c.1. The proper operation of the cathodic protection system must be confirmed within six (6) months after initial installation and annually thereafter; and

8.8.6.c.2. All sources of impressed current must be inspected or tested, or both, at least bimonthly (i.e., every other month).

Note: The practices described in the National Association of Corrosion Engineers (NACE) Standard, "Recommended Practice (RP-02-85) -- Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems," and the American Petroleum Institute (API) Publication 1632, "Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems," may be used, where applicable, as guidelines in maintaining and inspecting cathodic protection systems.

8.8.6.d. The owner or operator must document in the operating record of the facility an inspection of those items in Sections 8.8.6.a through 8.8.6.c of these regulations.

8.8.7. Response to Leaks or Spills and Disposition of Leaking or Unfit-For-Use Tank Systems. A tank system or secondary containment system from which there has been a leak or spill, or which is unfit for use, must be removed from service immediately, and the owner or operator must satisfy the following requirements:

8.8.7.a. Cessation of use and prevention of flow or addition of wastes. The owner or operator must immediately stop the flow of hazardous waste into the tank system or secondary containment system and inspect the system to determine the cause of the release.

8.8.7.b. Removal of waste from tank system or secondary containment system.

8.8.7.b.1. If the release was from the tank system, the owner or operator must, within twenty-four (24) hours after detection of the leak or, if the owner or operator demonstrates that it is not possible, at the earliest practicable time, remove as much of the waste as is necessary to prevent further release of hazardous waste to the environment and to allow inspection and repair of the tank system to be performed.

8.8.7.b.2. If the material released was to a secondary containment system, all released materials must be removed within twenty-four (24) hours or in as timely a manner as is possible to prevent harm to human health and the environment.

8.8.7.c. Containment of visible releases to the environment. The owner or operator must immediately conduct a visual inspection of the release and, based upon that inspection:

8.8.7.c.1. Prevent further migration of the leak or spill to the soil or surface water; and

8.8.7.c.2. Remove and properly dispose of any visible contamination of the soil or surface water.

8.8.7.d. Notifications and reports.

8.8.7.d.1. Any release to the environment, except as provided in Section 8.8.7.d.2 of these regulations, must be reported to the chief within twenty-four (24) hours of its detection.

8.8.7.d.2. A leak or spill of hazardous waste is exempted from the requirements of Section 8.8.7.d.1 of these regulations if it is:

8.8.7.d.2.A. Less than or equal to a quantity of one (1) pound; and

8.8.7.d.2.B. Immediately contained and cleaned up.

8.8.7.d.3. Within thirty (30) days of detection of a release to the environment, a report containing the following information must be submitted to the chief:

8.8.7.d.3.A. Likely route of migration of the release;

8.8.7.d.3.B. Characteristics of the surrounding soil, including soil composition, geology, hydrogeology, and climate;

8.8.7.d.3.C. Results of any monitoring or sampling conducted in connection with the release, if available. If sampling or monitoring data relating to the release are not available within thirty (30) days, these data must be submitted to the chief as soon as they become available;

8.8.7.d.3.D. Proximity to downgradient drinking water, surface water, and populated areas; and

8.8.7.d.3.E. Description of response actions taken or planned.

8.8.7.e. Provision of secondary containment, repair, or closure.

8.8.7.e.1. Unless the owner or operator satisfies the requirements of Sections 8.8.7.e.2 through 8.8.7.e.4 of these regulations, the tank system must be closed in accordance with Section 8.8.8 of these regulations.

8.8.7.e.2. If the cause of the release was a spill that has not damaged the integrity of the system, the owner or operator may return the system to service as soon as the released waste is removed and repairs, if necessary, are made.

8.8.7.e.3. If the cause of the release was a leak from the primary tank system into the secondary containment system, the system must be repaired prior to returning the tank system to service.

8.8.7.e.4. If the source of the release was a leak to the environment from a component of a tank system without secondary containment, the owner or operator must provide the component of the system from which the leak occurred with secondary containment that satisfies the requirements of Section 8.8.4 of these regulations before it can be returned to service, unless the source of the leak is an aboveground portion of a tank system that can be inspected visually. If the source is an aboveground component that can be inspected visually, the component must be repaired and may be returned to service without secondary containment as long as the requirements of Section 8.8.7.f of these regulations are satisfied. If a component is replaced to comply with the requirements of Section 8.8.7.e.4 of these regulations, that component must satisfy the requirements for new tank systems or components in Sections 8.8.3 and 8.8.4 of these regulations. Additionally, if a leak has occurred in any portion of a tank system component that is not readily accessible for visual inspection (e.g., the bottom of an inground or onground tank), the entire component must be provided with secondary containment in accordance with Section 8.8.4 of these regulations prior to being returned to use.

8.8.7.f. Certification of major repairs. If the owner

or operator has repaired a tank system in accordance with Section 8.8.7.e. of these regulations, and the repair has been extensive (e.g., installation of an internal liner or repair of a ruptured primary containment or secondary containment vessel), the tank system must not be returned to service unless the owner or operator has obtained a certification by an independent, qualified registered professional engineer, in accordance with Section 11.7.4. of these regulations, that the repaired system is capable of handling hazardous wastes without release for the intended life of the system. This certification must be submitted to the chief within seven (7) days after returning the tank system to use.

Note: The Regional Administrator may, on the basis of any information received that there is or has been a release of hazardous waste or hazardous constituents into the environment, issue an order under RCRA Sections 3004(w), 3008(h), or 7003(a) requiring corrective action or such other response as deemed necessary to protect human health or the environment.

Note: See Section 8.2.6.c of these regulations for the requirements necessary to remedy a failure. Also, 40 C.F.R. Part 302 may require the owner or operator to notify the National Response Center of certain releases.

8.8.8. Closure and Post-Closure Care.

8.8.8.a. At closure of a tank system, the owner or operator must remove or decontaminate all waste residues, contaminated containment system components (~~liners, etc.~~ (e.g., liners), contaminated soils, and structures and equipment contaminated with waste and manage them as hazardous waste, unless Sections 3.1.3.d.1 and 3.1.3.d.2 of these regulations apply. The closure plan, closure activities, cost estimates for closure, and financial responsibility for tank systems must meet all of the requirements specified in Sections 8.6, 13, and 15 of these regulations.

8.8.8.b. If the owner or operator demonstrates that not all contaminated soils can be practicably removed or decontaminated as required in Section 8.8.8.a of these regulations, then the owner or operator must close the tank system and perform post-closure care in accordance with the closure and post-closure care requirements that apply to landfills (Section 8.11.11 of these regulations). In addition, for the purposes of closure, post-closure, and financial responsibility, such a tank system is then considered to be a landfill and the owner or operator must meet all of the requirements for landfills specified in Sections 8.6, 13, and 15 of these regulations.

8.8.8.c. If an owner or operator has a tank system that does not have secondary containment that meets the requirements of Sections 8.8.4.b through 8.8.4.f of these regulations and has not been granted a variance from the secondary containment

requirements in accordance with Section 8.8.4.g of these regulations, then:

8.8.8.c.1. The closure plan for the tank system must include both a plan for complying with Section 8.8.8.a of these regulations and a contingent plan for complying with Section 8.8.8.b of these regulations.

8.8.8.c.2. A contingent post-closure plan for complying with Section 8.8.8.b of these regulations must be prepared and submitted as part of the permit application.

8.8.8.c.3. The cost estimates calculated for closure and post-closure care must reflect the costs of complying with the contingent closure plan and the contingent post-closure plan if those costs are greater than the costs of complying with the closure plan prepared for the expected closure under Section 8.8.8.a of these regulations.

8.8.8.c.4. Financial assurance must be based on the cost estimates in Section 8.8.8.c.3 of these regulations.

8.8.8.c.5. For the purposes of the contingent closure and post-closure plans, such a tank system is considered to be a landfill and the contingent plans must meet all of the closure, post-closure, and financial responsibility requirements for landfills under Sections 8.6, 13, and 15 of these regulations.

8.8.9. Special Requirements for Ignitable or Reactive Wastes.

8.8.9.a. Ignitable or reactive waste must not be placed in tank systems, unless:

8.8.9.a.1. The waste is treated, rendered, or mixed before or immediately after placement in the tank system so that:

8.8.9.a.1.A. The resulting waste, mixture, or dissolved material no longer meets the definition of ignitable or reactive waste under Section 3.3.2 or 3.3.4 of these regulations; and

8.8.9.a.1.B. Section 8.2.8.b of these regulations is complied with;

8.8.9.a.2. The waste is stored or treated in such a way that it is protected from any material or conditions that may cause the waste to ignite or react; or

8.8.9.a.3. The tank system is used solely for emergencies.

8.8.9.b. The owner or operator of a facility where

ignitable or reactive waste is stored or treated in a tank must comply with the requirements for the maintenance of protective distances between the waste management area and any public ways, streets, alleys, or an adjoining property line that can be built upon as required in Tables 2-1 through 2-6 of the National Fire Protection Association's "Flammable and Combustible Liquids Code" (1977 or 1981).

8.8.10. Special Requirements for Incompatible Wastes.

8.8.10.a. Incompatible wastes, or incompatible wastes and materials, must not be placed in the same tank system, unless Section 8.2.8 of these regulations is complied with.

8.8.10.b. Hazardous waste must not be placed in a tank system that has not been decontaminated and that previously held an incompatible waste or material, unless Section 8.2.8 of these regulations is complied with.

8.9. Surface Impoundments.

8.9.1. Applicability. ~~8-9-1-a-~~ The regulations in Section 8.9 of these regulations apply to owners and operators of facilities that use surface impoundments to treat, store, or dispose of hazardous waste, except as Section 8.1 of these regulations provides otherwise.

8.9.2. General Design Requirements.

8.9.2.a. A surface impoundment must be designed and constructed to provide maintenance of sufficient freeboard, and to prevent overtopping resulting from wave or wind action; normal and abnormal operation; malfunctions of level controllers, alarms, and other equipment; precipitation; human error; or any combination thereof. The freeboard shall not be less than 60 centimeters (2 feet) or an amount of freeboard other than 60 centimeters based on documentation acceptable to the chief that the specified amount of freeboard will prevent overtopping.

8.9.2.b. A surface impoundment must be designed and constructed so that any flow of waste into the impoundment can be immediately shut off in the event of overtopping or liner failure.

8.9.2.c. A surface impoundment must be designed and constructed to prevent discharge into or on the land, and to ~~waters-of-the-State~~ State waters (except discharges authorized by an NPDES permit during the life of the impoundment) by use of a liner system and leachate detection, collection and removal system which complies with Section 8.9.4 of these regulations. ~~except-as provided-in-Section-8-9-2-f-of-these-regulations~~

8.9.2.d. Dikes must be designed and constructed with sufficient structural integrity to prevent massive failure without

dependence on any liner system included in the surface impoundment design.

8.9.2.e. A leachate detection, collection, and removal system must be designed and constructed so that liquid will flow freely from the collection system to prevent the creation of pressure head within the collection system in excess of that necessary to cause the liquid to flow freely.

~~8.9.2.f.1~~ 8.9.2.f. Existing facilities are exempt from the requirements outlined in Sections 8.9.2.c, 8.9.2.e, 8.9.4.a.1, 8.9.4.c, 8.9.4.d, 8.9.6, 8.9.10.c.2, and 8.9.10.d of these regulations, provided that ~~Section 8.9.2.f.2~~ Section 8.9.2.g of these regulations is complied with.

~~8.9.2.f.2~~ 8.9.2.g. The owner or operator, in order to qualify for the exemption in ~~Section 8.9.2.f.1~~ Section 8.9.2.f of these regulations, must demonstrate that statistically significant increases of hazardous constituents do not occur in the groundwater or surface water during its active life and the post-closure period, except as provided in ~~Section 8.9.2.f.4~~ Section 8.9.2.i of these regulations.

~~8.9.2.f.3~~ 8.9.2.h. If statistically significant increases of hazardous constituents are detected as outlined in Section 8.13.8.d of these regulations in the groundwater beneath the facility (including the regulated unit) the owner or operator must comply with the corrective action outlined in Section 8.13.9 of these regulations (if groundwater contamination has been determined).

~~8.9.2.f.4~~ 8.9.2.i. If the owner or operator determines that the corrective action program being implemented under Section 8.13.9 of these regulations is insufficient for causing cessation of hazardous waste constituents migration, then the unit must be closed. However, if it is determined that the corrective action will adequately arrest and remove the contamination, the owner may choose one of the four options which will become part of the conditions of the permit:

~~8.9.2.f.4.A~~ 8.9.2.i.1. Retrofit the unit with liners in accordance with Section 8.9.4.a.1 of these regulations;

~~8.9.2.f.4.B~~ 8.9.2.i.2. Stop the leak;

~~8.9.2.f.4.C~~ 8.9.2.i.3. Continue the operation of the unit, while concurrently ~~developing/implementing~~ developing and implementing an alternate treatment, storage, or disposal method, for a period of five (5) years at which time the unit must be closed; or

~~8.9.2.f.4.D~~ 8.9.2.i.4. Continue the operation of the unit provided a demonstration can be made and approved by the

chief that no adverse impact to human health or to the environment will result from the continued operation of the unit during the active life and closure and post-closure period, provided that the facility continues to comply with an approved corrective action program. Such demonstration must include and discuss the following:

~~8.9.2.f.4.D.i~~ 8.9.2.i.4.A. Potential adverse effects on groundwater quality, considering:

~~8.9.2.f.4.D.i.i~~ 8.9.2.i.4.A.i. The physical and chemical characteristics of the waste in the regulated unit, including its potential for migration;

~~8.9.2.f.4.D.i.2~~ 8.9.2.i.4.A.ii. The hydrogeological characteristics of the facility and surrounding land;

~~8.9.2.f.4.D.i.3~~ 8.9.2.i.4.A.iii. The quantity of groundwater and the direction of groundwater flow;

~~8.9.2.f.4.D.i.4~~ 8.9.2.i.4.A.iv. The proximity and withdrawal rates of groundwater users;

~~8.9.2.f.4.D.i.5~~ 8.9.2.i.4.A.v. The current and future uses of groundwater in the area;

~~8.9.2.f.4.D.i.6~~ 8.9.2.i.4.A.vi. The existing quality of groundwater, including other sources of contamination and their cumulative impact on the groundwater quality;

~~8.9.2.f.4.D.i.7~~ 8.9.2.i.4.A.vii. The potential for health risks caused by human exposure to waste constituents;

~~8.9.2.f.4.D.i.8~~ 8.9.2.i.4.A.viii. The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and

~~8.9.2.f.4.D.i.9~~ 8.9.2.i.4.A.ix. The persistence and permanence of the potential adverse effects; and

~~8.9.2.f.4.D.ii~~ 8.9.2.i.4.B. Potential adverse effects on hydraulically-connected surface water quality, considering:

~~8.9.2.f.4.D.ii.i~~ 8.9.2.i.4.B.i. The volume and physical and chemical characteristics of the waste in the regulated unit;

~~8.9.2.f.4.D.ii.2~~ 8.9.2.i.4.B.ii. The hydrogeological characteristics of the facility and surrounding land;

~~8.9.2.f.4.D.ii.3~~ 8.9.2.i.4.B.iii. The quantity and quality of groundwater and the direction of groundwater flow;

~~8-9-2-f-4-B-ii-4-~~ 8.9.2.i.4.B.iv. The patterns of rainfall in the region;

~~8-9-2-f-4-B-ii-5-~~ 8.9.2.i.4.B.v. The proximity of the regulated unit to surface waters;

~~8-9-2-f-4-B-ii-6-~~ 8.9.2.i.4.B.vi. The current and future uses of surface waters in the area and any water quality standards established for those surface waters;

~~8-9-2-f-4-B-ii-7-~~ 8.9.2.i.4.B.vii. The existing quality of surface water, including other sources of contamination and the cumulative impact on surface water quality;

~~8-9-2-f-4-B-ii-8-~~ 8.9.2.i.4.B.viii. The potential for health risks caused by human exposure to waste constituents;

~~8-9-2-f-4-B-ii-9-~~ 8.9.2.i.4.B.ix. The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and

~~8-9-2-f-4-B-ii-10-~~ 8.9.2.i.4.B.x. The persistence and permanence of the potential adverse effects.

~~8-9-2-f-4-B-iii-~~ 8.9.2.i.4.C. In making any determination under ~~Section--8-9-2-f-4~~ Section 8.9.2.i of these regulations concerning the use of groundwater in the area around the facility, the chief will consider any identification of underground sources of drinking water and exempted aquifers made under Title 46, Water Resources Board, Series 9 (46 C.S.R. 9).

8.9.3. Operating Requirements.

8.9.3.a. A surface impoundment must be operated and maintained to prevent any overtopping resulting from wind and wave action; overflowing; normal and abnormal operation; malfunctions of level controllers, alarms, and other equipment; precipitation; human error; or any combination thereof.

8.9.3.b. A surface impoundment must be operated to maintain at least the amount of freeboard specified by the chief in the permit.

8.9.3.c. A leachate detection, collection, and removal system installed to comply with Section 8.9.4.a of these regulations must be operated so that leachate flows freely from the collection system and is removed as it accumulates or with sufficient frequency to prevent backwater within the collection system.

8.9.3.d. Earthen dikes must be kept free of:

8.9.3.d.1. Perennial woody plants with root systems which could affect the structural integrity of the dike; and

8.9.3.d.2. Burrowing mammals which could remove earthen materials upon which the structural integrity of the dike is dependent or creates leaks through burrows in the dike.

8.9.3.e. Run-on must be diverted away from a surface impoundment.

8.9.4. Specific Design Requirements.

8.9.4.a. A surface impoundment must be designed to prevent discharge into the land and State waters during its life and must have:

8.9.4.a.1. A double liner system that is designed, constructed, and installed to prevent any migration of wastes or leachate or both out of the impoundment to the adjacent subsurface, soil, or groundwater or surface water at any time during the operating life, closure, and the post-closure period (where applicable) of the impoundment. The primary liner (i.e., the liner in contact with the waste) must be constructed of materials that prevent wastes or leachate or both from passing into the liner during the operating life, closure, and the post-closure period (where applicable) of the facility. All liners must be:

8.9.4.a.1.A. Constructed of materials that are chemically resistant to the waste and leachate expected to be generated and of sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the waste and leachate to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation. The liner will be tested for compatibility with the waste and leachate expected to be generated to determine possible effects on the liner materials prior to installation;

8.9.4.a.1.B. Placed upon a foundation or base capable of providing support to the liners and resistance to pressure gradients above and below the liners to prevent failure of the liners due to settlement, compression, or uplift;

8.9.4.a.1.C. Installed to cover all surrounding earth likely to be in contact with the waste and leachate;

8.9.4.a.1.D. Constructed to be free of lenses, cracks, channels, holes, or other structural nonuniformities; and

8.9.4.a.1.E. If a soil-based or admixed liner is to be used as the secondary liner (i.e., the liner underneath the primary liner), then such liner must be at least 90 centimeters (3

feet) thick with a maximum saturated hydraulic conductivity of no more than 1×10^{-7} cm/sec throughout the total thickness and area of the liner.

8.9.4.a.2. An impoundment (including the base of the lowermost liner components) which must be located at a minimum of three (3) feet above the highest known seasonal water table elevation. This three-foot distance may be achieved by elevating the surface impoundment artificially or by the nonmechanical lowering of the water table at the location. However, no mechanical means (i.e., pumps) may be used to lower the water table. All plans for alteration of the water level must be approved by the chief and will become a part of the hazardous waste management permit.

8.9.4.a.3. A leachate detection, collection, and removal system beneath the liner(s) in contact with the waste (i.e., must be situated between the liners in the double liner system) to detect, contain, collect, and remove any discharge from the liner(s) in contact with the waste.

8.9.4.b. Earthen dikes must have a protective cover such as grass or rock to minimize wind and water erosion and to preserve the structural integrity of the dike.

8.9.4.c. A leachate detection, collection, and removal system beneath the liner in contact with the waste (i.e., must be situated between the liners in the double liner system) to detect, contain, collect, and remove any discharge from the liner in contact with the waste at any time during the operating life, closure, and the post-closure period (where applicable) of the impoundment.

8.9.4.d. The owner or operator and a registered professional engineer must submit to the chief a certification that the facility has been designed and constructed in compliance with Section 8.9.4 of these regulations prior to placement of wastes into the impoundment.

8.9.5. Inspections and Testing.

8.9.5.a. During construction or installation, liner systems must be inspected for uniformity, damage, and imperfections (e.g., holes, cracks, thin spots, and foreign materials).

8.9.5.a.1. Soil-based and admixed liner systems must be tested for compaction density, moisture content, and permeability, and inspected for imperfections including lenses, cracks, channels, root holes, or other structural non-conformities that may cause an increase in the permeability of the liner; and

8.9.5.a.2. Manufactured liner materials (e.g.,

membranes, sheets, and coatings) must be inspected to ensure tight seams and joints and the absence of tears or blisters.

8.9.5.a.3. Upon discovery of such imperfections, the repair of the liner must be completed prior to placement of the wastes into the impoundment.

8.9.5.a.4. The leachate detection, collection, and removal system must be inspected for cracks, breaks, loose seams and joints, clogging, areas of structural stress, and any other faults or conditions which may result in collapse or failure of the system.

8.9.5.a.5. Results of such tests and repairs must be certified in writing by a registered professional engineer.

8.9.5.b. The owner or operator must inspect:

8.9.5.b.1. A surface impoundment, including the leachate detection, collection, and removal system, at least once each day to ensure compliance with Sections 8.9.3.a through 8.9.3.c of these regulations and to detect any leaks or other failures of the impoundment.

8.9.5.b.2. Each surface impoundment, including dikes, berms, and vegetation surrounding the dike, at least once a week and after storms to detect any evidence of or potential for leaks from the impoundment, erosion of dikes, and to ensure compliance with Section 8.9.3.d of these regulations.

8.9.5.c. The structural integrity of any dike, including that portion of any dike which provides freeboard, must be certified against massive failure by a registered professional engineer prior to the issuance or reissuance of a permit; or if the impoundment is not in service and has not been inspected and maintained as required under Section 8.9.5.b of these regulations, prior to being placed in service and after construction or prior to being returned to service.

8.9.5.c.1. In certifying the structural integrity of the dike it must be established that the dike will withstand:

8.9.5.c.1.A. The stress of the pressure head of liquids placed into the impoundment;

8.9.5.c.1.B. The weakening effect of earth materials being scoured due to leakage from the impoundment through and under the dike without relying on any liner system;

8.9.5.c.1.C. The weakening effect of earth materials being scoured due to leakage from the impoundment through and under the dike assuming leaks develop in the liner system; and

8.9.5.c.1.D. The weakening effect of any piping included in the impoundment's construction.

8.9.6. Liner System Repairs; Contingency Plans.

8.9.6.a. Whenever there is any indication of a possible failure of the liner system, that system must be inspected in accordance with the provisions of the liner system evaluation and repair plan required by Section 8.9.6.d of these regulations. Indications of possible failure of the liner system include at least an unplanned and non-sudden drop in liquid level in the impoundment, liquid detection in the leachate detection system, evidence of leakage or the potential for leakage in the dike, erosion of the dike, apparent or potential deterioration of the liner(s) based on observation or test samples of the liner materials, any mishandling of wastes placed in the impoundment, and foreign objects in the impoundment.

8.9.6.b. Whenever there is a positive indication of an unplanned sudden drop in liquid level in the impoundment, or active leakage through the dike, the impoundment must be removed from service.

8.9.6.c. If the surface impoundment must be removed from service as required by Section 8.9.6.b of these regulations, the owner or operator must:

8.9.6.c.1. Immediately shut off the flow or stop the addition of wastes into the impoundment;

8.9.6.c.2. Immediately contain any surface leakage which has occurred or is occurring and cause such leak(s) to be stopped;

8.9.6.c.3. Immediately notify the chief through the ~~Division--of--Water--Resources~~ Division's Emergency Notification Number 1-800-642-3074;

8.9.6.c.4. If all leaks specified in Section 8.9.6.b of these regulations, including leaks not evident at the surface, cannot be stopped by any other means, empty the impoundment;

8.9.6.c.5. Within fifteen (15) days after detecting the leak, submit to the chief a written report of the problem and corrective measures taken; and

8.9.6.c.6. Take any other steps necessary to stop or prevent catastrophic failure.

8.9.6.d. As part of the contingency plan required in Section 8.4 of these regulations, the owner or operator must specify:

8.9.6.d.1. A procedure for complying with the requirements of Section 8.9.6.c of these regulations; and

8.9.6.d.2. A liner system repair plan describing testing and monitoring techniques; procedures to be followed to evaluate the integrity of the liner system in the event of a possible failure; a schedule of actions to be taken in the event of a possible failure; and a description of the repair techniques to be used in the event of leakage due to liner system failure or deterioration which does not require the impoundment to be removed from service.

8.9.6.e. No surface impoundment that has been removed from service in accordance with Section 8.9.6.b of these regulations may be restored to service unless:

8.9.6.e.1. The liner system and leachate detection, collection, and removal system have been repaired; and

8.9.6.e.2. The liner system and the leachate detection, collection, and removal system have been re-certified by a registered professional engineer as meeting the design specifications approved in the permit.

8.9.6.f. A surface impoundment that has been removed from service in accordance with Section 8.9.6.b of these regulations and that is not being repaired must be closed in accordance with Section 8.9.7 of these regulations.

8.9.6.g. All wastes removed from the impoundment must be managed as a hazardous waste in compliance with all applicable requirements. Any point source discharge to ~~waters-of-the-State~~ State waters is subject to the requirements of the State Water Pollution Control Act and all regulations promulgated thereunder.

8.9.7. Closure.

8.9.7.a. At closure, all hazardous waste and hazardous waste residues must be removed from the impoundment, except as provided in Section 8.9.10 of these regulations. Any component of the surface impoundment or any appurtenant structures or equipment (e.g., discharge platforms and pipes, baffles, skimmers, aerators, or other equipment) containing or contaminated with hazardous waste or hazardous waste residues must be decontaminated or removed.

8.9.7.b. At closure, as throughout the operating period, unless the owner or operator can demonstrate in accordance with these regulations that the waste removed from the surface impoundment is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and must manage it in accordance with all applicable requirements.

8.9.7.c. An owner or operator who plans to close a surface impoundment exempted from the liner requirements pursuant to Section 8.9.2.f of these regulations must:

8.9.7.c.1. Prepare a contingent plan for complying with Sections 8.9.10.a.1, 8.9.10.a.2, and 8.9.10.b of these regulations in case not all contaminated subsoils can be practicably removed at closure; and

8.9.7.c.2. Prepare a contingent post-closure plan for complying with Section 8.9.10.c of these regulations, except Section 8.9.10.c.2 of these regulations, in case not all contaminated subsoils can be practicably removed at closure.

8.9.8. Special Requirements for Ignitable or Reactive Waste. Ignitable or reactive waste must not be placed in a surface impoundment unless:

8.9.8.a. The waste is treated, rendered, or mixed before or immediately after placement in the impoundment so that:

8.9.8.a.1. The resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive waste under Section 3.3.2 or 3.3.4 of these regulations; and

8.9.8.a.2. Section 8.2.8 of these regulations is complied with;

8.9.8.b. The waste is managed in such a way that it is protected from any material or conditions which may cause it to ignite or react; or

8.9.8.c. The surface impoundment is used solely for emergencies.

8.9.9. Special Requirements for Incompatible Wastes.

8.9.9.a. Incompatible wastes, or incompatible wastes and other materials, must not be placed in the same surface impoundment, unless Section 8.2.8.b of these regulations is complied with.

8.9.10. Additional Requirements for Impoundments Used for Disposal of Hazardous Wastes.

8.9.10.a. In addition to all the other requirements of Section 8.9 of these regulations, when an owner or operator leaves wastes, waste residues, or contaminated materials in place in an impoundment upon closure, he must comply with the following as part of the closure procedures:

8.9.10.a.1. Eliminate the free liquids contained in

the impoundment by removing the liquid wastes and by solidifying the remaining wastes and waste residues left in place; and

8.9.10.a.2. Stabilize the remaining wastes to a bearing capacity sufficient to support the final cover;

8.9.10.b. Prior to beginning the post-closure period, the owner or operator must cover the impoundment with a final cover designed and constructed to:

8.9.10.b.1. Provide long-term minimization of migration of liquids through the closed impoundment;

8.9.10.b.2. Function with minimum maintenance;

8.9.10.b.3. Promote drainage and minimize erosion or abrasion of the cover;

8.9.10.b.4. Accommodate settling and subsidence so that the cover's integrity is maintained; and

8.9.10.b.5. Have a permeability less than or equal to the least permeable component of the liner system or 1×10^{-7} cm/sec, whichever value is less;

8.9.10.c. After final closure, the owner or operator must comply with all post-closure requirements contained in Section 8.6.7, 8.6.8, 13, 15.1, and 15.3 of these regulations including maintenance and monitoring throughout the post-closure period (specified in the permit under Section 8.6.7 of these regulations). The owner or operator must:

8.9.10.c.1. Maintain the integrity and effectiveness of the cover including making repairs to the cover as necessary to correct the effects of settling, subsidence, erosion, or other events;

8.9.10.c.2. Continue to operate the leachate collection and removal system for the entire post-closure period;

8.9.10.c.3. Maintain and monitor the groundwater monitoring system and comply with all other applicable requirements of Section 8.13 of these regulations; and

8.9.10.c.4. Prevent run-on and runoff from eroding or otherwise damaging the cover;

8.9.10.d. During the post-closure period, the owner or operator must:

8.9.10.d.1. Inspect daily and maintain the leachate detection, collection, and removal system. If leachate is detected in the detection system between the liners, the owner or

operator must:

8.9.10.d.1.A. Immediately notify the chief through the ~~Division of Water Resources~~ Division's Emergency Notification Number 1-800-642-3074; and

8.9.10.d.1.B. Within fifteen (15) days after detecting the leak, submit to the chief a written report of the problem and corrective measures taken.

8.9.10.d.2. Unless the owner or operator can demonstrate otherwise, the leachate must be managed as a hazardous waste in accordance with all regulations governing the generation of such wastes.

8.9.10.d.3. If it is determined that the liner(s) is leaking, the owner or operator must begin the remedial actions set forth in the contingency plan specified in the permit which shall at least include plans for repairing the breach in the liner and preventing the continued migration of the leachate.

8.10. Waste Piles.

8.10.1. Applicability.

8.10.1.a. The regulations in Section 8.10 of these regulations apply to owners and operators of facilities that store or treat hazardous waste in piles, except as Section 8.1 of these regulations provides otherwise.

8.10.1.b. (Reserved).

8.10.1.c. Owners and operators of waste piles used to store or treat only hazardous wastes that do not contain free liquids are not subject to regulation under Sections 8.10.2, 8.10.3, 8.10.4, 8.10.5, and 8.10.6 of these regulations with respect to ~~these~~ such piles, provided that:

8.10.1.c.1. Liquids or materials containing free liquids are not placed in the pile;

8.10.1.c.2. The pile is inside or under a structure that provides protection from precipitation so that neither runoff nor leachate is generated;

8.10.1.c.3. The pile is protected from surface water run-on by the structure or in some other manner;

8.10.1.c.4. The pile is designed and operated to control dispersal of the waste by wind, where necessary, by means other than wetting;

8.10.1.c.5. The pile will not generate leachate

through decomposition or other reactions; and

8.10.1.c.6. The pile does not discharge hazardous wastes into State waters.

8.10.2. Design and Operating Requirements.

8.10.2.a. A waste pile must have:

8.10.2.a.1. A liner that is designed, constructed, and installed to prevent discharge into or on the land and ~~waters of-the-State~~ State waters during the active life (including the closure period) of the waste pile. The liner must be:

8.10.2.a.1.A. Constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the waste or leachate to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation;

8.10.2.a.1.B. Placed upon a foundation or base capable of providing support to the liner and resistance to pressure gradients above and below the liner to prevent failure of the liner due to settlement, compression, or uplift;

8.10.2.a.1.C. At least three (3) feet above the seasonal high water table; and

8.10.2.a.1.D. Installed to cover all surrounding earth likely to be in contact with the waste or leachate; and

8.10.2.a.2. A leachate collection and removal system immediately above the liner that is designed, constructed, maintained, and operated to collect and remove leachate from the pile. The chief will specify conditions for design and operation in the permit to insure that the leachate depth over the liner does not exceed 30 cm (one foot). The leachate collection and removal system must be:

8.10.2.a.2.A. Constructed of materials that are:

8.10.2.a.2.A.i. Chemically resistant to the waste managed in the pile and the leachate expected to be generated; and

8.10.2.a.2.A.ii. Of sufficient strength and thickness to prevent collapse under the pressures exerted by overlaying wastes, waste cover materials, and by any equipment used at the pile; and

8.10.2.a.2.B. Designed and operated to function

without clogging through the operating life and scheduled closure of the waste pile.

8.10.2.a.3. If the collected leachate or runoff is a hazardous waste under Section 3 of these regulations, it must be managed as a hazardous waste in accordance with all applicable requirements. If collected leachate or runoff is discharged through a point source to ~~waters-of-the-State~~ State waters, it is subject to the requirements of the State Water Pollution Control Act and all regulations promulgated thereunder.

8.10.2.b. The owner or operator must design, construct, operate, and maintain a run-on control system capable of preventing flow onto the active portion of the pile during peak discharge from at least a 25-year storm.

8.10.2.c. The owner or operator must design, construct, operate, and maintain a runoff management system to collect and control at least the water volume resulting from a 25-year, 24-hour storm.

8.10.2.d. Collection and holding facilities (e.g., tanks or basins) associated with run-on and runoff control systems must be emptied or otherwise managed expeditiously after any precipitation event to maintain design capacity of the system.

8.10.2.e. The pile must be designed and operated to control dispersal of the waste by wind or water.

8.10.2.f. The chief will specify in the permit all conditions for design and operation practices that are necessary to ensure that the requirements of Section 8.10.2 of these regulations are satisfied.

8.10.2.g. A liner system must be protected from plant growth which could puncture any component of the system.

8.10.2.h. A liner system must have a containment life equal to or greater than the life of the pile.

8.10.3. Specific Requirements for Double-Lined Waste Piles.

8.10.3.a. The owner or operator of a double-lined waste pile must meet the following:

8.10.3.a.1. The pile (including its underlying liners) must be located at least three (3) feet above the seasonal high water table;

8.10.3.a.2. The pile must be underlain by two liners which are designed and constructed in a manner that prevents the migration of liquids into or out of the space between the liners. Both liners must meet all the specifications in Section 8.10.2.a.1

of these regulations;

8.10.3.a.3. A leak detection system must be designed, constructed, maintained, and operated between the liners to detect any migration of liquids into the space between the liners; and

8.10.3.a.4. The pile must have a leachate collection and removal system above the top liner that is designed, constructed, maintained and operated in accordance with Section 8.10.2.a.2 of these regulations.

8.10.3.b. If liquid leaks into the leak detection system, the owner or operator must:

8.10.3.b.1. Immediately notify the chief through the ~~Division--of--Water--Resources~~ Division's Emergency Notification Number 1-800-642-3074;

8.10.3.b.2. Within fifteen (15) days after detecting the leak, submit to the chief a written report of the problem and corrective measures taken; and

8.10.3.b.3. Comply with the provisions of Section 8.10.6 of these regulations.

8.10.4. Specific Requirements for Single-Lined Waste Piles; Inspection of Liners.

8.10.4.a. The owner or operator of a single-lined pile must meet the following conditions:

8.10.4.a.1. The wastes in the pile must be removed periodically, and the liner must be inspected for deterioration, cracks, or other conditions that may result in leaks. The frequency of inspection will be specified in the inspection plan required in Section 8.2.6 of these regulations and must be based on the potential for the liner (base) to crack or otherwise deteriorate under the conditions of operation (e.g., waste type, rainfall, loading rates, and subsurface stability);

8.10.4.a.2. The liner must be of sufficient strength and thickness to prevent failure due to puncture, cracking, tearing, or other physical damage from equipment used to place waste in or on the pile or to clean and expose the liner surface for inspection; and

8.10.4.a.3. The requirements listed in Sections 8.10.2.a and 8.10.2.b of these regulations must be met.

8.10.4.b. If deterioration, a crack, or other condition is identified that is causing or could cause a leak, the owner or operator must:

8.10.4.b.1. Immediately notify the chief through the ~~Division--of--Water--Resources~~ Division's Emergency Notification Number 1-800-642-3074;

8.10.4.b.2. Within fifteen (15) days after detecting the leak, submit to the chief a written report of the problem and corrective measures taken; and

8.10.4.b.3. Comply with the provisions of Section 8.10.6 of these regulations.

8.10.5. Monitoring and Inspection.

8.10.5.a. During and immediately after construction or installation, liner and cover systems must be inspected for uniformity, damage, and imperfections (e.g., holes, cracks, thin spots, and foreign materials).

8.10.5.a.1. Soil-based and admixed liners must be tested for compaction density, moisture content, permeability, and inspected for imperfections including lenses, cracks, channels, root holes, or other structural nonconformities that may cause an increase in the permeability of the liner.

8.10.5.a.2. Synthetic liner materials (e.g., membranes, sheets, and coatings) must be inspected to ensure tight seams and joints and the absence of tears or blisters.

8.10.5.a.3. Upon discovery of any imperfections, the repair of the liner must be completed prior to placement of the wastes into the liner.

8.10.5.a.4. The results of such tests and repairs must be certified in writing by the owner or operator and a registered professional engineer.

8.10.5.a.5. The leachate detection, collection, and removal system must be inspected for cracks, breaks, loose seams and joints, clogging, areas of structural stress, and any other faults or conditions which may result in collapse or failure of the system.

8.10.5.b. While a waste pile is in operation, it must be inspected weekly and after storms to detect evidence of any of the following:

8.10.5.b.1. Deterioration, malfunctions, or improper operation of run-on and runoff control systems;

8.10.5.b.2. The presence of liquids in the leachate detection systems, where installed to comply with Section 8.10.3 of these regulations;

8.10.5.b.3. Proper functioning of wind dispersal control systems, where present; and

8.10.5.b.4. The presence of leachate in and proper functioning of leachate collection and removal systems, where present.

8.10.6. Liner System Repairs; Contingency Plan.

8.10.6.a. Whenever there is any indication of a possible failure of liner system, that system must be inspected in accordance with the provisions of the liner system evaluation and repair plan required by Section 8.10.6.d of these regulations. Indications of possible failure of the liner system include liquid detected in the leachate detection system (where applicable), evidence of leakage or the potential for leakage in the base, erosion of the base, or apparent or potential deterioration of the liner(s) based on observation or test samples of the liner materials.

8.10.6.b. Whenever there is a positive indication of a failure of the liner system, the waste pile must be removed from service, and the leachate removed and treated by method and schedule approved by the chief. Indications of positive failure of the liner system (where applicable) or a breach (e.g., a hole, tear, crack, or separation) in the base.

8.10.6.c. If the waste pile must be removed from service as required by Section 8.10.6.b of these regulations, the owner or operator must:

8.10.6.c.1. Immediately stop adding waste to the pile;

8.10.6.c.2. Immediately contain any leakage which has or is occurring and treat the leachate by a method and schedule approved by the chief;

8.10.6.c.3. Immediately cause the leak to be stopped; and

8.10.6.c.4. If the leak cannot be stopped by any other means, remove the waste from the base.

8.10.6.d. As part of the contingency plan required in Section 8.4 of these regulations the owner or operator must specify:

8.10.6.d.1. All procedures, and design and operating specifications for complying with the requirements of Section 8.10.6.c of these regulations; and

8.10.6.d.2. A liner system evaluation and repair plan

describing testing and monitoring techniques; procedures to be followed to evaluate the integrity of the liner system in the event of a possible failure; a schedule of actions to be taken in the event of a possible failure; and a description of the repair techniques to be used in the event of leakage due to liner system failure or deterioration which does not require the waste pile to be removed from service.

8.10.6.e. No waste pile that has been removed from service in accordance with Section 8.10.6.b of these regulations may be restored to service unless:

8.10.6.e.1. The liner system has been repaired; and

8.10.6.e.2. The liner system has been certified by a registered professional engineer as meeting the design specifications approved in the permit and that to the best of his knowledge and opinion the leak has been stopped.

8.10.6.f. A waste pile that has been removed from service in accordance with Section 8.10.6.b of these regulations and that is not being repaired must be closed in accordance with Section 8.10.9 of these regulations.

8.10.6.g. All wastes removed from the waste pile must be managed as a hazardous waste in compliance with all applicable requirements. Any point source discharge to waters-of--the--State State waters is subject to the requirements of the State Water Pollution Control Act and all regulations promulgated thereunder.

8.10.7. Special Requirements for Ignitable or Reactive Waste.

8.10.7.a. Ignitable or reactive waste must not be placed in a pile unless the waste is treated, rendered, or mixed before or immediately after placement in the pile so that:

8.10.7.a.1. Addition of the waste to an existing pile results in the waste or mixture no longer meeting the definition of ignitable or reactive waste and complies with Section 8.2.8 of these regulations; or

8.10.7.a.2. The waste is managed in such a way that it is protected from any material or conditions which may cause it to ignite or react.

8.10.8. Special Requirements for Incompatible Wastes.

8.10.8.a. Incompatible wastes, or incompatible wastes and other materials, must not be placed in the same pile, unless Section 8.2.8 of these regulations is complied with.

8.10.8.b. A pile of hazardous waste that is incompatible

with any waste or other material stored nearby in other containers, piles, open tanks, or surface impoundments must be separated from the other materials, or protected from them by means of a dike, berm, wall, or other device which will prevent fires, explosions, gaseous emissions, leaching, or other discharge which could result from the contact or mixing of incompatible wastes or materials.

8.10.8.c. Hazardous waste must not be piled in the same base where incompatible wastes or materials were previously piled, unless the base has been decontaminated sufficiently to ensure compliance with Section 8.2.8 of these regulations.

8.10.9. Closure.

8.10.9.a. At closure, all hazardous waste and hazardous waste residues must be removed from the pile, except as provided in Section 8.10.9.c of these regulations. Any component of the liner system containing or contaminated with hazardous waste or hazardous waste residues must be decontaminated or removed.

8.10.9.b. At closure, as throughout the operating period, unless the owner or operator can demonstrate in accordance with these regulations that the waste removed from the waste pile is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and must manage it in accordance with applicable requirements listed in Sections 8.2.2 through 8.2.8 of these regulations.

8.10.9.c. If, upon closure, the owner or operator determines that all hazardous wastes and hazardous waste residues can not be removed as required by Section 8.10.9.a of these regulations due to technical infeasibility, then the owner or operator must submit an application for modifying the permit pursuant to Section 11.17 of these regulations. Such application must contain all information which demonstrates compliance with the requirements for managing a landfill, pursuant to Sections 8.11, 11, and 13 of these regulations.

8.11. Landfills.

8.11.1. Applicability. The regulations in Section 8.11 of these regulations apply to owners and operators of facilities that dispose of hazardous waste in landfills, except as Section 8.1 of these regulations provides otherwise.

8.11.2. Design and Operating Requirements.

8.11.2.a. A landfill must have:

8.11.2.a.1. A double liner system that is designed, constructed, and installed to prevent any migration of wastes or leachate or both out of the landfill to the adjacent subsurface,

soil or groundwater or surface water at any time during the operating life, closure and the post-closure period of the landfill. The primary liner (i.e., the liner in contact with the waste) must be constructed of materials that prevent wastes or leachate or both from passing into the liner during the operating life, closure, and the post-closure period of the facility. All liners must be:

8.11.2.a.1.A. Constructed of materials that are chemically resistant to the waste and leachate expected to be generated and of sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the waste and leachate installation, and the stress of daily operation. The liner will be tested for compatibility with the waste and leachate expected to be generated to determine possible effects on the liner materials prior to installation;

8.11.2.a.1.B. Placed upon a foundation or base capable of providing support to the liners and resistance to pressure gradients above and below the liners to prevent failure of the liners due to settlement, compression, or uplift;

8.11.2.a.1.C. Installed to cover all surrounding earth likely to be in contact with the waste and leachate;

8.11.2.a.1.D. Constructed to be free of lenses, cracks, channels, holes, or other structural nonuniformities; and

8.11.2.a.1.E. If a soil-based or admixed liner is to be used as the secondary liner (i.e., the liner underneath the primary liner), then such liner must be at least 90 cm (3 feet) thick with a maximum saturated hydraulic conductivity of no more than 1×10^{-7} cm/sec throughout the total thickness and area of the liner;

8.11.2.a.2. A leachate collection and removal system immediately above the primary liner that is designed, constructed, maintained, and operated to collect and remove leachate from the landfill. The chief will specify conditions for design and operation in the permit to ensure that the leachate depth over the liner does not exceed 30 cm (one foot). The leachate collection and removal system must be:

8.11.2.a.2.A. Constructed of materials that are:

8.11.2.a.2.A.i. Chemically resistant to the waste managed in the landfill and the leachate expected to be generated; and

8.11.2.a.2.A.ii. Of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes, waste cover materials, and by any equipment used

at the landfill;

8.11.2.a.2.B. Must be overlain by a graded granular material assuring a hydraulic conductivity of 1×10^{-3} cm/sec placed with a minimum slope of two percent (2%); and

8.11.2.a.2.C. Designed and operated to function without clogging through the operating life and scheduled closure and post-closure period of the landfill; and

8.11.2.a.3. A leachate detection system must be designed, constructed, maintained and operated between the liners to detect any migration of liquid into the space between the liners.

8.11.2.b. The owner or operator must design, construct, operate, and maintain a run-on control system capable of preventing flow onto the active portion of the landfill during peak discharge from at least a 25-year, 24-hour storm.

8.11.2.c. The owner or operator must design, construct, operate, and maintain a runoff management system to collect and control at least the water volume resulting from a 25-year, 24-hour storm.

8.11.2.d. Collection and holding facilities (e.g., tanks or basins) associated with run-on and runoff control systems must be emptied or otherwise managed expeditiously after storms to maintain design capacity of the system.

8.11.2.e. If the landfill contains any particulate matter which may be subject to wind dispersal, the owner or operator must cover or otherwise manage the landfill to control wind dispersal.

8.11.2.f. The landfill (including the base of the lower most liner components) must be located at a minimum of three (3) feet above the highest known seasonal water table elevation. This three-foot distance may be achieved by elevating the waste disposal facility artificially or by non-mechanical lowering of the water table. All plans for alteration of the water level must be approved by the chief and will become a part of the hazardous waste management permit.

8.11.2.g. The chief will specify in the permit all design and operating practices that are necessary to ensure that the requirements of Section 8.11.2 of these regulations are satisfied.

8.11.2.h. The design specifications, construction, and installation practices and operating conditions will be certified by an owner or operator and a registered professional engineer.

8.11.2.i. Existing portions of landfills are exempt from the requirements of Section 8.11.2.a, 8.11.3.a, 8.11.4, 8.11.11.c.2, 8.11.11.c.3, and 8.11.11.d of these regulations, provided that Section 8.11.2.i.1 of these regulations is complied with.

8.11.2.i.1. The owner or operator, in order to qualify for the exemption in Section 8.11.2.i.1 of these regulations, must demonstrate that statistically significant increases of hazardous constituents do not occur in the groundwater or surface water during its active life and the post-closure period, except as provided in Section 8.11.2.j of these regulations.

8.11.2.i.2. If statistically significant increases of hazardous constituents are detected as outlined in Section 8.13.8.d of these regulations in the groundwater beneath the facility (including the regulated unit) the owner or operator must comply with the corrective action outlined in Section 8.13.9 of these regulations if groundwater contamination has been determined.

8.11.2.j. If the owner or operator determines that the corrective action program being implemented under Section 8.13.9 of these regulations is insufficient for causing cessation of hazardous waste constituents migration, then the unit must be closed. However, if it is determined that the corrective action will adequately arrest and remove the contamination, the owner may choose one of the four options which will become part of the conditions of the permit:

8.11.2.j.1. Retrofit the unit with liners in accordance with Section 8.11.1.a.1 of these regulations;

8.11.2.j.2. Stop the leak;

8.11.2.j.3. Continue the operation of the unit, while concurrently ~~developing/implementing~~ developing and implementing an alternate treatment, storage, or disposal method, for a period of five (5) years, at which time the unit must be closed; or

8.11.2.j.4. Continue the operation of the unit provided a demonstration can be made and approved by the chief that no adverse impact to human health or to the environment will result from the continued operation of the unit during the active life, closure, and post-closure period, provided that the facility continue to comply with an approved corrective action program. Such demonstration must include and discuss the following:

8.11.2.j.4.A. Potential adverse effects on groundwater quality, considering:

8.11.2.j.4.A.i. The physical and chemical

characteristics of the waste in the regulated unit, including its potential for migration;

8.11.2.j.4.A.ii. The hydrogeological characteristics of the facility and surrounding land;

8.11.2.j.4.A.iii. The quantity of groundwater and the direction of groundwater flow;

8.11.2.j.4.A.iv. The proximity and withdrawal rates of groundwater users;

8.11.2.j.4.A.v. The current and future uses of groundwater in the area;

8.11.2.j.4.A.vi. The existing quality of groundwater, including other sources of contamination and their cumulative impact on groundwater quality;

8.11.2.j.4.A.vii. The potential for health risks caused by human exposure to waste constituents;

8.11.2.j.4.A.viii. The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and

8.11.2.j.4.A.ix. The persistence and permanence of the potential adverse effects; and

8.11.2.j.4.B. Potential adverse effects on hydraulically connected surface water quality, considering:

8.11.2.j.4.B.i. The volume and physical and chemical characteristics of the waste in the regulated unit;

8.11.2.j.4.B.ii. The hydrogeological characteristics of the facility and surrounding land;

8.11.2.j.4.B.iii. The quantity and quality of groundwater and the direction of groundwater flow;

8.11.2.j.4.B.iv. The patterns of rainfall in the region;

8.11.2.j.4.B.v. The proximity of the regulated unit to surface waters;

8.11.2.j.4.B.vi. The current and future uses of surface waters in the area and any water quality standards established for those surface waters;

8.11.2.j.4.B.vii. The existing quality of surface water, including other sources of contamination and the

cumulative impact on surface water quality;

8.11.2.j.4.B.viii. The potential for health risks caused by human exposure to waste constituents;

8.11.2.j.4.B.ix. The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and

8.11.2.j.4.B.x. The persistence and permanence of the potential adverse effects.

8.11.2.j.4.C. In making any determination under Section 8.11.2.j.4 of these regulations concerning the use of groundwater in the area around the facility, the chief will consider any identification of underground sources of drinking water and exempted aquifers made under Title 46, Water Resources Board, Series 9 (46 C.S.R. 9).

8.11.3. Monitoring, Testing, and Inspection.

8.11.3.a. During and immediately after construction or installation, liners and cover systems must be inspected for uniformity, damage, and imperfections (e.g., holes, cracks, thin spots, and foreign materials).

8.11.3.a.1. Synthetic liners and covers (e.g., membranes, sheets, or coatings) must be inspected to ensure tight seams and joints and the absence of tears, punctures, or blisters.

8.11.3.a.2. Soil-based and admixed liners and covers must be tested for compaction density, moisture content, and permeability and inspected for imperfections including lenses, cracks, channels, root holes, animal borings, or other structural nonuniformities that may cause an increase in the permeability of the liner or cover.

8.11.3.a.3. Upon discovery of any imperfections, damage, or nonuniformities, the repair of the liner must be completed prior to placement of the wastes into the landfill.

8.11.3.a.4. Any repair to the liner must be certified by a registered professional engineer.

8.11.3.b. While a landfill is in operation, it must be inspected weekly and after storms to detect evidence of any of the following:

8.11.3.b.1. Deterioration, malfunctions, or improper operation of run-on and runoff control systems;

8.11.3.b.2. The presence of liquids in leak detection systems which were installed to comply with Section 8.11.2 of

these regulations;

8.11.3.b.3. Proper functioning of wind dispersal control systems, where present; and

8.11.3.b.4. The presence of leachate in and proper functioning of leachate collection and removal systems, where present.

8.11.3.c. If liquid leaks into the leachate detection system, the owner or operator must:

8.11.3.c.1. Immediately notify the chief through the ~~Division of Water Resources~~ Division's Emergency Notification Number 1-800-642-3074 and follow with written notification within seven (7) days of detecting the leak;

8.11.3.c.2. Within fifteen (15) days after detecting leak, submit to the chief a written report of the problem and corrective measures taken;

8.11.3.c.3. Within a period of time specified in the permit; remove accumulated liquid, repair or replace the liner which is leaking to prevent the migration of liquids through the liner, and obtain a certification from a registered professional engineer that, to the best of his knowledge and opinion, the leak has been stopped; and

8.11.3.c.4. File a report including all technical drawings and information detailing the repair or liner replacement work accomplished immediately after repairs are completed.

8.11.3.d. The chief will specify in the permit all conditions for design and operation that are necessary to ensure that the requirements of Section 8.11.3 of these regulations are satisfied.

8.11.4. Liner System Repairs; Contingency Plans.

8.11.4.a. Whenever there is any indication of a possible failure of the liner system, that system must be inspected in accordance with the provisions of that system's evaluation and repair plan required by Section 8.11.4.d of these regulations. Indications of possible failure of the liner system include at least liquid detected in the leachate detection system, apparent or potential deterioration of the liner(s) based on observation or test samples of the liner materials, any mishandling of wastes placed in the landfill, and foreign objects in the landfill.

8.11.4.b. Whenever there is a positive indication of a failure of the liner system, the landfill must be removed from service. Indications of positive failure of the liner system include waste detected in the leachate detection system or a

breach (e.g., a hole, tear, crack, or separation) in the liner system.

8.11.4.c. If the landfill must be removed from service as required by Section 8.11.4.b of these regulations, the owner or operator must:

8.11.4.c.1. Immediately stop the addition of wastes into the landfill;

8.11.4.c.2. Immediately contain any leakage which has occurred or is occurring;

8.11.4.c.3. Immediately cause the leak to be stopped;

8.11.4.c.4. If the leak cannot be stopped by any other means, remove the waste from the landfill;

8.11.4.c.5. Immediately notify the chief through the ~~Division--of--Water--Resources~~ Division's Emergency Notification Number 1-800-642-3074; and

8.11.4.c.6. Within fifteen (15) days after detecting leak, submit to the chief a written report of the problem and corrective measures taken.

8.11.4.d. As part of the contingency plan required in Section 8.4 of these regulations, the owner or operator must specify:

8.11.4.d.1. A procedure for complying with the requirements of Section 8.11.4.c of these regulations; and

8.11.4.d.2. A liner system evaluation and repair plan describing testing and monitoring techniques; procedures to be followed to evaluate the integrity of the liner system in the event of a possible failure; a schedule of actions to be taken in the event of a possible failure; and a description of the repair techniques to be used in the event of leakage due to liner system failure or deterioration which does not require the landfill to be removed from service.

8.11.4.e. No landfill that has been removed from service in accordance with Section 8.11.4.b of these regulations may be restored to service unless:

8.11.4.e.1. The liner system has been repaired; and

8.11.4.e.2. The liner system has been re-certified by a registered professional engineer as meeting the design specifications approved in the permit.

8.11.4.f. A landfill that has been removed from service

in accordance with Section 8.11.4.b of these regulations and that is not being repaired must be closed in accordance with Section 8.11.11 of these regulations.

8.11.4.g. All wastes removed from the landfill must be managed as a hazardous waste in compliance with all applicable requirements. Any point source discharge to waters--of--the--State State waters is subject to the requirements of the State Water Pollution Control Act and all regulations promulgated thereunder.

8.11.5. (Reserved).

8.11.6. (Reserved).

8.11.7. (Reserved).

8.11.8. (Reserved).

8.11.9. (Reserved).

8.11.10. Surveying and Record Keeping. The owner or operator of a landfill must maintain the following items in the operating record required under Section 8.5.4 of these regulations:

8.11.10.a. On a map, the exact location and dimensions, including depth of each cell with respect to permanently surveyed reference points established from USGS or USCG benchmarks; and

8.11.10.b. The contents by hazardous waste type and quantity of each cell and the approximate location and quantity of each hazardous waste type within each cell.

8.11.11. Closure and Post-Closure.

8.11.11.a. At final closure of the landfill or upon closure of any cell, the owner or operator must cover the landfill or cell with a final cover designed and constructed to:

8.11.11.a.1. Provide long-term minimization of migration of liquids through the closed landfill;

8.11.11.a.2. Function with minimum maintenance;

8.11.11.a.3. Promote drainage and minimize erosion or abrasion of the cover;

8.11.11.a.4. Accommodate settling and subsidence so that the cover's integrity is maintained; and

8.11.11.a.5. Have a permeability less than or equal to the least permeable component of the liner system or 1×10^{-7} cm/sec, whichever value is less.

8.11.11.b. During construction or installation, cover systems must be inspected for uniformity, damage, and imperfections (e.g., holes, cracks, thin spots, or foreign materials).

8.11.11.b.1. Synthetic covers (e.g., membranes, sheets, or coatings) must be inspected to ensure tight seams and joints and the absence of tears, punctures, or blisters.

8.11.11.b.2. Soil-based and admixed covers must be tested for compaction density, moisture content, and permeability and inspected for imperfections including lenses, cracks, channels, root holes, animal borings, or other structural nonuniformities that may cause an increase in the permeability of the cover.

8.11.11.b.3. Upon discovery of any imperfections, damage, or nonuniformities, the repair of the cover must be completed before final closure is authorized.

8.11.11.b.4. Any repair to the cover system must be certified by an independent registered professional engineer.

8.11.11.c. After final closure, the owner or operator must comply with all post-closure requirements contained in Sections 8.6.7, 8.6.8, and 13 of these regulations including maintenance and monitoring throughout the post-closure period (specified in the permit under Section 8.6.7 of these regulations). The owner or operator must:

8.11.11.c.1. Maintain the integrity and effectiveness of the final cover, including making repairs to the cover as necessary to correct the effect of settling, subsidence, erosion, or other events. Any repair to the cover system must be certified by a registered professional engineer as meeting the design specifications approved in the permit;

8.11.11.c.2. Maintain and monitor the leachate detection system in accordance with Section 8.11.3 of these regulations where such a system is present between double liner systems;

8.11.11.c.3. Continue to operate the leachate collection and removal system for the entire post-closure period and until leachate is no longer detected;

8.11.11.c.4. Maintain and monitor the groundwater monitoring system and comply with all other applicable requirements of Section 8.13 of these regulations;

8.11.11.c.5. Prevent run-on and runoff from eroding or otherwise damaging the final cover; and

8.11.11.c.6. Protect and maintain surveyed benchmarks or reference points used in complying with Section 8.11.10 of these regulations.

8.11.11.d. During the post-closure period, if liquid leaks into a leachate detection system installed under Section 8.11.2 of these regulations, the owner or operator must:

8.11.11.d.1. Immediately notify the chief through the ~~Division of Water--Resources~~ ^{Division's} Emergency Notification Number 1-800-642-3074 ~~followed~~ ^{and} follow with written notification within seven (7) days of detecting the leak;

8.11.11.d.2. Within fifteen (15) days after detecting the leak, submit to the chief a written report of the problem and corrective measures taken;

8.11.11.d.3. Begin remedial actions set forth in the contingency plan specified in the permit which shall at least include removing the accumulated liquid and begin corrective action to stop any leak and minimize the potential of possible groundwater contamination by some means within the time period prescribed;

8.11.11.d.4. Manage as hazardous waste in accordance with all regulations governing the generation of such waste, the liquid removed from the detection system unless the owner or operator can demonstrate otherwise; and

8.11.11.d.5. Obtain a certification from a registered professional engineer that to the best of his knowledge and opinion, the leak has been stopped and that all necessary work and repairs has been completed to prevent or minimize any potential for groundwater contamination.

8.11.12. (Reserved).

8.11.13. Special Requirements for Ignitable or Reactive Waste.

8.11.13.a. Except as provided in Section 8.11.13.b of these regulations, and in Section 8.11.17, ignitable or reactive waste must not be placed in a landfill unless the waste is treated, rendered, or mixed before or immediately after placement in a landfill so that:

8.11.13.a.1. The resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive waste under Section 3.3.2 or Section 3.3.4 of these regulations; and

8.11.13.a.2. Section 8.2.8.b of these regulations is complied with.

8.11.13.b. Non-liquid ignitable wastes in containers may be landfilled without meeting the requirements of Section 8.11.13.a of these regulations, provided that the wastes are disposed of in such a way that they are protected from any material or conditions which may cause them to ignite. At a minimum, ignitable wastes must be disposed of in non-leaking containers which are carefully handled and placed so as to avoid heat, sparks, rupture, or any other condition that might cause ignition of the wastes; must be covered after placement with soil or other noncombustible material to minimize the potential for ignition of the wastes; and must not be disposed of in cells that contain or will contain other wastes which may generate heat sufficient to cause ignition of the waste.

8.11.14. Special Requirements for Incompatible Wastes. Incompatible wastes, or incompatible wastes and other materials, (see Appendix X of these regulations for examples) must not be placed in the same landfill cell, unless Section 8.2.8.b of these regulations is complied with.

8.11.15. Restrictions on Liquid Waste.

8.11.15.a. Bulk or noncontainerized liquid waste or waste containing free liquids must not be placed in a landfill unless:

8.11.15.a.1. The landfill has a liner and leachate collection and removal system that meet the requirements of Section 8.11.2 of these regulations; or

8.11.15.a.2. Before disposal the liquid waste or waste containing free liquids is treated, solidified and stabilized -- chemically or physically -- so that free liquids are no longer present.

8.11.15.b. Containers holding free liquids must not be placed in a landfill unless:

8.11.15.b.1. The container is very small, such as an ampule; and

8.11.15.b.2. The container is placed in an overpack over-packed drum (lab pack) as defined in Section 8.11.17 of these regulations and is disposed of in accordance with Section 8.11.17 of these regulations.

8.11.16. Special Requirements for Containers. Containers must be either:

8.11.16.a. At least ninety percent (90%) full when placed in the landfill; or

8.11.16.b. Crushed, shredded, or similarly reduced in

volume to the maximum practical extent before burial in the landfill.

8.11.17. Disposal of Small Containers of Hazardous Waste in Over-Packed Drums (Lab Packs). Small containers of hazardous waste may be placed in a landfill if the following requirements are met:

8.11.17.a. Hazardous waste must be packaged in non-leaking containers. The inside containers must be of a design and constructed of a material that will not react dangerously or otherwise with, be decomposed by, or be ignited by the contained waste. The inside containers must be tightly and securely sealed. The inside containers must be of the size and type specified in the DOT hazardous materials regulations (49 C.F.R. Parts 173, 178, and 179), if those regulations specify a particular inside container for the waste.

8.11.17.b. The inside containers must be packed in an open head DOT specification metal shipping container (49 C.F.R. Parts 178 and 179) of no more than 416 liter (110 gallon) capacity and surrounded by, at a minimum, a sufficient quantity of absorbent material to completely absorb all of the liquid contents of the inside containers. The metal outer container must be full after packing with inside containers and absorbent material.

8.11.17.c. The absorbent material used must not be capable of reacting dangerously or otherwise with, being decomposed by, or being ignited by the contents of the inside containers in accordance with Section 8.2.2.b of these regulations.

8.11.17.d. Incompatible wastes, as defined in Section 2 of these regulations, must not be placed in the same outside container.

8.11.17.e. Reactive wastes, other than cyanide or sulfide bearing wastes as defined in Section 3.3.4.a.5 of these regulations must be treated or rendered nonreactive prior to packaging in accordance with Sections 8.11.17.a through 8.11.17.d of these regulations. Cyanide and sulfide bearing reactive waste may be packed in accordance with Sections 8.11.17.a through 8.11.17.d of these regulations without first being treated or rendered nonreactive.

8.11.18. Addition of New Wastes. Prior to approval of a permit modification for the addition of wastes not already authorized in the permit, the waste must be tested to determine its compatibility with the waste(s) already present and with the liner materials to determine if it will have any detrimental effects (e.g., causes cracks, dissolution, decreased mechanical strength, or increased permeability).

- 8.11.19---(Reserved)-
- 8.11.20---(Reserved)-
- 8.11.21---(Reserved)-
- 8.11.22---(Reserved)-
- 8.11.23---(Reserved)-
- 8.11.24---(Reserved)-
- 8.11.25---(Reserved)-
- 8.11.26---(Reserved)-
- 8.11.27---(Reserved)-
- 8.11.28---(Reserved)-
- 8.11.29---(Reserved)-
- 8.11.30---(Reserved)-
- 8.11.31---(Reserved)-
- 8.11.32---(Reserved)-
- 8.11.33---(Reserved)-
- 8.11.34---(Reserved)-
- 8.11.35---(Reserved)-
- 8.11.36---(Reserved)-
- 8.11.37---(Reserved)-
- 8.11.38---(Reserved)-
- 8.11.39---(Reserved)-
- 8.11.40---(Reserved)-

8.12. Land Treatment.

8.12.1. Applicability. The regulations in Section 8.12 of these regulations apply to owners and operators of facilities that treat or dispose of hazardous waste in land treatment units, except as Section 8.1 of these regulations provides otherwise.

8.12.2. Treatment Program.

8.12.2.a. An owner or operator subject to Section 8.12 of these regulations must establish a land treatment program that is designed to ensure that hazardous constituents placed in or on the treatment zone are degraded, transformed, or immobilized within the treatment zone. The chief will specify in the facility permit the elements of the treatment program, including:

8.12.2.a.1. The wastes that are capable of being treated at the unit based on a demonstration under Section 8.12.3 of these regulations;

8.12.2.a.2. Design measures and operating practices necessary to maximize the success of degradation, transformation, and immobilization processes in the treatment zone in accordance with Section 8.12.4.a of these regulations; and

8.12.2.a.3. Unsaturated zone monitoring provisions meeting the requirements of Section 8.12.9 of these regulations.

8.12.2.b. The chief will specify in the facility permit the hazardous constituents that must be degraded, transformed, or immobilized under Section 8.12 of these regulations. Hazardous constituents are constituents identified in Appendix VIII of these regulations that are reasonably expected to be in, or derived from, waste placed in or on the treatment zone.

8.12.2.c. The chief will specify the vertical and horizontal dimensions of the treatment zone in the facility permit. The treatment zone is the portion of the unsaturated zone below and including the land surface in which the owner or operator intends to maintain the conditions necessary for effective degradation, transformation, or immobilization of hazardous constituents. The maximum depth of the treatment zone must be:

8.12.2.c.1. No more than 1.5 meters (5 feet) from the initial soil surface; and

8.12.2.c.2. More than 1.5 meters (5 feet) above the seasonal high water table.

8.12.3. Treatment Demonstration.

8.12.3.a. For each waste that will be applied to the treatment zone, the owner or operator must demonstrate, prior to application of the waste, that hazardous constituents in the waste can be completely degraded, transformed, or immobilized in the treatment zone.

8.12.3.b. In making this demonstration, the owner or operator may use field tests, laboratory analyses, available data, or, in the case of existing units, operating data. If the owner or operator intends to conduct field tests or laboratory analyses

in order to make the demonstration required under Section 8.12.3.a of these regulations, he must obtain a treatment or disposal permit under Section 11 of these regulations. The chief will specify in this permit the testing, analytical, design, and operating requirements (including the duration of the tests and analyses and, in the case of field tests, the horizontal and vertical dimensions of the treatment zone, monitoring procedures, closure, and clean-up activities) necessary to meet the requirements in Section 8.12.3.c of these regulations.

8.12.3.c. Any field test or laboratory analysis conducted in Section 8.12.3.b of these regulations order to make a demonstration under Section 8.12.3.a of these regulations must:

8.12.3.c.1. Accurately simulate the characteristics and operating conditions for the proposed land treatment unit including:

8.12.3.c.1.A. The characteristics of the waste (including the presence of Appendix VIII constituents);

8.12.3.c.1.B. The climate in the area;

8.12.3.c.1.C. The topography of the surrounding area;

8.12.3.c.1.D. The characteristics of the soil in the treatment zone (including depth); and

8.12.3.c.1.E. The operating practices to be used at the unit;

8.12.3.c.2. Be likely to show that hazardous constituents in the waste to be tested will be completely degraded, transformed, or immobilized in the treatment zone of the proposed land treatment unit; and

8.12.3.c.3. Be conducted in a manner that protects human health and the environment considering:

8.12.3.c.3.A. The characteristics of the waste to be tested;

8.12.3.c.3.B. The operating and monitoring measures taken during the course of the test;

8.12.3.c.3.C. The duration of the test;

8.12.3.c.3.D. The volume of waste used in the test; and

8.12.3.c.3.E. In the case of field tests, the potential for migration of hazardous constituents to groundwater

or surface water.

8.12.4. Design and Operating Requirements. The chief will specify in the facility permit how the owner or operator will design, construct, operate, and maintain the land treatment unit in compliance with Section 8.12 of these regulations.

8.12.4.a. The owner and operator must design, construct, operate, and maintain the unit to maximize the degradation, transformation, and immobilization of hazardous constituents in the treatment zone. The owner or operator must design, construct, operate, and maintain the unit in accord with all design and operating conditions that were used in the treatment demonstration under Section 8.12.2 of these regulations. At a minimum, the chief will specify the following in the facility permit:

8.12.4.a.1. The rate and method of waste application to the treatment zone;

8.12.4.a.2. Measures to control soil pH;

8.12.4.a.3. Measures to enhance microbial or chemical reactions (e.g., fertilization or tilling); and

8.12.4.a.4. Measures to control the moisture content of the treatment zone.

8.12.4.b. The owner or operator must design, construct, operate, and maintain the treatment zone to minimize runoff of hazardous constituents during the active life of the land treatment unit.

8.12.4.c. The owner or operator must design, construct, operate, and maintain a run-on control system capable of preventing flow onto the treatment zone during peak discharge from at least a 25-year, 24-hour storm.

8.12.4.d. The owner or operator must design, construct, operate, and maintain a runoff management system to collect and control at least the water volume resulting from a 25-year, 24-hour storm.

8.12.4.e. Collection and holding facilities (e.g., tanks or basins) associated with run-on and runoff control systems must be emptied or otherwise managed expeditiously after storms to maintain the design capacity of the system.

8.12.4.f. If the treatment zone contains particulate matter which may be subject to wind dispersal, the owner or operator must manage the unit to control wind dispersal.

8.12.4.g. The owner or operator must manage the unit to control the wind dispersal of aerosols or vapors during waste

application.

8.12.4.h. The owner or operator must inspect the unit weekly and after any precipitation event to detect evidence of:

8.12.4.h.1. Deterioration, malfunctions, or improper operation of run-on and runoff control systems; and

8.12.4.h.2. Improper functioning of wind dispersal control measures.

8.12.5. (Reserved).

8.12.6. (Reserved).

8.12.7. Food Chain Crops.

8.12.7.a. The chief may allow the growth of food chain crops in or on the treatment zone only if the owner or operator satisfies the conditions of Section 8.12 of these regulations. The chief will specify in the facility permit the specific food chain crops which may be grown.

8.12.7.a.1. The owner or operator must demonstrate that there is no substantial risk to human health caused by the growth of such crops in or on the treatment zone by demonstrating, prior to the planting of such crops, that hazardous constituents other than cadmium:

8.12.7.a.1.A. Will not be transferred to the food or feed portions of the crop by plant uptake or direct contact, and will not otherwise be ingested by food chain animals (e.g., by grazing); or

8.12.7.a.1.B. Will not occur in greater concentrations in or on the food or feed portions of crops grown on the treatment zone than in or on identical portions of the same crops grown on untreated soils under similar conditions in the same region.

8.12.7.a.2. The owner or operator must make the demonstration required under ~~Section 8-12-7~~ Section 8.12.7.a.1 of these regulations prior to the planting of crops at the facility for all constituents identified in Appendix VIII of these regulations that are reasonably expected to be in, or derived from, waste placed in or on the treatment zone.

8.12.7.a.3. In making a demonstration under ~~Section 8-12-7~~ Section 8.12.7.a.1 of these regulations, the owner, or operator may use fieldtests, greenhouse studies, available data, or, in the case of existing units, operating data, and must:

8.12.7.a.3.A. Base the demonstration on conditions

similar to those present in the treatment zone, including soil characteristics (e.g., pH or cation exchange capacity), specific wastes, application rates, application methods, and crops to be grown; and

8.12.7.a.3.B. Describe the procedures used in conducting any tests, including the sample selection criteria, sample size, analytical methods, and statistical procedures.

8.12.7.a.4. If the owner or operator intends to conduct field tests or greenhouse studies in order to make the demonstration required under ~~Section 8.12.7~~ Section 8.12.7.a.1 of these regulations, he must obtain a permit for conducting such activities.

~~8.12.7.b~~ 8.12.7.a.5. The owner or operator must comply with the following conditions if cadmium is contained in wastes applied to the treatment zone:

~~8.12.7.b-1-A~~ 8.12.7.a.5.A.i. The pH of the waste and soil mixture must be 6.5 or greater at the time of each waste application, except for waste containing cadmium at concentrations of 2 mg/kg (dry weight) or less;

~~8.12.7.b-1-B~~ 8.12.7.a.5.A.ii. The annual application of cadmium from waste must not exceed 0.44 lbs/acre on land used for production of tobacco, leafy vegetables, root crops, or other food chain crops grown for human consumption.

~~8.12.7.b-1-C~~ 8.12.7.a.5.A.iii. The cumulative application of cadmium from waste must not exceed 4.46 lbs/acre if the waste and soil mixture has a pH of less than 6.5; and

~~8.12.7.b-1-D~~ 8.12.7.a.5.A.iv. If the waste and soil mixture has a pH of 6.5 or greater or is maintained at a pH of 6.5 or greater during crop growth, the cumulative application of cadmium from waste must not exceed: 4.46 lbs/acre if soil cation exchange capacity (CEC) is less than 5 meq/100g; 8.92 lbs/acre if soil CEC is 5-15 meq/100g; and 17.84 lbs/acre if soil CEC is greater than 15 meq/100g; or

~~8.12.7.b-2-A~~ 8.12.7.a.5.B.i. Animal feed must be the only food chain crop produced;

~~8.12.7.b-2-B~~ 8.12.7.a.5.B.ii. The pH of the waste and soil mixture must be 6.5 or greater at the time of waste application or at the time the crop is planted, whichever occurs later, and this pH level must be maintained whenever food chain crops are grown;

~~8.12.7.b-2-C~~ 8.12.7.a.5.B.iii. There must be an operating plan which demonstrates how the animal feed will be distributed to preclude ingestion by humans. The operating plan

must describe the measures to be taken to safeguard against possible health hazards from cadmium entering the food chain, which may result from alternative land uses; and

~~8.12.7.b.2.D~~ 8.12.7.a.5.B.iv. Future property owners must be notified by a stipulation in the land record or property deed which states that the property has received waste at high cadmium application rates and that food chain crops must not be grown except in compliance with ~~Section--8.12.7.b.2~~ the provisions of Section 8.12.7.a.5.B of these regulations.

8.12.8. (Reserved).

8.12.9. Unsaturated Zone Monitoring. An owner or operator subject to Section 8.12 of these regulations must establish an unsaturated zone monitoring program to discharge the following responsibilities:

8.12.9.a. The owner or operator must monitor the soil and soil-pore liquid to determine whether hazardous constituents migrate out of the treatment zone.

8.12.9.a.1. The chief will specify the hazardous constituents to be monitored in the facility permit. The hazardous constituents to be monitored are those specified under Section 8.12.2 of these regulations.

8.12.9.a.2. The chief may require monitoring for principal hazardous constituents (PHCs) in lieu of the constituents specified under Section 8.12.2.b of these regulations. PHCs are hazardous constituents contained in the wastes to be applied at the unit that are the most difficult to treat considering the combined effects of degradation, transformation, and immobilization. The chief will establish PHCs if he finds, based on waste analyses, treatment demonstrations, or other data, that effective degradation, transformation, or immobilization of the PHCs will assure treatment to at least equivalent levels for the other hazardous constituents in the wastes.

8.12.9.b. The owner or operator must install an unsaturated zone monitoring system that includes soil monitoring using soil cores and soil-pore liquid monitoring using devices such a lysimeters. The unsaturated zone monitoring system must consist of a sufficient number of sampling points at appropriate locations and depths to yield samples that:

8.12.9.b.1. Represent the quality of background soil-pore liquid quality and the chemical make-up of soil that has not been affected by leakage from the treatment zone; and

8.12.9.b.2. Indicate the quality of soil-pore liquid and the chemical make-up of the soil below the treatment zone.

8.12.9.c. The owner or operator must establish a background value for each hazardous constituent to be monitored under Section 8.12.9.a of these regulations. The permit will specify the background values for each constituent or specify the procedures to be used to calculate the background values.

8.12.9.c.1. The background soil values may be based on a one-time sampling at a background plot having characteristics similar to those of the treatment zone.

8.12.9.c.2. Background soil-pore liquid values must be based on at least quarterly sampling for one year at a background plot having characteristics similar to those of the treatment zone.

8.12.9.c.3. The owner or operator must express all background values in a form necessary for the determination of statistically significant increases under Section 8.12.9.f of these regulations.

8.12.9.c.4. In taking samples used in the determination of all background values, the owner or operator must use an unsaturated zone monitoring system that complies with Section 8.12.9.b.1 of these regulations.

8.12.9.d. The owner or operator must conduct soil monitoring and soil-pore liquid monitoring immediately below the treatment zone. The chief will specify the frequency and timing of soil and soil-pore liquid monitoring in the facility permit after considering the frequency, timing, and rate of waste application and the soil permeability. The owner or operator must express the results of soil and soil-pore liquid monitoring in a form necessary for the determination of statistically significant increases under Section 8.12.9.f of these regulations.

8.12.9.e. The owner or operator must use consistent sampling and analysis procedures that are designed to ensure sampling results that provide a reliable indication of soil-pore liquid quality and the chemical make-up of the soil below the treatment zone. At a minimum, the owner or operator must implement procedures and techniques for:

8.12.9.e.1. Sample collection;

8.12.9.e.2. Sample preservation and shipment;

8.12.9.e.3. Analytical procedures; and

8.12.9.e.4. Chain of custody control.

8.12.9.f. The owner or operator must determine whether there is a statistically significant change over background values for any hazardous constituent to be monitored under Section

8.12.9.a of these regulations below the treatment zone each time he conducts soil monitoring and soil-pore liquid monitoring under Section 8.12.9.d of these regulations.

8.12.9.f.1. In determining whether a statistically significant increase has occurred, the owner or operator must compare the value of each constituent, as determined under Section 8.12.9.d of these regulations, to the background value for that constituent according to the statistical procedure specified in the facility permit under Section 8.12.9 of these regulations.

8.12.9.f.2. The owner or operator must determine whether there has been a statistically significant increase below the treatment zone within a reasonable time period after completion of sampling. The chief will specify that the time period in the facility permit after considering the complexity of the statistical test and the availability of laboratory facilities to perform the analysis of soil and soil-pore liquid samples.

8.12.9.f.3. The owner or operator must determine whether there is a statistically significant increase below the treatment zone using a statistical procedure that provides reasonable confidence that migration from the treatment zone will be identified. The chief will specify a statistical procedure in the facility permit that he finds:

8.12.9.f.3.A. Is appropriate for the distribution of the data used to establish background values; and

8.12.9.f.3.B. Provides a reasonable balance between the probability of falsely identifying migration from the treatment zone and the probability of failing to identify real migration from the treatment zone.

8.12.9.g. If the owner or operator determines, pursuant to Section 8.12.9.f of these regulations, that there is a statistically significant increase of hazardous constituents below the treatment zone, he must:

8.12.9.g.1. Notify the chief of this finding in writing within seven (7) days. The notification must indicate what constituents have shown statistically significant increases; and

8.12.9.g.2. Within forty-five (45) days, submit to the chief an application for a permit modification to modify the operating practices at the facility in order to maximize the success of degradation, transformation, or immobilization processes in the treatment zone.

8.12.9.h. If the owner or operator determines, pursuant to Section 8.12.9.f of these regulations, that there is a statistically significant increase of hazardous constituents below

the treatment zone, he may demonstrate that the increase resulted from an error in sampling, analysis, or evaluation. While the owner or operator may make a demonstration under Section 8.12.9 of these regulations in addition to, or in lieu of, submitting a permit modification application under Section 8.12.9.g.2 of these regulations, he is not relieved of the requirement to submit a permit modification application within the time specified in Section 8.12.9.g.2 of these regulations unless the demonstration made Section 8.12.9 of these regulations successfully shows that the increase resulted from an error in sampling, analysis, or evaluation. In making a demonstration under Section 8.12.9 of these regulations, the owner or operator must:

8.12.9.h.1. Notify the chief in writing within seven (7) days of determining a statistically significant increase below the treatment zone that he intends to make a determination under Section 8.12.9 of these regulations;

8.12.9.h.2. Within forty-five (45) days, submit a report to the chief demonstrating that the increase resulted from error in sampling, analysis, or evaluation;

8.12.9.h.3. Within forty-five (45) days, submit to the chief an application for a permit modification to make any appropriate changes to the unsaturated zone monitoring program at the facility; and

8.12.9.h.4. Continue to monitor in accord with the unsaturated zone monitoring program established under Section 8.12 of these regulations.

8.12.10. Record Keeping. The owner or operator must include hazardous waste application dates and rates in the operating record required under Section 8.5.4 of these regulations.

8.12.11. Closure and Post-Closure Care.

8.12.11.a. During the closure period the owner or operator must:

8.12.11.a.1. Continue all operations (including pH control) necessary to maximize degradation, transformation, or immobilization of hazardous constituents within the treatment zone as required under Section 8.12.4.a of these regulations, except to the extent such measure are inconsistent with ~~Section~~ Section 8.12.11.a.8 of these regulations;

8.12.11.a.2. Continue all operations in the treatment zone to minimize runoff of hazardous constituents as required under Section 8.12.4.b of these regulations;

8.12.11.a.3. Maintain the run-on control system

required under Section 8.12.4.c of these regulations;

8.12.11.a.4. Maintain the runoff management system required under Section 8.12.4.d of these regulations;

8.12.11.a.5. Control wind dispersal of hazardous waste if required under Section 8.12.4.f of these regulations;

8.12.11.a.6. Continue to comply with any prohibitions or conditions concerning growth of food chain crops under Section 8.12.7 of these regulations;

8.12.11.a.7. Continue unsaturated zone monitoring in compliance with Section 8.12.9 of these regulations, except that soil-pore liquid monitoring may be terminated ninety (90) days after the last application of waste to the treatment zone; and

8.12.11.a.8. Establish a vegetative cover on the portion of the facility being closed at such time that the cover will not substantially impede degradation, transformation, or immobilization of hazardous constituents in the treatment zone. The vegetative cover must be capable of maintaining growth without extensive maintenance.

8.12.11.b. For the purpose of complying with Section 8.6.6 of these regulations, when closure is completed the owner or operator may submit to the chief certification by an independent qualified soil scientist, in lieu of an independent registered professional engineer, that the facility has been closed in accordance with the specifications in the approved closure plan.

8.12.11.c. During the post-closure care period the owner or operator must:

8.12.11.c.1. Continue all operations (including pH control) necessary to enhance degradation and transformation and sustain immobilization of hazardous constituents in the treatment zone to the extent that such measures are consistent with other post-closure care activities;

8.12.11.c.2. Maintain a vegetative cover over closed portions of the facility;

8.12.11.c.3. Maintain the run-on control system required under Section 8.12.4.c of these regulations;

8.12.11.c.4. Maintain the runoff management system required under Section 8.12.4.d of these regulations;

8.12.11.c.5. Control wind dispersal of hazardous waste if required under Section 8.12.4.f of these regulations;

8.12.11.c.6. Continue to comply with any prohibitions

or conditions concerning growth of food chain crops under Section 8.12.7 of these regulations; and

8.12.11.c.7. Continue unsaturated zone monitoring in compliance with Section 8.12.9 of these regulations except that soil-pore liquid monitoring may be terminated ninety (90) days after the last application of waste to the treatment zone.

8.12.11.d. The owner or operator is not subject to regulation under Section 8.12.11.a.8 and 8.12.11.c of these regulations if the chief finds that the level of hazardous constituents in the treatment zone soil does not exceed the background value of those constituents by an amount that is statistically significant when using the test specified in Section 8.12.11.d.3 of these regulations. The owner or operator may submit such a demonstration to the chief or at any time during the closure or post-closure care periods. For the purposes of Section 8.12.11 of these regulations:

8.12.11.d.1. The owner or operator must establish background soil values and determine whether there is a statistically significant increase over those values for all hazardous constituents specified in the facility permit under Section 8.12.2.b of these regulations.

8.12.11.d.1.A. Background soil values may be based on a one-time sampling of a background plot having characteristics similar to those of the treatment zone.

8.12.11.d.1.B. The owner or operator must express background values and values for hazardous constituents in the treatment zone in a form necessary for the determination of statistically significant increases under Section 8.12.11.d.3 of these regulations.

8.12.11.d.2. In taking samples used in the determination of background and treatment zone values, the owner or operator must take samples at a sufficient number of sampling points and at appropriate locations and depths to yield samples that represent the chemical make-up of soil that has not been affected by leakage from the treatment zone and the soil within the treatment zone, respectively.

8.12.11.d.3. In determining whether a statistically significant increase has occurred, the owner or operator must compare the value of each constituent in the treatment zone to the background value for that constituent using a statistical procedure that provides reasonable confidence that constituent presence in the treatment zone will be identified. The owner or operator must use a statistical procedure that:

8.12.11.d.3.A. Is appropriate for the distribution of the data used to establish background values; and

8.12.11.d.3.B. Provides a reasonable balance between the probability of falsely identifying hazardous constituent presence in the treatment zone and the probability of failing to identify real presence in the treatment zone.

8.12.11.e. The owner or operator is not subject to regulation under Section 8.13 of these regulations if the chief finds that the owner or operator satisfies Section 8.12.11.d of these regulations and if unsaturated zone monitoring under Section 8.12.9 of these regulations indicates that hazardous constituents have not migrated beyond the treatment zone during the active life of the land treatment unit.

8.12.12. Special Requirements for Ignitable or Reactive Waste. The owner or operator must not apply ignitable or reactive waste to the treatment zone unless:

8.12.12.a. The waste is immediately incorporated into the soil so that:

8.12.12.a.1. The resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive waste under Section 3.3.2 or Section 3.3.4 of these regulations; and

8.12.12.a.2. Section 8.2.8.b of these regulations is complied with; or

8.12.12.b. The waste is managed in such a way that it is protected from any material or conditions which may cause it to ignite or react.

8.12.13. Special Requirements for Incompatible Wastes. The owner or operator must not place incompatible wastes, or incompatible wastes and other materials (see Appendix X of these regulation for examples), in or on the same treatment zone, unless Section 8.2.8.b of these regulations is complied with.

~~8.12.14. (Reserved).~~

~~8.12.15. (Reserved).~~

~~8.12.16. (Reserved).~~

~~8.12.17. (Reserved).~~

~~8.12.18. (Reserved).~~

~~8.12.19. (Reserved).~~

~~8.12.20. (Reserved).~~

~~8.12.21. (Reserved).~~

8-12-22---(Reserved)-

8-12-23---(Reserved)-

8-12-24---(Reserved)-

8-12-25---(Reserved)-

8-12-26---(Reserved)-

8-12-27---(Reserved)-

8-12-28---(Reserved)-

8-12-29---(Reserved)-

8-12-30---(Reserved)-

8.13. Groundwater Protection.

8.13.1. Applicability.

8.13.1.a. Except as provided in Section 8.13.1.b of these regulations, the regulations in Section 8.13 of these regulations apply to owners and operators of facilities that treat, store, or dispose of hazardous waste in surface impoundments, waste piles, land treatment units, ~~or--landfills~~ landfills, or miscellaneous units. The owner or operator must satisfy the requirements of Section 8.13 of these regulations for all wastes (or constituents thereof) contained in any such waste management unit at the facility that receives hazardous waste after the effective date of Section 8.13 of these regulations (hereinafter referred to as a "regulated unit"). Any waste or waste constituent migrating beyond the waste management area under Section 8.13.5.b of these regulations is assumed to originate from a regulated unit unless the chief finds that such waste or waste constituent originated from another source.

8.13.1.b. The owner or operator is not subject to regulation under Section 8.13 of these regulations if:

8.13.1.b.1. He is exempted under Section 8.1 of these regulations;

8.13.1.b.2. He designs and operates a pile in compliance with Section 8.10.1.c of these regulations; or

8.13.1.b.3. The chief finds, pursuant to Section 8.12.11.d of these regulations, that the treatment zone of a land treatment unit does not contain concentrations of hazardous constituents that are above background levels of those constituents by an amount that is statistically significant, and if an unsaturated zone monitoring program meeting the requirements

of Section 8.12.9 of these regulations has not shown a statistically significant increase in hazardous constituents below the treatment zone during the operating life of the unit. An exemption under Section 8.13.1 of these regulations can only relieve an owner or operator of responsibility to meet the requirements of Section 8.13 of these regulations during the post-closure care period.

8.13.1.c. The regulations under Section 8.13 of these regulations apply during the active life of the regulated unit (including the closure period). After closure of the regulated unit, the regulations in Section 8.13 of these regulations:

8.13.1.c.1. Do not apply if all waste, waste residues, contaminated containment system components, and contaminated subsoils are removed or decontaminated at closure.

8.13.1.c.2. Apply during the post-closure period under Section 8.6.7 of these regulations in all other cases.

8.13.2. Required Programs.

8.13.2.a. Owners and operators subject to Section 8.13 of these regulations must conduct a monitoring and corrective action program as follows:

8.13.2.a.1. Whenever the groundwater protection standards in Title 46, Water Resources Board, Series 7, Section 1 (46 C.S.R. 7 §1) are exceeded, the owner or operator must institute a corrective action program under Section 8.13.9 of these regulations.

8.13.2.a.2. In all other cases, the owner or operator must institute a groundwater monitoring program under Section 8.13.8 of these regulations.

8.13.2.b. In order to prevent potential adverse effects on human health and the environment that might occur before final administrative action on a permit modification application to incorporate such a program could be taken, the owner or operator must institute each of these programs when they are required under Section 8.13.2.a of these regulations. The owner or operator must specify in the permit application the specific elements of the groundwater monitoring system and the elements of the corrective action program identified in Section 8.13.2.a of these regulations. These will be included in the permit application as contingency plans and shall be accompanied by an engineering feasibility plan for the corrective action program. The corrective action program must, at a minimum, include the following information:

8.13.2.b.1. A description of corrective actions that will achieve compliance with the groundwater protection standards

in Title 46, Water Resources Board, Series 7, Section 1 (46 C.S.R. 7 §1); and

8.13.2.b.2. A plan for a groundwater monitoring program that will demonstrate the effectiveness of the corrective action. Such a groundwater monitoring program may be based on a groundwater monitoring program developed to meet the requirements of Section 8.13.8 of these regulations.

8.13.3. (Reserved).

8.13.4. Hazardous Constituents. The chief will specify in the permit the hazardous constituents to which the groundwater protection standards in Title 46, Water Resources Board, Series 7, Section 1 (46 C.S.R. 7 §1) apply. Hazardous constituents are constituents identified in Appendix VIII of these regulations or constituents that caused the director to list the hazardous waste in Section 3.4 of these regulations or constituents listed in Table II of these regulations, that are reasonably expected to be in or derived from waste contained in a regulated unit or that have been detected in groundwater in the uppermost aquifer underlying a regulated unit.

8.13.5. Point of Compliance.

8.13.5.a. The chief will specify in the permit the point of compliance at which the groundwater protection standards in Title 46, Water Resources Board, Series 7, Section 1 (46 C.S.R. 7 §1) apply and at which monitoring must be conducted. The point of compliance is a vertical surface located at the hydraulically downgradient limit of the waste management area that extends through the uppermost aquifer underlying the regulated unit or as the chief specifies in the permit.

8.13.5.b. The waste management area is the limit projected in the horizontal plan of the area on which waste will be placed during the active life of a regulated unit.

8.13.5.b.1. The waste management area includes horizontal space taken up by any liner, dike, or other barrier designed to contain waste in a regulated unit.

8.13.5.b.2. If the facility contains more than one regulated unit, the waste management area may be proposed in the permit application to be described by an imaginary line circumscribing the several regulated units. The chief will determine whether such a proposal is acceptable based on the distance between the regulated units and the wastes contained in each unit.

8.13.6. Compliance Period.

8.13.6.a. The compliance period is the active life of

the waste management area, the closure period and the post-closure period.

8.13.6.b. The compliance period begins when the owner or operator initiates a groundwater monitoring program meeting the requirements of Section 8.13.8 of these regulations.

8.13.6.c. If the owner or operator is engaged in a corrective action program at the end of the compliance period specified in Section 8.13.6.a of these regulations, the compliance period is extended until the owner or operator can demonstrate that the groundwater protection standards in Title 46, Water Resources Board, Series 7, Section 1 (46 C.S.R. 7 §1) have not been exceeded for a period of three (3) consecutive years.

8.13.7. Groundwater Monitoring System Requirements. The owner or operator must comply with the following requirements for any groundwater monitoring program:

8.13.7.a. The groundwater monitoring system must consist of a sufficient number of wells installed at appropriate locations and depth to yield groundwater samples from the uppermost aquifer that:

8.13.7.a.1. Represent the quality of background groundwater that has not been affected by leakage from the regulated unit; and

8.13.7.a.2. Represent the quality of groundwater passing the point of compliance.

8.13.7.b. Well construction must meet the following standards:

8.13.7.b.1. Wells must be cased in a manner that maintains the integrity of the monitoring well bore hole;

8.13.7.b.2. Wells must be screened and packed with sand or gravel throughout the total vertical distance of the uppermost aquifer except as provided under Section 8.13.7.c of these regulations. The screened interval of an individual well should not exceed twenty (20) feet (screened intervals greater than twenty (20) feet may be permitted if the owner or operator can successfully demonstrate that the proposed interval will provide representative samples; such demonstration must be based on specific hydrogeologic conditions at the facility). In order to meet these requirements for screened intervals, nested wells or well clusters may be needed;

8.13.7.b.3. Screening shall be designed to prevent the introduction of sediment, yet allow optimum entrance velocity for water;

8.13.7.b.4. Screens and casing must be constructed of materials that are strong enough to prevent collapse and must be nonreactive, non-synergistic and noncatalytic to the hazardous constituents being monitored;

8.13.7.b.5. The annular space (i.e., the space between the bore hole wall and the well casing) above the sampling depth must be sealed to prevent contamination of samples and groundwater by entrance of materials from the surface; and

8.13.7.b.6. The wells must be installed, constructed, and maintained using the best available techniques which will provide compliance with Section 8.13.7.b of these regulations.

8.13.7.c. In locations where multiple formations comprise the uppermost aquifer the owner or operator must establish a groundwater monitoring system that isolates each stratum containing water and allows for separate sampling of each stratum containing water.

8.13.7.d. If a facility contains more than one regulated unit, separate groundwater monitoring systems may not be required for each regulated unit provided that provisions for sampling the groundwater in the uppermost aquifer will enable detection and measurement at the point of compliance of hazardous constituents from the regulated units that have entered the groundwater in the uppermost aquifer. Requests to use such a monitoring system must be submitted in the permit application as required under Section 8.13.5.b.2 of these regulations.

8.13.8. Groundwater Monitoring Program. An owner or operator required to establish a groundwater monitoring program must, at a minimum, discharge the following responsibilities:

8.13.8.a. General requirements:

8.13.8.a.1. The owner or operator must monitor for indicator parameters (e.g., pH, specific conductance, total organic carbon, or total organic halogen), hazardous constituents under Section 8.13.4 of these regulations or reaction products or both that provide a reliable indication of the presence of hazardous constituents in groundwater. The chief will specify the monitoring parameters (i.e., indicator parameters or reaction products or both) and constituents to be monitored in the permit, after considering the following factors:

8.13.8.a.1.A. The types, quantities, and concentrations of hazardous constituents in wastes managed at the regulated unit;

8.13.8.a.1.B. The mobility, stability, and persistence of hazardous constituents or their reaction products in the unsaturated zone beneath the waste management area;

8.13.8.a.1.C. The detectability of indicator parameters, hazardous constituents, and reaction products in groundwater; and

8.13.8.a.1.D. The concentrations and coefficients of variation of proposed monitoring parameters of hazardous constituents in the background groundwater.

8.13.8.a.2. The owner or operator must install a groundwater monitoring system at the point of compliance under Section 8.13.5 of these regulations. The groundwater monitoring system must comply with Section 8.13.7 of these regulations.

8.13.8.a.3. The groundwater monitoring program must include consistent sampling and analysis procedures that are designed to ensure monitoring results that provide a reliable indication of groundwater quality below the waste management area. At a minimum the program must include procedures and techniques for:

8.13.8.a.3.A. Sample collection;

8.13.8.a.3.B. Sample preservation and shipment;

8.13.8.a.3.C. Analytical procedures; and

8.13.8.a.3.D. Chain of custody control.

8.13.8.a.4. The groundwater monitoring program must include sampling and analytical methods that are appropriate for groundwater sampling and that accurately measure hazardous constituents in groundwater samples. Recommended methods include those outlined in 40 C.F.R. Part 136. The proposed sampling and analytical methods must be approved by the chief and upon approval, become a condition of the hazardous waste management permit.

8.13.8.a.5. The owner or operator must determine the groundwater flow rate and direction in the uppermost aquifer at least annually and determine transmissibility during initial sampling or initial well development.

8.13.8.a.6. The groundwater monitoring program must include a determination of the static water level and groundwater surface elevation each time groundwater is sampled.

8.13.8.a.7. If the owner or operator determines that the groundwater monitoring program no longer satisfies the requirements of Section 8.13.8.a of these regulations, he must, within ninety (90) days, submit an application for a permit modification to make any appropriate changes to the program.

8.13.8.a.8. The owner or operator must assure that

monitoring and corrective action measures necessary to achieve compliance with the the groundwater protection standards in Title 46, Water Resources Board, Series 7, Section 1 (46 C.S.R. 7 §1) are taken during the term of the permit.

8.13.8.a.9. The groundwater monitoring wells must be sampled to allow detection of density separated hazardous constituents or monitoring parameters which may escape from the regulated unit.

8.13.8.b. Establishing water quality concentrations:

8.13.8.b.1. The groundwater monitoring program must establish background groundwater quality concentrations for each of the hazardous constituents or monitoring parameters specified in the permit.

8.13.8.b.1.A. The background concentration for a hazardous constituent must be based on data from upgradient wells.

8.13.8.b.1.B. Samples shall be obtained from upgradient well(s) each time downgradient wells are sampled. Downgradient concentrations of hazardous constituents or monitoring parameters shall be compared with upgradient concentrations to determine whether the upgradient background concentrations have been exceeded.

8.13.8.b.1.C. In comparing concentrations of hazardous constituents or monitoring parameters at the point of compliance with background concentrations, the owner or operator shall use the background concentration values for the current quarter. At least four (4) background concentration values collected as required under Section 8.13.8.b.1.E of these regulations must be used when utilizing the statistical test outlined in Section 8.13.8.c of these regulations.

8.13.8.b.1.D. The owner or operator may propose to the chief to use background concentrations of hazardous constituents or monitoring parameters based on sampling of wells that are not upgradient from the waste management area where sampling at other wells will provide values that are as representative or more representative than those provided by the upgradient wells or in situations where the owner or operator cannot define or locate an upgradient well due to adverse hydrogeologic conditions. The owner or operator must submit the details of such a proposal to the chief for his approval. The reasons for the proposal to utilize wells that are not upgradient must be included with the proposal.

8.13.8.b.1.E. In developing the data base used to determine a background concentration for each monitoring parameter or hazardous constituent, the owner or operator must take a minimum of four (4) samples from each well and a minimum of four

(4) samples from the entire system used to determine background groundwater quality, each time the system is sampled.

8.13.8.b.2. The owner or operator must determine the concentration of each hazardous constituent and monitoring parameter at each monitoring well at the point of compliance and each upgradient well at least quarterly during the compliance period. Intervals between sampling and the frequency of sampling will be specified in the permit. The owner or operator must express the concentrations of each hazardous constituent and monitoring parameter at each monitoring well in a form necessary for the determination of statistically significant increases under Section 8.13.8.c of these regulations.

8.13.8.c. Statistical method. The owner or operator must use the following statistical procedure in determining whether the groundwater protection standards in Title 46, Water Resources Board, Series 7, Section 1 (46 C.S.R. 7 §1) have been exceeded.

8.13.8.c.1. If, in a groundwater monitoring program, the concentration of a hazardous constituent or monitoring parameter at the point of compliance is to be compared to its respective background concentration and both the background concentration data set and the point of compliance monitoring well concentration data set have been determined to be normally distributed by an appropriate method approved by the chief:

8.13.8.c.1.A. The owner or operator must take at least four (4) samples at each well at the point of compliance and determine whether any increase between the mean concentration of each constituent at each well (using all samples taken) and the background concentration value for the constituent is significant at the 0.05 level using the Cochran's Approximation to the Behren-Fisher Student's t-test as described in Appendix-XI-of-these regulations 40 C.F.R. Part 264, Appendix IV. If the test indicates that the increase is significant, the owner or operator must repeat the same procedure (with at least the same number of samples as used in the first test) using fresh samples from the monitoring well. If this second round of analyses indicates that the increase is significant, the owner or operator must conclude that a statistically significant increase has occurred; or

8.13.8.c.1.B. The owner or operator may request in writing for authorization to use an equivalent statistical procedure for determining whether a statistically significant increase has occurred. The chief will specify such a procedure in the permit if he finds that the alternative procedure reasonably balances the probability of falsely identifying a non-contaminating regulated unit and the probability of failing to identify a contaminating regulated unit in a manner that is comparable to that of the statistical procedure described in Section 8.13.8.c.1.A of these regulations. This alternative

procedure must be appropriate for the distribution of the data.

8.13.8.c.2. In all other situations in a groundwater monitoring program the owner or operator must use a statistical procedure which provides a reasonable balance of the probability of falsely identifying a non-contaminating regulated unit and the probability of failing to identify a contaminating regulated unit. The Mann-Whitney Test (see ~~Appendix--XII~~ Appendix XI of these regulations) is recommended. The owner or operator must supply to the chief a written request to use such a statistical procedure, completely describing the details of the procedure and the reasons for using it.

8.13.8.c.3. The chief will approve statistical procedures in specific cases where he finds the procedure:

8.13.8.c.3.A. Is appropriate for the distribution of the data used to establish concentration values; and

8.13.8.c.3.B. Provides a reasonable balance between the probability of falsely identifying a non-contaminating regulated unit and the probability of failing to identify a contaminating regulated unit.

8.13.8.c.4. In taking samples used in the determination of concentration values, the owner or operator must use a groundwater monitoring system that complies with Section 8.13.7 of these regulations and which fulfills the requirements of Section 8.13.8 of these regulations.

8.13.8.d. Determination of significant increases.

8.13.8.d.1. The owner or operator must determine whether there is a statistically significant increase over background concentration values for any monitoring parameter or hazardous constituent specified in the permit pursuant to Section 8.13.8.a.1 of these regulations each time he determines the concentration of hazardous constituents or monitoring parameters in the groundwater at the point of compliance under Section 8.13.8.b.2 of these regulations.

8.13.8.d.1.A. In determining whether a statistically significant increase has occurred, the owner or operator must compare the concentration of each hazardous constituent and monitoring parameter at each individual monitoring well at the point of compliance to the background concentration value for that parameter or constituent, according to the statistical procedure specified under Section 8.13.8.c of these regulations.

8.13.8.d.1.B. The owner or operator must determine whether there has been a statistically significant increase at each monitoring well at the point of compliance. This will be

done within the time period after completion of sampling specified in the permit. The chief will specify that time period, after considering the complexity of the statistical test and the availability of laboratory facilities to perform the analysis of groundwater samples.

8.13.8.d.2. If the owner or operator determines, pursuant to Section 8.13.8.d.1 of these regulations, that there is a statistically significant increase in the concentrations of any monitoring parameter or hazardous constituents specified pursuant to Section 8.13.8.a.1 of these regulations at any monitoring well at the point of compliance, he must:

8.13.8.d.2.A. Notify the chief of this finding in writing within seven (7) days. The notification must indicate what monitoring parameter(s) or hazardous constituent(s) have shown statistically significant increases;

8.13.8.d.2.B. Immediately sample the groundwater in all monitoring wells and determine the concentration of all constituents identified in ~~Appendix--VIII~~ Appendix XIV of these regulations that are present in groundwater;

8.13.8.d.2.C. Establish a background value for each ~~Appendix--VIII~~ constituent that has been found at the compliance point under Section 8.13.8.d.2.B of these regulations as follows:

8.13.8.d.2.C.i. The owner or operator must comply with Section 8.13.8.b of these regulations in developing the data base used to determine background values;

8.13.8.d.2.C.ii. The owner or operator must express background values in a form necessary for the determination of statistically significant increases under Section 8.13.8.c of these regulations; and

8.13.8.d.2.C.iii. In taking samples used in the determination of background values, the owner or operator must use a groundwater monitoring system that complies with Sections 8.13.7.a through 8.13.7.d of these regulations;

8.13.8.d.2.D. Within sixty (60) days submit to the chief a written report including the following information:

8.13.8.d.2.D.i. Any proposed changes to the groundwater monitoring system at the facility necessary to meet the requirements of Section 8.13.9 of these regulations;

8.13.8.d.2.D.ii. 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 Section 8.13.9 of these regulations;

8.13.8.d.2.D.iii. An identification of the concentration of ~~any-Appendix-VIII-constituents~~ each constituent found in the groundwater at each monitoring well at the compliance point; and

8.13.8.d.2.D.iv. If such changes are proposed under Sections 8.13.8.d.2.D.i and 8.13.8.d.2.D.ii of these regulations, then an application for permit modification must be submitted, with the report, pursuant to Section 11.17 of these regulations; and

8.13.8.d.2.E. If the owner or operator determines, pursuant to Section 8.13.8.d.1 of these regulations, that there is a statistically significant increase in the concentrations of hazardous constituents specified pursuant to Section 8.13.8.a.1 of these regulations at any monitoring well at the point of compliance, thereby violating the groundwater protection standards in Title 46, Water Resources Board, Series 7, Section 1 (46 C.S.R. 7 §1), must comply with the provisions of the corrective action program specified in the permit, unless the chief determines that a demonstration made under Section 8.13.8.d.3 of these regulations successfully shows that a source other than the regulated unit caused the increase or that the increase resulted from an error in sampling, analysis, or evaluation.

8.13.8.d.3. If the owner or operator determines, pursuant to Section 8.13.8.d.1 of these regulations, that the groundwater protection standards in Title 46, Water Resources Board, Series 7, Section 1 (46 C.S.R. 7 §1) are being exceeded at any monitoring well at the point of compliance, he may demonstrate that a source other than a regulated unit caused the increase or that the increase resulted from error in sampling, analysis or evaluation. In making a demonstration under Section 8.13.8.d.3 of these regulations, the owner or operator must:

8.13.8.d.3.A. Notify the chief in writing within seven (7) days that he intends to make a demonstration under Section 8.13.8.d.3 of these regulations;

8.13.8.d.3.B. Within sixty (60) days, submit a written report to the chief which demonstrates that a source other than a regulated unit caused the standard to be exceeded or that the apparent noncompliance with the standards resulted from error in sampling, analysis, or evaluation;

8.13.8.d.3.C. Within ninety (90) days, submit to the chief an application for a permit modification to make any appropriate changes to the groundwater monitoring program at the facility; and

8.13.8.d.3.D. Continue to monitor in accord with the groundwater monitoring program established under Section 8.13.8 of these regulations.

8.13.9. Corrective Action Program. An owner or operator, required to establish a corrective action program under Section 8.13 of these regulations must, at a minimum, discharge the following responsibilities:

8.13.9.a. The owner or operator must take corrective action to ensure that regulated units are in compliance with the groundwater protection standards in Title 46, Water Resources Board, Series 7, Section 1 (46 C.S.R. 7 §1).

8.13.9.b. The owner or operator must implement a corrective action program that prevents hazardous constituents from exceeding their respective background concentrations in groundwater by removing the hazardous constituents from the groundwater. The contingency plan in the permit will specify the specific measure that will be taken.

8.13.9.c. The owner or operator must begin corrective action within the time period specified in the permit contingency plan after the groundwater protection standards in Title 46, Water Resources Board, Series 7, Section 1 (46 C.S.R. 7 §1) are exceeded.

~~8.13.9.d.1.~~ 8.13.9.d. In conjunction with a corrective action program, the owner or operator must establish and implement a groundwater monitoring program to demonstrate the effectiveness of the corrective action program. Such a monitoring program may be based on the requirements for a groundwater monitoring program under Section 8.13.8 of these regulations and must be as effective as that program in determining compliance with the groundwater protection standards in Title 46, Water Resources Board, Series 7, Section 1 (46 C.S.R. 7 §1).

~~8.13.9.d.2. The owner or operator must analyze samples from all monitoring wells for all constituents contained in Appendix VIII of these regulations at least once prior to terminating the corrective action program to determine if there is a need for further corrective action. The owner or operator shall report the results of full Appendix VIII sample analyses to the chief within seven (7) days after completion of the analyses.~~

8.13.9.e. In addition to the other requirements of Section 8.13.9 of these regulations, the owner or operator must conduct a corrective action program to remove any hazardous constituents under Section 8.13.4 of these regulations that exceed their respective background concentrations in groundwater at the point of compliance under Section 8.13.6 of these regulations or between the point of compliance and the downgradient facility property boundary. The contingency plans submitted in the permit application will specify the measures to be taken.

8.13.9.e.1. Corrective action measures under Section 8.13.9.e of these regulations must be initiated and completed

within a reasonable time considering the extent of contamination.

8.13.9.e.2. The owner or operator must analyze samples from all monitoring wells for all constituents contained in Appendix XIV of these regulations at least once prior to terminating the corrective action program to determine if there is a need for further corrective action. The owner or operator shall report the results of full Appendix XIV sample analyses to the chief within seven (7) days after completion of the analyses.

~~8.13.9.e.2~~ 8.13.9.e.3. Corrective action measures under Section 8.13.9.e of these regulations may be terminated once the concentration of hazardous constituents under Section 8.13.4 is reduced to levels below their respective background concentrations.

8.13.9.f. The owner or operator must continue corrective action measures during the compliance period to the extent necessary to ensure that the groundwater protection standards in Title 46, Water Resources Board, Series 7, Section 1 (46 C.S.R. 7 §1) are not exceeded. If the owner or operator is conducting corrective action at the end of the compliance period, he must continue that corrective action for as long as necessary to achieve compliance with the above standard. The owner or operator may terminate corrective action measures taken beyond the compliance period if he can demonstrate, based on data from the groundwater monitoring program under Section 8.13.9.d of these regulations, that the groundwater protection standards in Title 46, Water Resources Board, Series 7, Section 1 (46 C.S.R. 7 §1) have not been exceeded for a period of three (3) consecutive years.

8.13.9.g. The owner or operator must report in writing to the chief on the effectiveness of the corrective action program. The owner or operator must submit these reports semiannually.

8.13.9.h. If the owner or operator determines that the corrective action program no longer satisfies the requirements of Section 8.13.9 of these regulations, he must, within sixty (60) days submit an application for a permit modification to make any appropriate changes to the program.

8.13.9.i. If the owner or operator elects to pursue a corrective action program other than that outlined in the permit contingency plan, he must notify the chief of his decision, in writing, within fifteen (15) days of the determination made under Section 8.13.8.d of these regulations. The owner or operator must obtain approval to implement any alternate corrective action plan from the chief and begin implementation of such plan, within ninety (90) days of the determination made under Section 8.13.8.d of these regulations. If the alternate plan is not approved or in effect within ninety (90) days, the owner or operator must

immediately begin implementation of the original corrective action program outlined in the permit contingency plan.

8.13.9.j. If the chief determines that groundwater quality has been affected by a regulated unit prior to or upon receipt of a Part B application, the owner or operator shall be required to implement a corrective action program immediately upon issuance of the permit.

8-13-10---(Reserved)-

8-13-11---(Reserved)-

8-13-12---(Reserved)-

8-13-13---(Reserved)-

8-13-14---(Reserved)-

8-13-15---(Reserved)-

8-13-16---(Reserved)-

8-13-17---(Reserved)-

8-13-18---(Reserved)-

8-13-19---(Reserved)-

8-13-20---(Reserved)-

8.14. Miscellaneous Units.

8.14.1. Applicability. The regulations in Section 8.14 of these regulations apply to owners and operators of facilities that treat, store, or dispose of hazardous waste in miscellaneous units, except as Section 8.1 of these regulations provides otherwise.

8.14.2. Environmental Performance Standards. A miscellaneous unit must be located, designed, constructed, operated, maintained, and closed in a manner that will ensure protection of human health and the environment. Permits for miscellaneous units are to contain such terms and provisions as necessary to protect human health and the environment including, but not limited to, as appropriate, design and operating requirements, detection and monitoring requirements, and requirements for responses to releases of hazardous waste or hazardous constituents from the unit. Permit terms and provisions shall include those requirements of Sections 8.7 through 8.12 and 11 of these regulations and of Title 45, Air Pollution Control Commission, Series 25 (45 C.S.R. 25) that are appropriate for the miscellaneous unit being permitted. Protection of human health

and the environment includes, but is not limited to:

8.14.2.a. Prevention of any releases that may have adverse effects on human health or the environment due to migration of waste constituents in the groundwater or subsurface environment, considering:

8.14.2.a.1. The volume and the physical and chemical characteristics of the waste in the unit, including its potential for migration through soil, liners, or other containing structures;

8.14.2.a.2. The hydrologic and geologic characteristics of the unit and the surrounding area;

8.14.2.a.3. The existing quality of groundwater, including other sources of contamination and their cumulative impact on the groundwater;

8.14.2.a.4. The quantity and direction of groundwater flow;

8.14.2.a.5. The proximity to and withdrawal rates of current and potential groundwater users;

8.14.2.a.6. The patterns of land use in the region;

8.14.2.a.7. The potential for deposition or migration of waste constituents into subsurface physical structures, and into the root zone of food chain crops and other vegetation;

8.14.2.a.8. The potential for health risks caused by human exposure to waste constituents; and

8.14.2.a.9. The potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents;

8.14.2.b. Prevention of any releases that may have adverse effects on human health or the environment due to migration of waste constituents in surface water, in wetlands, or on the soil surface, considering:

8.14.2.b.1. The volume and physical and chemical characteristics of the waste in the unit;

8.14.2.b.2. The effectiveness and reliability of containing, confining, and collecting systems and structures in preventing migration;

8.14.2.b.3. The hydrologic characteristics of the unit and the surrounding area, including the topography of the land around the unit;

8.14.2.b.4. The patterns of precipitation in the region;

8.14.2.b.5. The quantity, quality, and direction of groundwater flow;

8.14.2.b.6. The proximity of the unit to surface waters;

8.14.2.b.7. The current and potential uses of nearby surface waters and any water quality standards established for those surface waters;

8.14.2.b.8. The existing quality of surface waters and surface soils, including other sources of contamination and their cumulative impact on surface waters and surface soils;

8.14.2.b.9. The patterns of land use in the region;

8.14.2.b.10. The potential for health risks caused by human exposure to waste constituents; and

8.14.2.b.11. The potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and

8.14.2.c. Prevention of any release that may have adverse effects on human health or the environment due to migration of waste constituents in the air, considering:

8.14.2.c.1. The volume and the physical and chemical characteristics of the waste in the unit, including its potential for the emission and dispersal of gases, aerosols, and particulates;

8.14.2.c.2. The effectiveness and reliability of systems and structures to reduce or prevent emissions of hazardous constituents to the air;

8.14.2.c.3. The operating characteristics of the unit;

8.14.2.c.4. The atmospheric, meteorologic, and topographic characteristics of the unit and the surrounding area;

8.14.2.c.5. The existing quality of the air, including other sources of contamination and their cumulative impact on the air;

8.14.2.c.6. The potential for health risks caused by human exposure to waste constituents; and

8.14.2.c.7. The potential for damage to domestic

animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents.

8.14.3. Monitoring, Analysis, Inspection, Response, Reporting, and Corrective Action. Monitoring, testing, analytical data, inspections, response, and reporting procedures and frequencies must ensure compliance with Sections 8.2.6, 8.3.4, 8.5.6, 8.5.7, 8.5.8, and 8.14.1 of these regulations and with 40 C.F.R. 264.101 as well as meet any additional requirements needed to protect human health and the environment as specified in the permit.

8.14.4. Post-Closure Care. A miscellaneous unit that is a disposal unit must be maintained in a manner that complies with Section 8.14.2 of these regulations during the post-closure care period. In addition, if a treatment or storage unit has contaminated soils or groundwater that cannot be completely removed or decontaminated during closure, then that unit must also meet the requirements of Section 8.14.2 of these regulations during post-closure care. The post-closure plan under Section 8.6.8 of these regulations must specify the procedures that will be used to satisfy this requirement.

§47-35-9. Standards for Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities.

9.1. (Reserved).

9.2. (Reserved).

9.3. Recyclable Materials Used in a Manner Constituting Disposal.

9.3.1. Applicability.

9.3.1.a. ~~Section 9.3.1~~ Section 9.3 of these regulations applies to recyclable materials that are applied to or placed on the land:

9.3.1.a.1. Without mixing with any other substances;

9.3.1.a.2. After mixing with any other substances that are not hazardous wastes, unless the recyclable material undergoes a chemical reaction so as to become inseparable from the other substances by physical means; or

9.3.1.a.3. After combination with any other substances if the resulting combined material is not produced for the general public's use.

9.3.1.a.4. The materials identified in Sections 9.3.1.a.1 through 9.3.1.a.3 of these regulations will be referred to throughout Section 9 of these regulations as "materials used in a manner that constitutes disposal."

9.3.1.b. Products produced for the general public's use that are used in a manner that constitutes disposal and that contain recyclable materials are not presently subject to these regulations if the recyclable materials have undergone chemical reaction in the course of producing the product so as to become inseparable by physical means. Commercial fertilizers that are produced for the general public's use that contain recyclable material also are not presently subject to these regulations.

9.3.2. Standards Applicable to Generators and Transporters of Materials Used in a Manner That Constitutes Disposal.

9.3.2.a. Generators and transporters of materials that are used in a manner that constitutes disposal are subject to ~~applicable-requirements~~ all applicable provisions of Sections 4, 5, and 6 of these regulations as well as the applicable provisions of Title 157, Department of Highways, Series 7 (157 C.S.R. 7) and Title 150, Public Service Commission, Series 11 (150 C.S.R. 11).

9.3.3. Standards Applicable to Storers of Materials That are to be Used in a Manner That Constitutes Disposal Who are not the Ultimate Users.

9.3.3.a. Owners or operators of facilities that store recyclable materials that are to be used in a manner that constitutes disposal, but who are not the ultimate users of the materials, are regulated under all applicable provisions of Sections 4, 8, 11, and 13 of these regulations. ~~and--Subparts--A through--E--of--40--C.F.R.--Part--265~~

9.3.4. Standards Applicable to Users of Materials That are Used in a Manner That Constitutes Disposal.

9.3.4.a. Owners or operators of facilities that use recyclable materials in a manner that constitutes disposal are subject to all applicable provisions of Sections 4, 8, 11, and 13 of these regulations. ~~and--Subparts--A--through--N--of--40--C.F.R.--Part 265--These-requirements-do-not-apply-to-products-which-contain these-recyclable-materials-under-the-provisions-of-Sections 9.3.1-b-of-these-regulations-~~

Note: Section 9.3.1.b of these regulations exempts certain products containing recyclable materials from regulation.

9.4. Hazardous Waste Burned for Energy Recovery.

9.4.1. Applicability.

9.4.1.a. The provisions of Section 9.4 of these regulations apply to hazardous wastes that are burned for energy recovery in any boiler or industrial furnace, except as provided by Section 9.4.1.b of these regulations. Such hazardous wastes burned for energy recovery are termed "hazardous waste fuel."

~~However, hazardous waste fuels produced from hazardous waste by blending or other treatment by a person who neither generated the waste nor burns the fuel are not subject to regulation at the present time. Fuel produced from hazardous waste by processing, blending, or other treatment is also hazardous waste fuel.~~

9.4.1.b. The following hazardous wastes are not regulated under Section 9.4 of these regulations:

9.4.1.b.1. Used oil burned for energy recovery that is also a hazardous waste solely because it exhibits a characteristic of hazardous waste identified in Section 3.3 of these regulations. ~~Such used oil is subject to regulation under Section 9.5 of these regulations rather than under the regulations of Section 9.4 of these regulations.~~ Such used oil is subject to regulation under Subpart E of 40 C.F.R. Part 266 rather than under the provisions of Section 9.4 of these regulations.

9.4.1.b.2. Wastes that are exempt from regulation under the provisions of Section 3.1.3.b of these regulations and hazardous wastes that are subject to the special requirements for conditionally exempt small quantity generators under the provisions of Section 10 of these regulations.

9.4.2. Prohibitions. (Reserved).

~~9.4.3. Standards Applicable to Generators of Hazardous Waste Fuel.~~

~~9.4.3.a. Generators of hazardous waste fuel are subject to the requirements of Section 6 of these regulations except that Section 9.4.7 of these regulations exempts certain spent materials and by-products from these provisions.~~

~~9.4.3.b. Generators who are marketers also must comply with Section 9.4.5 of these regulations.~~

~~9.4.3.c. Generators who are burners also must comply with Section 9.4.6 of these regulations.~~

9.4.3. Standards Applicable to Generators of Hazardous Waste Fuel.

9.4.3.a. Generators of hazardous waste fuel are subject to the requirements of Section 6 of these regulations.

9.4.3.b. Generators of hazardous waste fuel who are also marketers are subject to the requirements of Sections 6 and 9.4.5 of these regulations.

9.4.3.c. Generators of hazardous waste fuel who are also burners are subject to the requirements of Sections 6 and 9.4.6 of these regulations.

Note: Section 9.4.7 of these regulations exempts certain spent materials and by-products from regulation.

9.4.4. Standards Applicable to Transporters of Hazardous Waste Fuel.

9.4.4.a. Transporters of hazardous waste fuel from generator to marketer, or from a generator to a burner are subject to the requirements of either Section 5 of these regulations or the applicable regulations of the West Virginia Department of Highways or Public Service Commission of West Virginia regarding hazardous waste transporters, except that Section 9.4.7 of these regulations exempts certain spent materials and by-products from these provisions.

9.4.4. Standards Applicable to Transporters of Hazardous Waste Fuel.

9.4.4.a. Transporters of hazardous waste fuel are subject to:

9.4.4.a.1. The requirements of Section 5 of these regulations for transportation by air or water;

9.4.4.a.2. The requirements of Title 157, Department of Highways, Series 7 (157 C.S.R. 7) for transportation by highway; or

9.4.4.a.3. The requirements of Title 150, Public Service Commission, Series 11 (150 C.S.R. 11) for transportation by rail.

Note: Section 9.4.7 of these regulations exempts certain spent materials and by-products from regulation.

9.4.5. Standards Applicable to Marketers of Hazardous Waste Fuel. Persons who market hazardous waste fuel are called "marketers." Marketers include generators who market hazardous waste fuel directly to a burner and persons who receive hazardous waste fuel from generators and produce, process, or blend hazardous waste fuel from these hazardous wastes. Persons who distribute but do not process or blend hazardous waste fuel are also marketers but are not presently subject to regulation. Marketers other than distributors are subject to the following requirements:

9.4.5.a. (Reserved);

9.4.5.b. (Reserved);

9.4.5.c. Storage;

9.4.5.c.1. Marketers who are generators are subject to the requirements of Section 6.3.5 of these regulations or to

Sections 8.1 through 8.10, 8.13, 11, and 13 of these regulations or 40 C.F.R. Part 224, Subparts A through B of 40 C.F.R. Part 265, and Part 270, except as provided by Section 9.4.7 of these regulations for certain spent materials and by-products.

9.4.5.e.2. Marketers who receive hazardous wastes from generators, and produce, process, or blend hazardous waste fuel from these hazardous wastes, are subject to regulation under all applicable provisions of Sections 8.1 through 8.10, 8.13, 11, and 13 of these regulations or 40 C.F.R. Part 224, Subparts A through B of 40 C.F.R. Part 265, and Part 270, except as provided by Section 9.4.7 of these regulations for certain spent materials and by-products.

9.4.5. Standards Applicable to Marketers of Hazardous Waste Fuel.

9.4.5.a. For the purposes of Section 9.4 of these regulations, "marketers" are persons who market hazardous waste fuel and include generators who market hazardous waste fuel directly to a burner and persons who receive hazardous wastes from generators and produce, process, or blend hazardous waste fuel from those hazardous wastes. Persons who distribute but do not process or blend hazardous waste fuel are also marketers but are not presently subject to regulation. Marketers other than distributors are subject to the following requirements:

9.4.5.a.1. Marketers who are generators are subject to all applicable provisions of Sections 6.3.5, 8, 11, and 13 of these regulations.

9.4.5.a.2. Marketers who receive hazardous wastes from generators and produce, process, or blend hazardous waste fuel from such hazardous wastes are subject to all applicable provisions of Sections 8, 11, and 13 of these regulations.

Note: Section 9.4.7 of these regulations exempts certain spent materials and by-products from regulation.

9.4.6. Standards Applicable to Burners of Hazardous Waste Fuel.

9.4.6.a. (Reserved).

9.4.6.b. (Reserved).

9.4.6.c. Burners that store hazardous waste fuel prior to burning are subject to the requirements of Section 6.3.5 of these regulations, or to all applicable requirements in Sections 8.1 through 8.10, 8.13, and 13 of these regulations or Subparts A through B of 40 C.F.R. Part 265, with respect to such storage, except as provided by Section 9.4.7 of these regulations for certain spent materials and by-products.

9.4.6. Standards Applicable to Burners of Hazardous Waste Fuel.

9.4.6.a. Burners who store hazardous waste fuel prior to burning are subject to all applicable provisions of Sections 6.3.5, 8, 11, and 13 of these regulations with respect to such storage.

Note: Section 9.4.7 of these regulations exempts certain spent materials and by-products from regulation.

9.4.7. Conditional Exemption for Spent Materials and By-Products Exhibiting a Characteristic of Hazardous Waste.

9.4.7.a. Except as provided in Section 9.4.7.b of these regulations, hazardous waste fuels that are spent materials and by-products and that are hazardous only because they exhibit a characteristic of hazardous waste are not subject to the notification requirements of Section 4 of these regulations or the generator, transporter, or storage requirements of the State Act.

9.4.7.b. This exemption does not apply when the spent material or by-product is stored in a surface impoundment prior to burning.

9.5. Used Oil Burned for Energy Recovery (Reserved).

9.6. Recyclable Materials Utilized for Precious Metal Recovery.

9.6.1. The regulations of Section 9.6 of these regulations apply to recyclable materials that are reclaimed to recover economically significant amounts of gold, silver, platinum, palladium, irridium, osmium, rhodium, ruthenium, or any combination of these.

~~9.6.2. Persons who generate, transport, or store recyclable materials that are subject to Section 9.6 of these regulations are subject to the following requirements:~~

~~9.6.2.a. Notification requirements of Section 4 of these regulations; and~~

~~9.6.2.b. Section 6.2 of these regulations for generators, 40 C.F.R. §§263.20 and 263.21 for transporters, and 40 C.F.R. §§265.71 and 265.72 for persons who store recyclable materials.~~

~~9.6.3. Persons who store recyclable materials that are subject to Section 9.6 of these regulations must keep the following records to document that they are not accumulating these materials speculatively (as defined in Section 3.1.1.c of these regulations):~~

~~9.6.3.a. Records showing the volume of these materials stored at the beginning of the calendar year;~~

~~9.6.3.b. The amount of these materials generated or received during the calendar year; and~~

~~9.6.3.c. The amount of these materials remaining at the end of the calendar year.~~

~~9.6.4. Recyclable materials that are regulated under Section 9.6 of these regulations that are accumulated speculatively (as defined in Section 3.1.1.e.8 of these regulations) are subject to all applicable provisions of Sections 5 through 8, 11, and 13 of these regulations and 40 C.F.R. Part 265.~~

9.6.2. Persons who generate any of the recyclable materials listed in Section 9.6.1 of these regulations are subject to the requirements of Sections 4 and 6.2 of these regulations.

9.6.3. Persons who transport by air or water any of the recyclable materials listed in Section 9.6.1 of these regulations are subject to the requirements of Sections 4 and 5 of these regulations.

9.6.4. Persons who transport by highway any of the recyclable materials listed in Section 9.6.1 of these regulations are subject to the requirements of Section 4 of these regulations and of Title 157, Department of Highways, Series 7 (157 C.S.R. 7).

9.6.5. Persons who transport by rail any of the recyclable materials listed in Section 9.6.1 of these regulations are subject to the requirements of Section 4 of these regulations and of Title 150, Public Service Commission, Series 11 (150 C.S.R. 11).

9.6.6. Persons who store any of the recyclable materials listed in Section 9.6.1 of these regulations are subject to the requirements of Sections 4, 8.5.2, and 8.5.3 of these regulations and must keep the following records to document that they are not accumulating these materials speculatively:

9.6.6.a. Records showing the volume of these materials stored at the beginning of the calendar year;

9.6.6.b. Records showing the amount of these materials generated or received during the calendar year; and

9.6.6.c. Records showing the amount of these materials remaining at the end of the calendar year.

9.6.7. Persons who generate, transport, or store any of the recyclable materials listed in Section 9.6.1 of these regulations that are accumulated speculatively, as defined in Section

3.1.1.c.8 of these regulations, are subject to all applicable provisions of Sections 4, 5, 6, 8, 11, and 13 of these regulations.

9.7. Reclaimed Spent Lead-Acid Batteries.

9.7.1. Section 9.7 of these regulations applies to persons who reclaim spent lead-acid batteries that are recyclable materials ("spent batteries"). Persons who generate, transport, or collect spent batteries, or who store spent batteries but do not reclaim them are not subject to the requirements of Sections 4 through 9, 11, or 13 of these regulations, nor 40 C.F.R. Part 265.

9.7.2. Owners or operators of facilities that store spent batteries before reclaiming them are subject to the following requirements:

9.7.2.a. The notification requirements of Section 4 of these regulations;

9.7.2.b. All applicable provisions of Sections 8.1 through 8.10 of these regulations, except Section 8.2.3 of these regulations concerning waste analysis and Sections 8.5.2 and 8.5.3 of these regulations concerning use of the manifest and manifest discrepancies, and Section 13 of these regulations;

9.7.2.c. All applicable provisions of Subpart A, Subpart B except Section 265.19 (waste analysis), Subpart C, Subpart D, Subpart E except Sections 265.71 and 265.72 (dealing with use of the manifest and manifest discrepancies), and Subparts F through H of 40 C.F.R. Part 265, and

9.7.2.d. All applicable provisions of Section 11 of these regulations.

9.7. Reclaimed Spent Lead-Acid Batteries.

9.7.1. Section 9.7 of these regulations applies to persons who reclaim spent lead-acid batteries that are recyclable materials ("spent batteries"). Persons who generate, transport, or collect spent batteries and persons who store spent batteries but do not reclaim them are not subject to the requirements of Sections 4, 5, 6, 8, 9, 11, or 13 of these regulations.

9.7.2. Owners or operators of facilities that store spent batteries before reclaiming them are subject to the following requirements:

9.7.2.a. All applicable provisions of Sections 4, 11, and 13 of these regulations; and

9.7.2.b. All applicable provisions of Sections 8.1 through 8.10 of these regulations, except Section 8.2.4 of these

regulations concerning waste analysis and Sections 8.5.2 and 8.5.3 of these regulations concerning use of the manifest and manifest discrepancies.

§47-35-10. Special Requirements for Hazardous Waste Generated by Small Quantity Generators.

10.1. Except as provided in Sections 10.1.1 through 10.1.5 of these regulations, hazardous wastes generated by small quantity generators who generate greater than one hundred (100) kilograms but less than one thousand (1,000) kilograms of hazardous wastes are subject to all provisions of these regulations.

10.1.1. Reclaimed Waste. The requirements of Section 6.2 of these regulations do not apply to hazardous waste produced by generators of greater than one hundred (100) kilograms but less than one thousand (1,000) kilograms in a calendar month where:

10.1.1.a. The waste is reclaimed under a contractual agreement pursuant to which:

10.1.1.a.1. The type of waste and frequency of shipments are specified in the agreement; and

10.1.1.a.2. The vehicle used to transport the waste to the recycling facility and to deliver regenerated material back to the generator is owned and operated by the reclaimer of the waste; and

10.1.1.b. The generator maintains a copy of the reclamation agreement in his files for a period of at least three (3) years after termination or expiration of the agreement.

10.1.2. Record Keeping. A generator who generates greater than one hundred (100) kilograms but less than one thousand (1,000) kilograms of hazardous waste in a calendar month is exempt from the requirements of Section 6.4 of these regulations except for the record keeping requirements in Sections 6.4.1.a, 6.4.1.c, 6.4.1.d and 6.4.4 of these regulations.

10.1.3. Accumulation Time; Contingency Plan and Emergency Procedures. A generator who generates greater than one hundred (100) kilograms but less than one thousand (1,000) kilograms of hazardous waste in a calendar month may accumulate hazardous waste on site for one hundred and eighty (180) days or less without a permit or without having interim status provided that:

10.1.3.a. The quantity of waste accumulated on-site never exceeds six thousand (6,000) kilograms;

10.1.3.b. The generator complies with the requirements of 40 C.F.R. §265.201 and Section 6.3.5.a.1 of these regulations, except the generator need not comply with 40 C.F.R. §265.176;

10.1.3.c. The generator complies with the requirements of Sections 6.3.5.a.2 and 6.3.5.a.4 of these regulations and the requirements of Subpart C of 40 C.F.R. Part 265; and

10.1.3.d. The generator complies with the following requirements:

10.1.3.d.1. At all times there must be at least one employee either on the premises or on call (i.e., available to respond to an emergency by reaching the facility within a short period of time) with the responsibility for coordinating all emergency response measures specified in Section 10.1.3.d.4 of these regulations. This employee is the emergency coordinator.

10.1.3.d.2. The generator must post the following information next to the telephone:

10.1.3.d.2.A. The name and telephone number of the emergency coordinator;

10.1.3.d.2.B. Location of fire extinguishers and spill control material, and, if present, fire alarm; and

10.1.3.d.2.C. The telephone number of the fire department, unless the facility has a direct alarm.

10.1.3.d.3. The generator must ensure that all employees are thoroughly familiar with proper waste handling and emergency procedures, relevant to their responsibilities during normal facility operations and emergencies.

10.1.3.d.4. The emergency coordinator or his designee must respond to any emergencies that arise. The applicable responses are as follows:

10.1.3.d.4.A. In the event of a fire, call the fire department or attempt to extinguish it using a fire extinguisher;

10.1.3.d.4.B. In the event of a spill, contain the flow of hazardous waste to the extent possible, and as soon as is practicable, clean up the hazardous waste and any contaminated materials or soil; and

10.1.3.d.4.C. In the event of a fire, explosion, or other release which could threaten human health outside the facility or when the generator has knowledge that a spill has reached surface water, the generator must immediately notify the National Response Center at 1-800-424-8802. The report must include the following information:

10.1.3.d.4.C.i. The name, address, and EPA identification number of the generator;

10.1.3.d.4.C.ii. Date, time, and type of incident (e.g., spill or fire);

10.1.3.d.4.C.iii. Quantity and type of hazardous waste involved in the incident;

10.1.3.d.4.C.iv. Extent of injuries, if any; and

10.1.3.d.4.C.v. Estimated quantity and disposition of recovered materials, if any.

10.1.4. Extended Accumulation Time. A generator who generates greater than one hundred (100) kilograms but less than one thousand (1,000) kilograms of hazardous waste in a calendar month and who must transport his waste, or offer his waste for transportation, over a distance of two hundred (200) miles or more for off-site treatment, storage, or disposal may accumulate hazardous waste on-site for two hundred and seventy (270) days or less without a permit or without having interim status provided that he complies with the requirements of Section 10.1.3 of these regulations.

10.1.5. Small Quantity Generator Storage Facilities. A generator who generates greater than one hundred (100) kilograms but less than one thousand (1,000) kilograms of hazardous waste in a calendar month and who accumulates hazardous waste in quantities exceeding six thousand (6000) kilograms or accumulates hazardous waste for more than one hundred and eighty (180) days (or for more than two hundred and seventy (270) days if he must transport his waste, or offer his waste for transportation over a distance of two hundred (200) miles or more) is an operator of a storage facility and is subject to the requirements of Section 8 of these regulations and 40 C.F.R. Part 265 and the permit requirements of Section 11 of these regulations unless he has been granted an extension to the one hundred and eighty day (180) period, or the two hundred and seventy day (270) day period if applicable. Such extension may be granted by the chief if hazardous wastes must remain on-site for longer than one hundred and eighty (180) days (or two hundred and seventy (270) days if applicable) due to unforeseen, temporary, and uncontrollable circumstances. An extension of up to thirty (30) days may be granted at the discretion of the chief on a case-by-case basis.

10.2. Special Requirements for Hazardous Wastes Generated by Conditionally Exempt Small Quantity Generators.

10.2.1. A generator is conditionally exempt small quantity generator in a calendar month if he generates no more than one hundred (100) kilograms of hazardous waste in that month.

10.2.2. Except for those wastes identified in Sections 10.2.5, 10.2.7, and 10.2.10 of these regulations, a conditionally

exempt small quantity generator's hazardous wastes are not subject to regulation under Sections 6, 8, 9, and 11 of these regulations and 40 C.F.R. Part 265, provided the generator complies with the requirements of Sections 10.2.6, 10.2.7, and 10.2.10 of these regulations.

10.2.3. Hazardous waste that is not subject to regulation or that is subject only to Sections 6.1.2, 6.1.3, 6.4.1.c, and 6.4.2 of these regulations is not included in the quantity determinations of ~~this section and Sections 6, 8, 9, and 11~~ Sections 6, 8, 9, 10.2, and 11 of these regulations and 40 C.F.R. Part 265 and is not subject to any of the requirements of those sections or part. Hazardous waste that is subject to the requirements of Sections 3.1.5.b, 3.1.5.c, 3.1.6.d, 3.1.6.e, 3.1.6.f, 9.3, 9.4, and 9.6 of these regulations is included in the quantity determination of all provisions of these regulations.

10.2.4. In determining quantity of hazardous wastes generated a generator need not include:

10.2.4.a. Hazardous waste when it is removed from on-site storage;

10.2.4.b. Hazardous waste produced by on-site treatment (including reclamation) or his hazardous waste so long as the hazardous waste that is treated was counted once; or

10.2.4.c. Spent materials that are generated, reclaimed, and subsequently reused on-site so long as such spent materials have been counted once.

10.2.5. Acutely Hazardous Wastes. If a generator generates acute hazardous waste in a calendar month in quantities greater than set forth below, all quantities of acute hazardous wastes are fully subject to these regulations:

10.2.5.a. A total of one (1) kilogram of acute hazardous waste listed in Section 3.4.4.e of these regulations; or

10.2.5.b. A total of one hundred (100) kilograms of any residue or contaminated soil, waste, or other debris resulting from the clean-up of a spill into or on any land or water of any acute hazardous wastes listed in Section 3.4.4.e of these regulations.

10.2.6. Accumulation of Hazardous Waste in Quantities Greater Than Small Quantity Amounts. A conditionally exempt small quantity generator may accumulate hazardous waste on site. If he accumulates at any time more than a total of one thousand (1,000) kilograms of his hazardous wastes or his acutely hazardous wastes in quantities greater than those set forth in Sections 10.2.5.a and 10.2.5.b of these regulations, all of those accumulated wastes for which the accumulation limit was exceeded are fully subject to

these regulations. If he accumulates at any time more than a total of one thousand (1,000) kilograms of his hazardous wastes which are not acutely hazardous, all of those accumulated wastes are subject to regulation under the special provisions of Section 10.1 of these regulations applicable to generators of between one hundred (100) kilograms and one thousand (1,000) kilograms of hazardous waste in a calendar month. The time period of Section 10.1.3 of these regulations for accumulation of wastes on-site begins for a conditionally exempt small quantity generator when the accumulated wastes exceed the applicable exclusion level for acutely hazardous wastes or when the accumulated wastes exceeds one thousand (1,000) kilograms for hazardous wastes not acutely hazardous.

10.2.7. Exclusion from Regulation. In order for hazardous waste generated by a conditionally exempt small quantity generator generating less than one hundred (100) kilograms of hazardous wastes per month or less than or equal to the quantities of acutely hazardous wastes set forth in Section 10.2.5 of these regulations to be excluded from full regulation under Section 10.2.7 of these regulations, the generator must: ~~comply-with-the following-requirements~~

10.2.7.a. Comply with the requirements of Sections 4 and 6.1.2 of these regulations;

10.2.7.b. Store on-site hazardous waste in compliance with the requirements of Section 10.2.6 of these regulations;

10.2.7.c. Establish and maintain on-site a written record specifying the quantity and types of hazardous wastes disposed of, the dates the wastes were transported off-site, and the final disposition of the wastes. This recordkeeping requirement is only applicable to manufacturing facilities listed in ~~Standard-Industrial-Classification~~ SIC Major Groups 20 through 39; and

10.2.7.d. Either treat or dispose of his hazardous waste in an on-site facility, or ensure delivery to an off-site storage, treatment, or disposal facility, either of which:

10.2.7.d.1. Is permitted under 40 C.F.R. Part 270;

10.2.7.d.2. Is in interim status under 40 C.F.R. Parts 265 and 270 or under the State Act;

10.2.7.d.3. Is permitted under Section 11 of these regulations;

10.2.7.d.4. Is authorized to manage hazardous waste by a state with a hazardous waste program approved under 40 C.F.R. Part 271;

10.2.7.d.5. Is permitted, licensed, or registered by a state other than West Virginia to manage municipal or industrial solid waste;

10.2.7.d.6. Beneficially uses or re-uses, or legitimately recycles or reclaims, his waste; or

10.2.7.d.7. Treats his waste prior to beneficial use or re-use or legitimate recycling or reclamation.

10.2.8. Hazardous waste subject to the reduced requirements of Section 10.2 of these regulations may be mixed with nonhazardous waste and remain subject to these reduced requirements even though the resultant mixture exceeds the quantity limitations identified in Section 10.2 of these regulations, unless the mixture meets any of the characteristics of hazardous wastes identified in Section 3.3 of these regulations.

10.2.9. If any person mixes a waste with a hazardous waste that exceeds a quantity exclusion level of Section 10.2 of these regulations, the mixture is subject to full regulation.

10.2.10. If a conditionally exempt small quantity generator's wastes are mixed with used oil, the mixture is subject to Section 9.5 of these regulations if it is destined to be burned for energy recovery. Any material produced from such a mixture by processing, blending, or other treatment is also so regulated if it is destined to be burned for energy recovery.

§47-35-11. Hazardous Waste Permitting Program.

11.1. Scope of the Hazardous Waste Management Permit Requirements. These regulations require a permit for the treatment, storage, or disposal of any hazardous waste unless expressly excluded by these regulations or the State Act.

11.1.1. Specific Inclusions. Without limiting in any way the scope of the permit requirements as set forth in Section 11.1 of these regulations, hazardous waste management permits are required for: treatment, storage, or disposal of hazardous waste at facilities requiring an NPDES permit. The owner and operator of a POTW receiving hazardous waste will be deemed to have a hazardous waste management permit for that waste if they comply with the requirements of Section 11.8.1 of these regulations.

11.1.2. Specific Exclusions. The following are not required to obtain a hazardous waste management permit:

11.1.2.a. Generators who accumulate hazardous waste on site for less than the time periods provided in Sections 6.3.5.a, 10.1.3, and 10.1.4 of these regulations.

11.1.2.b. Farmers who dispose of hazardous waste pesticides from their own use as provided in Section 6.5.2 of these regulations.

11.1.2.c. Persons who own or operate facilities operated solely for the treatment, storage, or disposal of hazardous waste excluded from regulations under Section 11 of these regulations by Section 3.1.4 or 10 of these regulations.

11.1.2.d. Owners or operators of totally enclosed treatment facilities, as defined in Section 2 of these regulations.

11.1.2.e. Owners and operators of elementary neutralization units or wastewater treatment units as defined in Section 2 of these regulations.

11.1.2.f. Transporters storing manifested shipments of hazardous waste in containers meeting the requirements of Section 6.3.1 of these regulations at a transfer facility for a period of ten (10) days or less.

11.1.2.g. A person is not required to obtain a hazardous waste management permit for treatment or containment activities taken during immediate response to any of the following situations:

11.1.2.g.1. A discharge of a hazardous waste;

11.1.2.g.2. An imminent and substantial threat of a discharge of hazardous waste; or

11.1.2.g.3. A discharge of a material which, when discharged, becomes a hazardous waste.

11.1.2.h. Any person who continues or initiates hazardous waste treatment or containment activities after the immediate response is over is subject to all applicable requirements of Section 11 of these regulations for those activities.

11.1.2.i. Persons adding absorbent material to hazardous waste in a container and persons adding hazardous waste to absorbent material in a container, provided that these actions occur at the time hazardous waste is first placed in the container and Sections 8.2.8.b, 8.7.2, and 8.7.3 of these regulations are complied with.

11.1.3. (Reserved).

11.2. Application for a Permit.

11.2.1. Permit Application. Any person who is required to

have a hazardous waste management permit shall complete, sign, and submit an application to the chief as described in Section 11.2 of these regulations. Persons covered by permits by rule need not apply.

11.2.2. Who Applies. When a facility or activity is owned by one person but is operated by another person, it is the operator's duty to obtain a permit; however, the owner must also sign the permit application.

11.2.3. Completeness. The chief shall not issue a permit before receiving a complete application, except permits by rule or emergency permits. An application for a permit is complete when the chief receives an application form and any supplemental information which are completed to the chief's satisfaction.

11.2.4. Existing Hazardous Waste Management Facilities.

11.2.4.a. Not later than thirty (30) days from the effective date of these regulations, all owners and operators of existing hazardous waste treatment, storage or disposal facilities shall submit Part A (see Section 11.4 of these regulations) of their permit application to the chief or a copy of Part A if it was already submitted to EPA.

11.2.4.b. For generators generating greater than one hundred (100) kilograms but less than one thousand (1,000) kilograms of hazardous waste in a calendar month and treats, stores, or disposes of these wastes, Part A, or a copy of Part A if it was already submitted to EPA, shall be submitted not later than thirty (30) days from the effective date of these regulations. ~~er-by-March-24-1987-which-ever-is-later~~

11.2.4.c. At any time, but not later than five (5) years, after the effective date of these regulations, the owner and operator of an existing hazardous waste management facility may be requested to submit Part B (see Section 11.5 of these regulations) of their permit application by the chief. Any owner or operator shall have six (6) months from the date of request to submit Part B of the application. Any owner or operator of an existing hazardous waste management facility may voluntarily submit Part B of the application at any time.

11.2.4.d. Failure to furnish a requested Part B application on time, or to furnish in full the information required by the Part B application, are grounds for termination of interim status under Section 11.3.5 of these regulations.

11.2.5. New Hazardous Waste Management Facilities.

11.2.5.a. No person shall begin physical construction on a new hazardous waste management facility without having submitted Part A and Part B of the permit application and having received a

finally effective hazardous waste management permit.

11.2.5.b. An application for a permit for a new hazardous waste management facility may be filed any time after the effective date of these regulations. The application shall be filed with the chief. All applications shall be submitted at least one hundred and eighty (180) days before physical construction is expected to commence.

11.2.5.c. The chief shall notify the applicant in writing within ninety (90) days from the date on which Part B application is filed if the application is complete; provided, however that if the chief determines that the complexity of the application or other circumstances warrant an extension of the ninety (90) day period of review, the chief shall so notify the applicant.

11.2.6. Updating Permit Applications.

11.2.6.a. An amended Part A shall be filed with the chief as necessary to comply with provisions of Section 11.3.3 of these regulations for changes during interim status.

11.2.6.b. The owner or operator of a facility who fails to comply with the updating requirements does not receive interim status as to the wastes not covered by a duly filed Part A application.

11.2.7. Reapplications. Any hazardous waste management facility with an effective permit shall submit a new application at least one hundred and eighty (180) days before the expiration date of the effective permit, unless permission for a later date has been granted by the chief. The chief will not grant permission for applications to be submitted later than the expiration date of the existing permit.

11.2.8. Application Fees.

11.2.8.a. Any person who applies for a permit for the construction or operation of a hazardous waste management facility, or both, shall submit as part of said application a money order or cashier's check payable to "the Hazardous Waste Management Fund" of the State Treasury. Persons required to obtain a permit-by-rule pursuant to these regulations are not required to pay a permit application fee.

11.2.8.b. Such fee shall be determined by the schedule set forth in Table VII of these regulations.

11.2.8.c. The chief reserves his right to promulgate rules and regulations establishing a permit renewal fee at a later date.

11.2.8.d. (Reserved).

11.3. Interim Status.

11.3.1. Qualifying for Interim Status.

11.3.1.a. Any person who owns or operates an existing facility, or a facility in existence as of July 10, 1981, shall have interim status and shall be treated as having been issued a permit to the extent they:

11.3.1.a.1. Comply with the interim status requirements of the EPA established pursuant to Section 3005 of ~~the-federal-Solid-Waste-Disposal-Act~~ RCRA;

11.3.1.a.2. Operate the facility in such a manner as will not cause or create a substantial risk of a health hazard or public nuisance or a significant adverse effect upon the environment; and

11.3.1.a.3. Make a timely and complete application for such permit in accordance with these regulations.

11.3.1.b. If the chief determines that a facility is not complying with the requirements of Section 11.3.1 of these regulations, he may terminate interim status of any owner or operator. Such termination will be in the form of an order stating the reasons for the termination and shall inform the operator that he is subject to an enforcement action for operation without a permit.

11.3.1.b.1. Failure to Qualify for Interim Status. If the chief has reason to believe upon examination of a Part A application that it fails to meet the requirements of Section 11.4 of these regulations he shall notify the owner or operator in writing of the apparent deficiency. Such notice shall specify the grounds for the chief's belief that the application is deficient. The owner or operator shall have thirty (30) days from receipt to respond to such a notification and to explain or cure the alleged deficiency in his Part A application. If, after such notification and opportunity for response, the chief determines that the application is deficient he may take appropriate enforcement action.

11.3.1.c. Any person who owns or operates an existing facility which was not previously required to have a permit under the State Act because it managed no hazardous wastes identified or listed under Section 3 of these regulations, but which due to a revision of Section 3 of these regulations is later required to have a permit, shall also have interim status and shall be treated as having been issued a permit to the extent such person:

11.3.1.c.1. Has notified the chief within ninety (90)

days from the effective date of any revision of Section 3 of these regulations of such hazardous waste activity by the use of EPA Form 8700-12 or the provision of the same information in any other manner selected by the notifier;

11.3.1.c.2. Complies with and continues to operate in compliance with the interim status requirements of the Environmental Protection Agency established pursuant to Section 3005 of ~~the Federal Solid Waste Disposal Act, as amended~~, RCRA if applicable within ninety (90) days from the effective date of such revision to Section 3 of these regulations, and operates in such a manner as will not cause or create a substantial risk of a health hazard or public nuisance or a significant adverse effect upon the environment; and

11.3.1.c.3. Makes a timely and complete application for a permit as required by Section 11 of these regulations.

11.3.2. Coverage. During the interim status period, the facility shall not:

11.3.2.a. Treat, store, or dispose of hazardous waste not specified in Part A of the permit application;

11.3.2.b. Employ processes not specified in Part A of the permit application; or

11.3.2.c. Exceed the design capabilities specified in Part A of the permit application.

11.3.3. Changes During Interim Status.

11.3.3.a. New hazardous wastes not previously identified in Part A of the permit application may be treated, stored, or disposed of at a facility if the owner or operator submits a revised Part A permit application prior to such a change.

11.3.3.b. Increases in the design capacity of processes used at a facility may be made if the owner or operator submits a revised Part A permit application prior to such a change, along with a justification explaining the need for the change, and the chief approves the change because of a lack of available treatment, storage, or disposal capacity at other hazardous waste management facilities.

11.3.3.c. Changes in the processes for the treatment, storage, or disposal of hazardous waste may be made at a facility or additional processes may be added if the owner or operator submits a revised Part A prior to such a change along with a justification explaining the need for the change and the chief approves the change because:

11.3.3.c.1. It is necessary to prevent a threat to

human health or the environment because of an emergency situation;

11.3.3.c.2. It is necessary to comply with federal regulations or State or local laws; or

11.3.3.c.3. Proposed changes are demonstrated to result in safer or environmentally more acceptable processes.

11.3.3.d. Changes in the ownership or operational control of a facility may be made if the new owner or operator submits a revised Part A permit application no later than ninety (90) days prior to the scheduled change. When a transfer of ownership or operational control of a facility occurs, the old owner or operator shall comply with all applicable financial requirements until the new owner or operator has demonstrated to the chief that it is complying with such financial requirements. The new owner or operator must demonstrate compliance with applicable financial requirements within six (6) months of the date of the change in ownership or operational control of the facility. Upon demonstration to the chief by the new owner or operator of compliance with the financial requirements, the chief shall notify the old owner or operator in writing that it no longer needs to comply with those requirements as of the date of demonstration. All other interim status duties are transferred effectively immediately upon the date of the change of ownership or operational control of the facility.

11.3.3.e. In no event shall changes be made to a hazardous waste management facility during interim status which amount to reconstruction of the facility. Reconstruction occurs when the capital investment in the changes to the facility exceeds fifty percent (50%) of the capital cost of a comparable entirely new hazardous waste management facility.

11.3.3.f. Changes under Section 11.3.3 of these regulations do not include changes made solely for the purpose of complying with requirements of Section 8.8.4 of these regulations for tanks and ancillary equipment.

11.3.4. Interim Status Standards. The director hereby adopts and incorporates by reference the interim status standards contained in 40 C.F.R. Part 265 as published in the Code of Federal Regulations on the date specified in Section 1.5 of these regulations, with the following modifications:

11.3.4.a. Wherever the term Administrator or Regional Administrator is used, the term shall have the meaning of the chief of the Division of Water Resources of the West Virginia Department of Natural Resources.

11.3.4.b. Wherever the term Environmental Protection Agency or EPA is used, the term shall have the meaning of the West Virginia Department of Natural Resources.

11.3.4.c. Whenever the dates of July 14, 1986 or January 12, 1987 appear in the adopted provisions of Subpart J of 40 C.F.R. Part 265, the phrase "the effective date of these regulations" shall be substituted for the date.

11.3.4.d. Where the phrase "by January 12, 1988" appears in the adopted provisions of Subpart J of 40 C.F.R. Part 265, the phrase "within one year of the effective date of these regulations" shall be substituted.

11.3.5. Grounds for Termination of Interim Status. Interim status terminates when final disposition of a permit application is made or when interim status is terminated by the chief. Interim status may be terminated for:

11.3.5.a. Failure to furnish requested Part B application on time, or to furnish in full the information required by the Part B application;

11.3.5.b. A determination is made by the chief that the facility poses a substantial risk of a health hazard or a significant risk of an adverse effect upon the environment; or

11.3.5.c. A determination is made that the facility has failed to comply with the requirements of Section 10 of the State Act and the corresponding federal requirements at 40 C.F.R. Part 265 and 40 C.F.R. §270.73.

11.4. Contents of Part A.

11.4.1. Part A of the application shall include the following information:

11.4.1.a. The activities conducted by the applicant which require it to obtain a hazardous waste management permit;

11.4.1.b. Name, mailing address, and location of the facility for which the application is submitted;

11.4.1.c. Up to four (4) SIC codes which best reflect the principal products or services provided by the facility;

11.4.1.d. The latitude and longitude of the facility;

11.4.1.e. The name, address, and telephone number of the owner of the facility;

11.4.1.f. An indication of whether the facility is new or existing and whether it is a first or revised application;

11.4.1.g. For existing facilities, a scale drawing of the facility showing the location of all past, present, and future treatment, storage and disposal areas;

11.4.1.h. For existing facilities, photographs of the facility clearly delineating all existing structures; existing treatment, storage, and disposal areas; and site of future treatment, storage, and disposal areas;

11.4.1.i. The operator's name, address, telephone number, ownership status, and status as federal, State, private, public, or other entity;

11.4.1.j. A listing of all permits or construction approvals received or applied for under any of the following programs and their counterpart programs administered by the State, where appropriate:

11.4.1.j.1. Hazardous waste management program under RCRA;

11.4.1.j.2. UIC program under SDWA;

11.4.1.j.3. NPDES program under ~~the Clean--Water--Act~~
CWA;

11.4.1.j.4. Prevention of significant deterioration (PSD) program under the Clean Air Act;

11.4.1.j.5. Nonattainment program under the Clean Air Act;

11.4.1.j.6. National emission standards for hazardous pollutants (NESHAPS) pre-construction approval under the Clean Air Act;

11.4.1.j.7. Ocean dumping permits under the Marine Protection, Research and Sanctuaries Act;

11.4.1.j.8. Dredge or fill permits under ~~Section--404~~
of CWA, and CWA Section 404; and

11.4.1.j.9. Other relevant environmental permits including local permits;

11.4.1.k. A topographic map (or other map if a topographic map is unavailable) extending at least one mile beyond the property boundaries of the source, depicting the facility and each of its intake and discharge structures; each of its hazardous waste treatment, storage, or disposal facilities; each well where fluids from the facility are injected underground; and those wells, springs, other surface water bodies, and drinking water wells listed in public records or otherwise known to the applicant in the map area;

11.4.1.l. A brief description of the nature of the business;

11.4.1.m. A description of the processes to be used for treating, storing, and disposing of hazardous waste and the design capacity of these items; and

11.4.1.n. A specification of the hazardous wastes listed or designated under Section 3 of these regulations to be treated, stored, or disposed at the facility; an estimate of the quantity of such wastes to be treated, stored, or disposed annually; and a general description of the processes to be used for such wastes.

11.4.1.o. The filing of a completed copy of an EPA Part A application with the chief shall constitute compliance with Section 11.4 of these regulations.

11.5. Contents of Part B.

11.5.1. General Information Requirements. Part B of the permit application consists of the general information requirements of this Section and the specific information requirements of Section 11.5.2 of these regulations. Certain technical data, such as drawings and specifications, and engineering studies shall be certified by a registered professional engineer. The following information is required to be submitted with Part B of the application for all facilities:

11.5.1.a. A general description of the facility;

11.5.1.b. Chemical and physical analyses of the hazardous wastes to be handled at the facility. At a minimum, these analyses shall contain all the information which must be known to treat, store, or dispose of the wastes properly in accordance with Section 8 of these regulations;

11.5.1.c. A copy of the waste analysis plan required by Section 8.2.4.b of these regulations and, if applicable, Section 8.2.4.c of these regulations;

11.5.1.d. A description of the security procedures and equipment required by Section 8.2.5 of these regulations or a justification demonstrating the reasons for requesting a waiver of this requirement;

11.5.1.e. A copy of the general inspection schedule required by Section 8.2.6.b of these regulations. Include, where applicable, as part of the inspection schedule, specific requirements in Sections 8.7.6, 8.8.4, 8.8.6, 8.9.5, 8.10.5, 8.11.3, and ~~8.12.4~~ 8.12.4, 8.14.2, and 8.14.4 of these regulations;

11.5.1.f. A justification of any request for a waiver(s) of the preparedness and prevention requirements of Section 8.3 of these regulations;

11.5.1.g. A copy of the contingency plan required by Section 8.4 of these regulations;

Note: Include where applicable, as part of the contingency plan, the specific requirements in Sections 8.9.6 and 8.10.6 of these regulations.

11.5.1.h. A description of procedures, structures, or equipment used at the facility to:

11.5.1.h.1. Prevent hazards in unloading operations (e.g., ramps or special forklifts);

11.5.1.h.2. Prevent runoff from hazardous waste handling areas to other areas of the facility or environment, or to prevent flooding (e.g., berms, dikes, or trenches);

11.5.1.h.3. Prevent contamination of water supplies;

11.5.1.h.4. Mitigate effects of equipment failure and power outages; and

11.5.1.h.5. Prevent undue exposure of personnel to hazardous waste (e.g., protective clothing);

11.5.1.i. A description of precautions to prevent accidental ignition or reaction of ignitable, reactive, or incompatible wastes as required to demonstrate compliance with Section 8.2.8 of these regulations including documentation demonstrating compliance with Section 8.2.8.c of these regulations;

11.5.1.j. Traffic pattern, estimated volume (i.e., number and types of vehicles), and control (e.g., show turns across traffic lanes and stacking lanes, describe access road surfacing and load bearing capacity, and show traffic control signals);

11.5.1.k. (Reserved);

11.5.1.l. Facility Location Information. Applicants must submit documentation demonstrating that the proposed siting of a new facility is not restricted by the location standards of Section 12 of these regulations. The demonstrations may be made using either published geologic data or data obtained from field investigations carried out by the applicant. The submitted information must include the source of data for such determinations, including copies of any maps, reports, results of surface or subsurface investigations, and calculations where applicable.

11.5.1.l.1. Seismic Considerations. The information submitted must show that either:

11.5.1.1.1.A. No faults which have had displacement in Holocene time are present, or no lineations which suggest the presence of a fault (which have displacement in Holocene time) within three thousand (3,000) feet of a facility are present, based on data from:

11.5.1.1.1.A.i. U.S. Geological Service (USGS) publications;

11.5.1.1.1.A.ii. Aerial reconnaissance of the area within a ~~five-mile~~ five (5) mile radius from the facility (available from the USGS);

11.5.1.1.1.A.iii. An analysis of aerial photographs covering a three thousand (3,000) foot radius of the facility; and

11.5.1.1.1.A.iv. If needed to clarify the above data, are reconnaissance based on walking portions of the area within three thousand (3,000) feet of the facility; or

11.5.1.1.1.B. If faults (to include lineations) which have had displacement in Holocene time are present within three thousand (3,000) feet of a facility, no faults pass within two hundred (200) feet of the portions of the facility where treatment, storage, or disposal of hazardous waste will be conducted, based on data from a comprehensive geologic analysis of the site. Unless a site analysis is otherwise conclusive concerning the absence of faults within two hundred (200) feet of such portions of the facility, data shall be obtained from a subsurface exploration (trenching) of the area within a distance no less than two hundred (200) feet from portions of the facility where treatment, storage or disposal of hazardous waste will be conducted. Such trenching shall be performed in a direction that is perpendicular to known faults (which have had displacement in Holocene time) passing within three thousand (3,000) feet of the portions of the facility where treatment, storage, or disposal of hazardous waste will be conducted. Such investigation shall document with supporting maps and other analyses, the location of any faults found.

11.5.1.1.2. Karst Terrain. The demonstration must show that no solution cavities underlie or may influence the site by subsidence. Sources of information include:

11.5.1.1.2.A. Fracture trend maps and karst subsidence maps from the U.S. Geological Survey and the West Virginia Geological Survey.

11.5.1.1.2.B. Test borings to determine the stability of the overburden.

11.5.1.1.3. Subsurface Mining Areas. The information

submitted must show that the site is not located within one thousand (1,000) feet of the area likely to be influenced by subsidence, as determined by the angle of draw. Calculations must be included in the demonstration where applicable. Sources of information include:

11.5.1.1.3.A. Maps and reports from the West Virginia Department of Energy.

11.5.1.1.3.B. Maps from the U.S. Bureau of Mines.

11.5.1.1.3.C. Maps from the West Virginia Geological and Economic Survey.

11.5.1.1.4. Critical Recharge. The information submitted must show that the site is not located in an area which serves to recharge a public groundwater supply that serves more than fifteen (15) connections or twenty five (25) residents on a permanent year-round basis. Sources of information include:

11.5.1.1.4.A. U.S. Geological Survey maps.

11.5.1.1.4.B. West Virginia Department of Natural Resources, Division of Water Resources.

11.5.1.1.4.C. West Virginia Department of Health.

11.5.1.1.5. Wetlands. The demonstration must show that the site is not located in a wetland or in areas that may have an impact on wetlands. Sources of information include:

11.5.1.1.5.A. U.S. Geological Survey maps.

11.5.1.1.5.B. West Virginia Department of Natural Resources, Division of Wildlife Resources.

11.5.1.1.6. Dam-Related Flood Hazard Areas. The demonstration must show that the site is not located in the "danger reach" of a dam not permitted by the state or within the floodpool area of any dam. Sources of information include:

11.5.1.1.6.A. Reports from the U.S. Army Corps of Engineers.

11.5.1.1.6.B. U.S. Geological Survey maps.

11.5.1.1.6.C. West Virginia Department of Energy.

11.5.1.1.7. Floodplains. The owners and operators of all facilities shall provide an identification of whether the facility is located within a 100-year floodplain. This identification must indicate the source of data for such determination and include a copy of the relevant Federal Insurance

Administration (FIA) flood map, if used, or the calculations and maps used where a FIA map is not available. Information shall also be provided identifying the 100-year flood level and any other special flooding factors (e.g., wave action) which must be considered in designing, constructing, operating, or maintaining the facility to withstand washout from a 100-year flood.

Comment: Where maps for the National Flood Insurance Program produced by the Federal Insurance Administration (FIA) of the Federal Emergency Management Agency are available, they will normally be determinative of whether a facility is located within or outside of the 100-year floodplain. ~~However, where the FIA map excludes an area (usually areas of the floodplain less than 200 feet in width), these areas must be considered and a determination made as to whether they are in the 100-year floodplain.~~ However, where the FIA map excludes an area, usually areas of the floodplain less than two hundred (200) feet in width. These areas must be considered and a determination made as to whether they are in the 100-year floodplain. Where FIA maps are not available for a proposed facility location, the owner or operator must use equivalent mapping techniques to determine whether the facility is within the 100-year floodplain, and if so located, what the 100-year flood elevation would be.

11.5.1.1.8. Owners and operators of facilities located in the 100-year floodplain must provide the following information:

11.5.1.1.8.A. Engineering analysis to indicate the various hydrodynamic and hydrostatic forces expected to result at the site as a consequence of a 100-year flood.

11.5.1.1.8.B. Structural or other engineering studies showing the design of operational units (e.g., tanks or incinerators) and flood protection devices (e.g., floodwalls or dikes) at the facility and how these will prevent washout.

11.5.1.1.8.C. If applicable, and in lieu of Sections 11.5.1.1.8.A and 11.5.1.1.8.B of these regulations, a detailed description of procedures to be followed to remove hazardous waste to safety before the facility is flooded, including:

11.5.1.1.8.C.i. Timing of such movement relative to flood levels, including estimated time to move the waste, to show that such movement can be completed;

11.5.1.1.8.C.ii. A description of the location(s) to which the waste will be moved and demonstration that those facilities will be eligible to receive hazardous waste in accordance with the regulations under Sections 8 and 11 of these regulations;

11.5.1.1.8.C.iii. The planned procedures, equipment, and personnel to be used and the means to ensure that such resources will be available in time for use; and

11.5.1.1.8.C.iv. The potential for accidental discharges of the waste during movement.

11.5.1.1.9. Existing facilities not in compliance with Section 12.1.7 of these regulations shall provide a plan showing how the facility will be brought into compliance and a schedule for compliance;

11.5.1.m. An outline of both the introductory and continuing training programs by owners or operators to prepare persons to operate or maintain the hazardous waste management facility in a safe manner as required to demonstrate compliance with Section 8.2.7 of these regulations. A brief description of how training will be designed to meet actual job tasks in accordance with requirements in Section 8.2.7.a.3 of these regulations;

11.5.1.n. A copy of the closure plan and, where applicable, the post-closure plan required by Sections 8.6.3, 8.6.8, and 8.8.8 of these regulations. Include, where applicable, as part of the plans, specific requirements in Sections 8.7.10, 8.8.8, 8.9.7, 8.10.9, 8.11.11, and 8.12.11 of these regulations and in Title 45, Air Pollution Control Commission, Series 25, Section 24.01 (45 C.S.R. 25 §24.01);

11.5.1.o. For existing facilities, documentation that a notice has been placed in the deed or appropriate alternate instrument as required by Section 15.1 of these regulations. For hazardous waste disposal units that have been closed, documentation that a notice has been placed in the deed or appropriate alternate instrument as required by Sections 15.1 and 15.4 of these regulations;

11.5.1.p. The most recent closure cost estimate for the facility prepared in accordance with Section 13 of these regulations plus a copy of the financial assurance mechanism adopted in compliance with Section 13 of these regulations. For a new facility, a copy of the required documentation may be submitted sixty (60) days prior to the initial receipt of hazardous wastes, if that is later than the submission of Part B;

11.5.1.q. Where applicable, the most recent post-closure cost estimates for the facility prepared in accordance with Section 13 of these regulations plus a copy of the financial assurance mechanism adopted in compliance with Section 13 of these regulations. For a new facility a copy of the required documentation may be submitted sixty (60) days prior to the initial receipt of hazardous wastes, if that is later than the submission of Part B;

11.5.1.r. Where applicable, a copy of the insurance policy or other documentation which comprises compliance with the requirements of Section 13 of these regulations. For a new facility, documentation showing the amount of insurance meeting the specifications of Section 13 of these regulations that the owner or operator plans to have in effect before initial receipt of hazardous waste for treatment, storage, or disposal. A request for a variance in the amount of required coverage, for a new or existing facility may be submitted as specified in Section 13 of these regulations;

11.5.1.s. (Reserved);

11.5.1.t. A topographic map showing a distance of one thousand (1,000) feet around the facility at a scale of 2.5 centimeters (1 inch) equal to not more than 61.0 meters (200 feet). Contours must be shown on the map. The contour interval must be sufficient to clearly show the pattern of surface water flow in the vicinity of and from each operational unit of the facility. For example, contours with an interval of 1.5 meters (5 feet), if relief is greater than 6.1 meters (20 feet), or an interval of 0.6 meters (2 feet) if relief is less than 6.1 meters (20 feet). Owners and operators of hazardous waste facilities located in mountainous areas should use larger contour intervals to adequately show topographic profiles of facilities. The map shall clearly show the following:

11.5.1.t.1. Map scale and date.

11.5.1.t.2. 100-year floodplain area.

11.5.1.t.3. Surface waters including intermittent streams.

11.5.1.t.4. Surrounding land uses (e.g., residential, commercial, agricultural, recreational).

11.5.1.t.5. A wind rose (i.e., prevailing wind speed and direction).

11.5.1.t.6. Orientation of the map (north arrow).

11.5.1.t.7. Legal boundaries of the hazardous waste management facility site.

11.5.1.t.8. Access control (e.g., fences, gates).

11.5.1.t.9. Injection and withdrawal wells both on-site and off-site.

11.5.1.t.10. Buildings, treatment, storage, or disposal operations or other structures (e.g., recreation areas; runoff control systems; access and internal roads; storm,

sanitary, and process sewerage systems; loading and unloading areas; and fire control facilities).

11.5.1.t.11. Barriers for drainage or flood control.

11.5.1.t.12. Location of operational units within the hazardous waste management facility site, where hazardous waste is or will be treated, stored, or disposed (include equipment clean-up areas); and

11.5.1.u. Where appropriate, proof of coverage by a financial mechanism in compliance with Section 13 of these regulations.

11.5.2. Specific Information Requirements.

11.5.2.a. Except as otherwise provided in Section 8.7.1 of these regulations, the following additional information is required from owners or operators of facilities that store containers of hazardous waste:

11.5.2.a.1. A description of the containment system to demonstrate compliance with Section 8.7.7 of these regulations. Show at least the following:

11.5.2.a.1.A. Basic design parameters, dimensions, and materials of construction;

11.5.2.a.1.B. How the design promotes drainage or how containers are kept from contact with standing liquids in the containment system;

11.5.2.a.1.C. Capacity of the containment system relative to the number and volume of containers to be stored;

11.5.2.a.1.D. Provisions for preventing or managing run-on; and

11.5.2.a.1.E. How accumulated liquids can be analyzed and removed to prevent overflow;

11.5.2.a.2. For storage areas that store containers holding hazardous wastes that do not contain free liquids, a demonstration of compliance with Section 8.7.7.c of these regulations, including:

11.5.2.a.2.A. Test procedures and results or other documentation or information to show that the wastes do not contain free liquids provided such test procedures, results and other documentation or information simulate in-situ waste management conditions and demonstrate the irreversibility of the liquid to solid phase of the waste during the time the waste is managed in the containers, based at least on in-situ temperature

and pressure conditions, possible chemical and biological reactions, and the partition coefficients of the specific sorbant matrix with that of the particular waste; and

11.5.2.a.2.B. A description of how the storage area is designed or operated to drain and remove liquids and how containers are kept from contact with standing liquids;

11.5.2.a.3. Sketches, drawings, or data demonstrating compliance with Section 8.7.8 of these regulations (location or buffer zone and containers holding ignitable or reactive wastes) and Section 8.7.9.c of these regulations (location of incompatible wastes), where applicable; and

11.5.2.a.4. Where incompatible wastes are stored or otherwise managed in containers, a description of the procedures used to ensure compliance with Sections 8.7.9.a, 8.7.9.b, 8.2.8.b, and 8.2.8.c of these regulations.

11.5.2.b. Except as otherwise provided in Section 8.8.1 of these regulations, the following additional information is required from owners or operators of facilities that use tanks to store or treat hazardous waste:

11.5.2.b.1. A written assessment that is reviewed and certified by an independent, qualified, registered professional engineer as to the structural integrity and suitability for handling hazardous waste of each tank system, as required under Sections 8.8.2 and 8.8.3 of these regulations;

11.5.2.b.2. Dimensions and capacity of each tank;

11.5.2.b.3. Description of feed systems, safety cutoff, bypass systems, and pressure controls (e.g., vents);

11.5.2.b.4. A diagram of piping, instrumentation, and process flow for each tank system;

11.5.2.b.5. A description of materials and equipment used to provide external corrosion protection, as required under Section 8.8.3.a.3.ii of these regulations;

11.5.2.b.6. For new tank systems, a detailed description of how the tank system(s) will be installed in compliance with Sections 8.8.3.b through 8.8.3.e of these regulations;

11.5.2.b.7. Detailed plans and description of how the secondary containment system for each tank system is or will be designed, constructed, and operated to meet the requirements of Sections 8.8.4.a through 8.8.4.f of these regulations;

11.5.2.b.8. For tank systems for which a variance

from the requirements of Section 8.8.4 of these regulations is sought (as provided by Section 8.8.4.g of these regulations):

11.5.2.b.8.A. Detailed plans and engineering and hydrogeologic reports, as appropriate, describing alternate design and operating practices that will, in conjunction with location aspects, prevent the migration of any hazardous waste or hazardous constituents into the groundwater or surface water during the life of the facility; or

11.5.2.b.8.B. A detailed assessment of the substantial present or potential hazards posed to human health or the environment should a release enter the environment;

11.5.2.b.9. ~~Description~~ A description of controls and practices to prevent spills and overflows, as required under Section 8.8.5.b of these regulations; and

11.5.2.b.10. For tank systems in which ignitable, reactive, or incompatible wastes are to be stored or treated, a description of how operating procedures and tank system and facility design will achieve compliance with the requirements of Sections 8.8.9 and 8.8.10 of these regulations.

11.5.2.c. Except as otherwise provided in Section 8.1 of these regulations, the following additional information is required from owners or operators of facilities that treat, store, or dispose of hazardous waste in surface impoundments:

11.5.2.c.1. A list of the hazardous wastes placed or to be placed in each surface impoundment;

11.5.2.c.2. Detailed plans and an engineering report describing how the surface impoundment is or will be designed, constructed, operated, and maintained to meet the requirements of Sections 8.9.2 and 8.9.4 of these regulations. This submission must address the following items:

11.5.2.c.2.A. The liner system;

11.5.2.c.2.B. Prevention of overtopping; and

11.5.2.c.2.C. Structural integrity of dikes;

11.5.2.c.3. A description of how each surface impoundment, including the liner and cover systems and appurtenances for control of overtopping, will be inspected in order to meet the requirements of Section 8.9.5 of these regulations. This information should be included in the inspection plan and submitted under Section 11.5.1.e of these regulations;

11.5.2.c.4. A certification by a registered

professional engineer which attests to the structural integrity of each dike, as required under Section 8.9.5 of these regulations. For new units, the owner or operator must submit a statement by a registered professional engineer that he will provide such a certification upon completion of construction in accordance with the plans and specifications;

11.5.2.c.5. A description of the procedure to be used for removing a surface impoundment from service, as required under Sections 8.9.6 and 11.5.2.c of these regulations. This information should be included in the contingency plan submitted under Section 11.5.1.g of these regulations;

11.5.2.c.6. A description of how hazardous waste residues and contaminated materials will be removed from the unit at closure, as required under Section 8.9.7 of these regulations. For any wastes not to be removed from the unit upon closure, the owner or operator must submit detailed plans and an engineering report describing how Section 8.9.7 of these regulations will be complied with. This information should be included in the closure plan and, where applicable, the post-closure plan submitted under Section 11.5.1.n of these regulations;

11.5.2.c.7. If ignitable or reactive wastes are to be placed in a surface impoundment, an explanation of how Section 8.9.8 of these regulations will be complied with; and

11.5.2.c.8. If incompatible wastes, or incompatible wastes and other materials, will be placed in a surface impoundment, an explanation of how Section 8.9.9 will be complied with.

11.5.2.d. Except as otherwise provided in Section 8.1 of these regulations, the following additional information is required from owners or operators of facilities that store or treat of hazardous waste in waste piles:

11.5.2.d.1. A list of hazardous wastes placed or to be placed in each waste pile;

11.5.2.d.2. If an exemption is sought to Sections 8.10.2, 8.10.3, 8.10.4, and 8.10.6 of these regulations pursuant to Section 8.10.1.c of these regulations, a demonstration must be made sufficient to show compliance with Sections 8.10.1.c.1 through 8.10.1.c.6 of these regulations;

11.5.2.d.3. Detailed plans and an engineering report describing how the pile is or will be designed, constructed, operated, and maintained to meet the requirements of Section 8.10.2 of these regulations. This submission must address the following items:

11.5.2.d.3.A. The liner system;

11.5.2.d.3.B. Control of run-on;

11.5.2.d.3.C. Control of runoff;

11.5.2.d.3.D. Management of collection and holding units associated with run-on and runoff control systems; and

11.5.2.d.3.E. Control of wind dispersal of particulate matter, where applicable;

11.5.2.d.4. A description of how each waste pile, including the liner and appurtenances for control of run-on and runoff, will be inspected in order to meet the requirements of Section 8.10.5 of these regulations. This information should be included in the inspection plan submitted under Section 11.5.1.e of these regulations;

11.5.2.d.5. If treatment is carried out on or in the pile, details of the process and equipment used and the nature and quality of the residuals;

11.5.2.d.6. If ignitable or reactive wastes are to be placed in a waste pile, an explanation of how the requirements of Section 8.10.7 of these regulations will be complied with;

11.5.2.d.7. If incompatible wastes, or incompatible wastes and other materials, will be placed in a waste pile, an explanation of how Section 8.10.8 of these regulations will be complied with; and

11.5.2.d.8. A description of how hazardous waste residues and contaminated materials will be removed from the waste pile at closure, as required under Section 8.6 of these regulations.

11.5.2.e. Except as otherwise provided in Section 8.1 of these regulations, the following additional information is required from owners or operators of facilities that use land treatment to dispose of hazardous waste:

11.5.2.e.1. A description of plans to conduct a treatment demonstration as required under Section 8.12.3 of these regulations. The description must include the following information:

11.5.2.e.1.A. The wastes for which the demonstration will be made and the potential hazardous constituents in the wastes;

11.5.2.e.1.B. The data sources to be used to make the demonstration (e.g., literature, laboratory data, field data, or operating data); and

11.5.2.e.1.C. Any specific laboratory or field test that will be conducted, including:

11.5.2.e.1.C.i. The type of test (e.g., column leaching or degradation);

11.5.2.e.1.C.ii. Materials and methods, including analytical procedures;

11.5.2.e.1.C.iii. Expected time for completion;
and

11.5.2.e.1.C.iv. Characteristics of the unit that will be simulated in the demonstration, including treatment zone characteristics, climatic conditions, and operating practices;

11.5.2.e.2. A description of a land treatment program, as required under Section 8.12.3 of these regulations. This information must be submitted with the plans for the treatment demonstration and updated following the treatment demonstration. The land treatment program must address the following items:

11.5.2.e.2.A. The wastes to be land-treated;

11.5.2.e.2.B. Design measures and operating practices necessary to maximize treatment in accordance with Section 8.12.4 of these regulations including:

11.5.2.e.2.B.i. Waste application method and rate;

11.5.2.e.2.B.ii. Measures to control soil pH;

11.5.2.e.2.B.iii. Enhancement of microbial or chemical reactions; and

11.5.2.e.2.B.iv. Control of moisture content;

11.5.2.e.2.C. Provisions for unsaturated zone monitoring, including:

11.5.2.e.2.C.i. Sampling equipment, procedures, and frequency;

11.5.2.e.2.C.ii. Procedures for selecting sampling locations;

11.5.2.e.2.C.iii. Analytical procedures;

11.5.2.e.2.C.iv. Chain of custody control;

11.5.2.e.2.C.v. Procedures for establishing background values;

11.5.2.e.2.C.vi. Statistical methods for interpreting results; and

11.5.2.e.2.C.vii. The justification for any hazardous constituents, in accordance with the criteria for such selection in Section 8.12.9 of these regulations;

11.5.2.e.2.D. A list of hazardous constituents reasonably expected to be in, or derived from, the wastes to be land treated based on waste analysis performed pursuant to Section 8.2.4 of these regulations; and

11.5.2.e.2.E. The proposed dimensions of the treatment zone;

11.5.2.e.3. A description of how the unit is or will be designed, constructed, operated, and maintained in order to meet the requirements of Section 8.12.4 of these regulations. This submission must address the following items:

11.5.2.e.3.A. Control of run-on;

11.5.2.e.3.B. Collection and control of runoff;

11.5.2.e.3.C. Minimization of runoff of hazardous constituents from the treatment zone;

11.5.2.e.3.D. Management of collection and holding facilities associated with run-on and runoff control systems;

11.5.2.e.3.E. Periodic inspection of the unit. This information should be included in the inspection plan submitted under Section 11.5.1.e of these regulations; and

11.5.2.e.3.F. Control of wind dispersal of particulate matter, if applicable;

11.5.2.e.4. If food chain crops are to be grown in or on the treatment zone of the land treatment unit, a description of how the demonstration required under Section 8.12.7.a of these regulations will be conducted including:

11.5.2.e.4.A. Characteristics of the food chain crop for which the demonstration will be made;

11.5.2.e.4.B. Characteristics of the waste, treatment zone, and waste application method and rate to be used in the demonstration;

11.5.2.e.4.C. Procedures for crop growth, sample

collection, sample analysis, and data evaluation; and

11.5.2.e.4.D. Characteristics of the comparison crop including the location and conditions under which it was or will be grown;

11.5.2.e.5. If food chain crops are to be grown, and cadmium is present in the land-treated waste, a description of how the requirements of Section 8.12.7 of these regulations will be complied with;

11.5.2.e.6. A description of the vegetative cover to be applied to closed portions of the facility, and a plan for maintaining such cover during the post-closure care period, as required under Section 8.12.11 of these regulations. This information should be included in the closure plan and, where applicable, the post-closure care plan submitted under Section 11.5.1.n of these regulations;

11.5.2.e.7. If ignitable or reactive wastes will be placed in or on the treatment zone, an explanation of how the requirements of Section 8.12.12 of these regulations will be complied with; and

11.5.2.e.8. If incompatible wastes, or incompatible wastes and other materials, will be placed in or on the same treatment zone, an explanation of how Section 8.12.13 of these regulations will be complied with.

11.5.2.f. Except as otherwise provided in Section 8.1 of these regulations, the following additional information is required from owners or operators of facilities that dispose of hazardous waste in landfills:

11.5.2.f.1. A list of the hazardous wastes placed in each landfill or landfill cell;

11.5.2.f.2. Detailed plans and an engineering report describing how the landfill is or will be designed, constructed, operated, and maintained to comply with the requirements of Section 8.11.2 of these regulations. This submission must address the following items as specified in Section 8.11.2 of these regulations:

11.5.2.f.2.A. The liner system and leachate collection and removal system;

11.5.2.f.2.B. Control of run-on;

11.5.2.f.2.C. Control of runoff;

11.5.2.f.2.D. Management of collection and holding facilities associated with run-on and runoff control systems; and

11.5.2.f.2.E. Control of wind dispersal of particulate matter, where applicable;

11.5.2.f.3. A description of how each landfill, including the liner and cover systems, will be inspected in order to meet the requirements of Section 8.11.3 of these regulations. This information should be included in the inspection plan submitted under Section 11.5.1.e of these regulations;

11.5.2.f.4. Detailed plans and an engineering report describing the final cover which will be applied to each landfill or landfill cell at closure in accordance with Section 8.11.11 of these regulations, and a description of how each landfill will be maintained and monitored after closure in accordance with Section 8.11.11 of these regulations. This information should be included in the closure and post-closure plans submitted under Section 11.5.1.n of these regulations;

11.5.2.f.5. If ignitable or reactive wastes will be landfilled, an explanation of how the requirements of Section 8.11.13 of these regulations will be complied with;

11.5.2.f.6. If incompatible wastes, or incompatible wastes and other materials, will be landfilled, an explanation of how Section 8.11.14 of these regulations will be complied with;

11.5.2.f.7. If bulk or noncontainerized liquid waste or waste containing free liquids is to be landfilled, an explanation of how the requirements of Section 8.11.15 of these regulations will be complied with; and

11.5.2.f.8. If containers of hazardous waste are to be landfilled, an explanation of how the requirements of Section 8.11.16 or 8.11.17 of these regulations, as applicable, will be complied with.

11.5.2.g. Except as provided in Section 8.13.1.b of these regulations, the following additional information regarding protection of groundwater is required from owners or operators of hazardous waste surface impoundments, piles, land treatment units, and landfills:

11.5.2.g.1. A summary of the groundwater monitoring data obtained during the interim status period under 40 C.F.R. §§265.90 through 265.94, where applicable;

11.5.2.g.2. Identification of the uppermost aquifer and aquifers hydraulically interconnected beneath the facility property, including groundwater flow direction and rate, and the basis for such identification (i.e., the information obtained from hydrogeologic investigations of the facility area). This information should include the following:

11.5.2.g.2.A. Characterization of the site hydro-geology:

11.5.2.g.2.A.i. Copies of any available geophysical logs of the site (e.g., spontaneous potential, resistivity, gamma ray);

11.5.2.g.2.A.ii. Depth to the top of each water-bearing formation;

11.5.2.g.2.A.iii. Depth to the bottom of each water-bearing formation;

11.5.2.g.2.A.iv. Areas of recharge and discharge for the uppermost aquifer;

11.5.2.g.2.A.v. Water level depth information (i.e., a water table map);

11.5.2.g.2.A.vi. Depth to and type of bedrock present;

11.5.2.g.2.A.vii. Information available on the three-dimensional flow of the site (including horizontal and vertical flow rates and directions); and

11.5.2.g.2.A.viii. Any additional information deemed necessary by the chief;

11.5.2.g.2.B. Characterization of each soil horizon underlying the hazardous waste management area:

11.5.2.g.2.B.i. pH;

11.5.2.g.2.B.ii. Cation exchange capacity;

11.5.2.g.2.B.iii. Particle size ratio and textural classification;

11.5.2.g.2.B.iv. Bulk density;

11.5.2.g.2.B.v. Percent voids present;

11.5.2.g.2.B.vi. Permeability;

11.5.2.g.2.B.vii. Infiltration rate; and

11.5.2.g.2.B.viii. Any other information deemed necessary by the chief;

11.5.2.g.3. On the topographic map required under Section 11.5.1.t of these regulations, a delineation of the waste management area, the property boundary, the proposed "point of

compliance" as defined under Section 8.13.5 of these regulations, the proposed location of groundwater monitoring wells as required under Section 8.13.7 of these regulations and, to the extent possible, the information required in Section 11.5.2.g.2 of these regulations;

11.5.2.g.4. A description of any plume of contamination that has entered the groundwater from a regulated unit at the time that the application is submitted that:

11.5.2.g.4.A. Delineates the extent of the plume on the topographic map required under Section 11.5.1.t of these regulations; and

11.5.2.g.4.B. Identifies the concentration of each ~~Appendix-VIII~~ Appendix XIV constituent in the plume;

11.5.2.g.5. Detailed plans and an engineering report describing the proposed groundwater monitoring program to be implemented to meet the requirements of Section 8.13.7 of these regulations, including such information as proposed purging methods or proposed development of wells;

11.5.2.g.6. The owner or operator must also submit an engineering feasibility plan for a corrective action program necessary to meet the requirements of Section 8.13.9 of these regulations;

11.5.2.g.7. The owner or operator must submit sufficient information, supporting data, and analyses to establish a groundwater monitoring program which meets the requirements of Section 8.13.8 of these regulations. This submission must address the following items: ~~as-specified-under-Section-8-13-8~~

11.5.2.g.7.A. A proposed list of indicator parameters, waste constituents, or reaction products that can provide a reliable indication of the presence of hazardous constituents in the groundwater;

11.5.2.g.7.B. A proposed groundwater monitoring system;

11.5.2.g.7.C. Background concentrations of each proposed monitoring parameter or hazardous constituent, or procedures to calculate such concentrations; and

11.5.2.g.7.D. A description of proposed sampling, analysis and statistical comparison procedures to be utilized in evaluating groundwater monitoring data; and

11.5.2.g.8. If hazardous constituents have been measured in the groundwater at the point of compliance at concentrations which are determined to be significantly increased

over background concentrations under Section 8.13.8.d of these regulations, the owner or operator must submit sufficient information, supporting data, and analyses to establish a corrective action program which meets the requirements of Section 8.13.9 of these regulations. To demonstrate compliance with Section 8.13.9 of these regulations, the owner or operator must address the following items (in addition to other Section 8.13.9 requirements):

11.5.2.g.8.A. A characterization of the contaminated groundwater, including concentrations of hazardous constituents;

11.5.2.g.8.B. The background concentration for each hazardous constituent found in the groundwater as set forth in Section 8.13.8.b of these regulations;

11.5.2.g.8.C. Detailed plans and an engineering report describing the corrective action to be taken;

11.5.2.g.8.D. A description of how the groundwater monitoring program will assess the adequacy of the corrective action under Section 8.13.9.d of these regulations;

11.5.2.g.8.E. A proposed compliance schedule for beginning the corrective action; and

11.5.2.g.8.F. A description of the wastes previously handled at the facility.

11.5.2.h. Except as otherwise provided in Section 8.14 of these regulations, the following additional information is required from owners or operators of facilities that treat, store, or dispose of hazardous waste in miscellaneous units:

11.5.2.h.1. A detailed description of the unit being used or proposed for use, including the following:

11.5.2.h.1.A. Physical characteristics, materials of construction, and dimensions of the unit;

11.5.2.h.1.B. Detailed plans and engineering reports describing how the unit will be located, designed, constructed, operated, maintained, monitored, inspected, and closed to comply with the requirements of Sections 8.14.2 and 8.14.3 of these regulations; and

11.5.2.h.1.C. For disposal units, a detailed description of the plans to comply with the post-closure requirements of Section 8.14.4 of these regulations;

11.5.2.h.2. Detailed hydrologic, geologic, and meteorologic assessments and land-use maps for the region

surrounding the site that address and ensure compliance of the unit with each factor in the environmental performance standrads of Section 8.14.2 of these regulations. If the applicant can demonstrate that he does not violate the environmental performance standards in Section 8.14.2 of these regulations and the chief agrees with such demonstration, preliminary hydrologic, geologic, and meteorologic assessments will suffice;

11.5.2.h.3. Information on the potential pathways of exposure of humans or environmental receptors to hazardous waste or hazardous constituents and information on the potential magnitude and nature of such exposures;

11.5.2.h.4. For any treatment unit, a report on a demonstration of the effectiveness of the treatment based on laboratory or field data; and

11.5.2.h.5. Any additional information determined by the chief to be necessary for evaluation of compliance of the unit with the environmental protection standards of Section 8.14.2 of these regulations.

11.5.3. Environmental Analysis. In addition to the information to be submitted with Part B of the application under Sections 11.5.2 and 11.5.3 of these regulations, major facilities not in existence on November 19, 1980, shall submit an environmental analysis which shall contain information of the type, quality, and detail that will permit adequate consideration of the environmental, technical, and economic factors involved in the establishment and operation of such facilities:

11.5.3.a. The portion of the applicant's environmental analysis dealing with environmental assessments shall contain, but not be limited to:

11.5.3.a.1. The potential impact of the method and route of transportation of hazardous waste to the site and the potential impact of the establishment and operation of such facilities on air and water quality, existing land use, transportation, and natural resources in the area affected by such facilities;

11.5.3.a.2. A description of the expected effect of such facilities; and

11.5.3.a.3. Recommendations for minimizing any adverse impact.

11.5.3.b. The portion of the applicant's environmental analysis dealing with technical and economic assessments shall contain, but not be limited to:

11.5.3.b.1. Detailed descriptions of the proposed

site and facility, including site location and boundaries and facility purpose, type, size, capacity, and location on the site and estimates of the cost and charges to be made for material accepted, if any;

11.5.3.b.2. Provisions for managing the site following cessation of operation of the facility; and

11.5.3.b.3. Qualifications of owner and operation, including a description of applicant's prior experience in hazardous waste management operations.

11.5.4. Additional Information. In addition to the information required in Sections 11.5.1 through 11.5.3 of these regulations, the chief may request that the applicant submit such other information as may be necessary for the chief to carry out his duties under the State Act.

11.6. Record Keeping. Applicants shall keep records of all data used to complete permit applications and any supplemental information submitted for a period of three (3) years from the date the application is signed.

11.7. Signatories to Permit Applications and Reports.

11.7.1. Applications. All permit applications shall be signed as follows:

11.7.1.a. For a corporation, by a responsible corporate officer. For the purpose of Section 11.7 of these regulations, a "responsible corporate officer" means:

11.7.1.a.1. A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation; or

11.7.1.a.2. The manager of one or more manufacturing, production or operating facilities employing more than ~~250 persons~~ two hundred and fifty (250) people or having gross annual sales or expenditures exceeding \$25 million if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

Note: The director does not require specific assignments or delegations of authority to responsible corporate officers identified in Section 11.7.1.a.1 of these regulations. The director will presume that these responsible corporate officers have the requisite authority to sign permit applications unless the corporation has notified the director to the contrary. Corporate procedures governing authority to sign permit applications may provide for assignment or delegation to applicable corporate positions under Section 11.7.1.a.2 of these

regulations rather than to specific individuals.

11.7.1.b. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or

11.7.1.c. For a municipality, state, federal, or other public agency, by either a principal executive officer or ranking elected official. For purposes of Section 11.7 of these regulations, a principal executive officer of a federal agency includes:

11.7.1.c.1. The chief executive officer of the agency; or

11.7.1.c.2. A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

11.7.2. Reports. All reports required by permits and other information requested by the chief shall be signed by a person described in Section 11.7.1 of these regulations above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

11.7.2.a. The authorization is made in writing by a person described in Section 11.7.1 of these regulations;

11.7.2.b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or an individual or a position having responsibility for the facility's compliance with environmental laws and permits; and

11.7.2.c. The written authorization is submitted to the chief.

11.7.3. Changes to Authorization. If an authorization is no longer accurate because a different individual or position has responsibility for the overall operation of the facility or because a new individual or position has responsibility for the facility's compliance with environmental laws and permits, a new authorization satisfying the requirements shall be submitted to the chief prior to or together with any reports, information, or applications to be signed by an authorized representative.

11.7.4. Certification. Any person signing a document under Section 11.7.1 or Section 11.7.2 of these regulations shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified

personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

11.8. Permits by Rule. Notwithstanding any other provisions of Section 11 of these regulations, the following shall be deemed to have a hazardous waste management permit if the conditions listed are met:

11.8.1. Publicly Owned Treatment Works. A POTW which accepts for treatment hazardous wastes qualifies for a permit by rule if the owner or operator of the facility:

11.8.1.a. Has an NPDES permit and a State water pollution control permit;

11.8.1.b. Complies with the conditions of those permits;

11.8.1.c. Complies with the appropriate sections of these regulations with respect to:

11.8.1.c.1. Identification number;

11.8.1.c.2. Use of manifest system;

11.8.1.c.3. Manifest discrepancies;

11.8.1.c.4. Operating record;

11.8.1.c.5. Annual report; and

11.8.1.c.6. Unmanifested waste report; and

11.8.1.d. If the waste meets all federal, State, and local pretreatment requirements which would be applicable to the waste if it were being discharged into the POTW through a sewer, pipe, or similar conveyance.

11.8.2. (Reserved).

11.8.3. Injection Wells. The owner or operator of an injection well disposing of hazardous waste, if the owner or operator:

11.8.3.a. Has a UIC permit for underground injection issued by the West Virginia Department of Energy; and

11.8.3.b. Complies with the regulatory and permitting

requirements established by the West Virginia Department of Energy and the Shallow Gas Well Review Board pursuant to the authority contained in the State Act.

11.9. Emergency Permits.

11.9.1. Notwithstanding any other provision of Section 11 of these regulations, in the event the chief finds an imminent and substantial endangerment to human health or the environment, the chief may issue a temporary emergency permit to a facility to allow treatment, storage or disposal of hazardous waste at a non-permitted facility, or hazardous waste not covered by the permit for a facility with an effective permit. This emergency permit:

11.9.1.a. May be oral or written. If oral, it shall be followed within five (5) days by a written emergency permit;

11.9.1.b. Shall not exceed ninety (90) days in duration;

11.9.1.c. Shall clearly specify the hazardous wastes to be received, and the manner and location of their treatment, storage, or disposal;

11.9.1.d. May be terminated by the chief at any time without prior notice if it is determined that termination is appropriate to protect human health or the environment;

11.9.1.e. Shall be accompanied by a public notice as required by these regulations including:

11.9.1.e.1. Name and location of the permitted hazardous waste management facility;

11.9.1.e.2. A brief description of the wastes involved;

11.9.1.e.3. A brief description of the action authorized and reasons for authorizing;

11.9.1.e.4. Duration of the emergency permit; and

11.9.1.e.5. Name and address of the office granting the emergency authorization; and

11.9.1.f. Shall incorporate, to the extent possible and not inconsistent with the emergency situation, all applicable requirements of these regulations.

11.10. Conditions Applicable to All Permits. The following conditions apply to all hazardous waste management permits. All conditions applicable to all permits shall be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to these regulations shall be given

in the permit.

11.10.1. Duty to Comply. Any permit noncompliance constitutes a violation of these regulations and is grounds for enforcement action, for permit termination, revocation, or modification, or for denial of a permit renewal application. The permittee need not comply with the conditions of the permit to the extent and for the duration such noncompliance is authorized in an emergency permit.

11.10.2. Duty to Reapply. If the permittee wishes to continue a regulated activity after the expiration date of the permit, the permittee shall apply for and obtain a new permit.

11.10.3. Need to Halt or Reduce Activity Not a Defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

11.10.4. Duty to Mitigate. In the event of noncompliance with the permit, the permittee shall take all reasonable steps to minimize releases to the environment, and shall carry out such measures as are reasonable to prevent adverse impacts on human health or the environment.

11.10.5. Proper Operation and Maintenance. The permittee shall at all times maintain in good working order and operate efficiently all treatment and control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including quality assurance procedures. Unless otherwise required by federal or State law this provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

Comment: The proper interpretation of this language is to permit the permittee to shutdown or operate these treatment and control facilities or systems to carry out such maintenance, repair, or overhaul as may be dictated by sound engineering and operating practice.

11.10.6. Permit Actions. The permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, reissuance, termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

11.10.7. Property Rights. The permit does not convey any property rights of any sort or any exclusive privilege.

Possession of a permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulation.

11.10.8. Duty to Provide Information. The permittee shall furnish to the chief within a specified time any relevant information which the chief or an authorized representative may request to determine whether cause exists for modifying, revoking and reissuing, suspending, revoking, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the chief or an authorized representative, upon request, copies of records to be kept as part of the permit.

11.10.9. Inspection and Entry. The permittee shall allow the chief or an authorized representative, employee, or agent, upon the presentation of credentials and at reasonable times, to:

11.10.9.a. Enter any building, property, premises, place, vehicle, or permitted facility where hazardous wastes are or have been generated, treated, stored, transported, or disposed of for the purpose of making an investigation with reasonable promptness to ascertain the compliance by any person with the State Act and these regulations or permits issued by the chief.

11.10.9.b. Enter any establishment or other place maintained by any person where hazardous wastes are or have been stored, treated, or disposed of to inspect and take samples of wastes, soils, surface water, and groundwater and samples of any containers or labelings for such wastes. In taking such samples, the Division may utilize such sampling methods as it determines to be necessary, including but not limited to, soil borings and monitoring wells. If the chief or an authorized representative, employee, or agent obtains any such samples prior to leaving the premises, the owner or operator or agent in charge shall be given a receipt describing the sample obtained and, if requested, a portion of each such sample equal in volume or weight to the portion retained. The Division shall promptly provide a copy of any analysis made to the owner, operator, or agent in charge.

11.10.9.c. Shall be given access to examine all records relating to the storage, treatment, or disposal of hazardous waste in the possession of any person who generates, stores, treats, transports, disposes of, or otherwise handles or has handled such waste. The chief or an authorized representative, employee, or agent shall be furnished with copies of all such records or given the records for the purpose of making copies.

11.10.10. Monitoring Records.

11.10.10.a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

11.10.10.b. The permittee shall retain records of all monitoring information including all calibration and maintenance records and all original chart recordings for continuous monitoring instrumentation, copies of all reports required by the permit, the certification required by Section 8.5.4.b.9 of these regulations, and records of all data used to complete the application for the permit for a period of three (3) years from the date of the sample, measurement, report, or application. This period may be extended by the chief at any time.

11.10.10.c. The permittee shall maintain records from all groundwater monitoring wells and associated groundwater surface elevations for the active life of the facility and, for disposal facilities, for the post-closure care period as well.

11.10.10.d. Records of monitoring information shall include:

11.10.10.d.1. The date, exact place, and time of sampling or measurements;

11.10.10.d.2. The individual(s) who performed the sampling or measurements;

11.10.10.d.3. The date(s) analyses were performed;

11.10.10.d.4. The individual(s) who performed the analyses;

11.10.10.d.5. The analytical techniques or methods used; and

11.10.10.d.6. The results of such analyses.

11.10.11. Signatory Requirement. All applications, reports, or information submitted to the chief shall be signed and certified as specified in Section 11.7 of these regulations.

11.10.12. Reporting Requirements.

11.10.12.a. Planned Changes. The permittee shall give written notice to the chief as soon as possible of any planned physical alterations or additions to the permitted facility. For a new hazardous waste management facility, the permittee may not commence treatment, storage, or disposal of hazardous waste and for a facility being modified the permittee may not treat, store, or dispose of hazardous waste in the modified portion of the facility, until:

11.10.12.a.1. The permittee has submitted to the chief, by certified mail or hand delivery, a letter signed by the permittee and a registered professional engineer stating that the facility has been constructed or modified in compliance with the

permit; and

~~11.10.12.a.1.A.~~ 11.10.12.a.2.A. The chief has inspected the modified or newly constructed facility and finds it is in compliance with the conditions of the permit; or

~~11.10.12.a.1.B.~~ 11.10.12.a.2.B. Within fifteen (15) days of the date of submission of the letter in Section 11.10.12.a.1 of these regulations, if the permittee has not received notice from the chief of the intent to inspect, prior inspection is waived and the permittee may commence treatment, storage, or disposal of hazardous waste.

11.10.12.b. Anticipated Noncompetence. The permittee shall give advance written notice to the chief of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

11.10.12.c. (Reserved).

11.10.12.d. Transfers. This permit is not transferrable except after notice to the chief, and modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under these regulations or the State Act. (See Section 11.18.2 of these regulations.)

11.10.12.e. Monitoring Reports. Monitoring results shall be reported at the intervals specified.

11.10.12.f. Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit shall be submitted no later than fourteen (14) days following each schedule date.

11.10.12.g. Immediate Reporting. The permittee shall report any noncompliance which may endanger health or environment immediately after becoming aware of the circumstances. A written submission shall also be provided within five (5) days. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times; if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The following shall also be reported immediately:

11.10.12.g.1. Information concerning release of any hazardous waste that may cause an endangerment to public drinking water supplies; and

11.10.12.g.2. Any information of a release or

discharge of hazardous waste, or of a fire or explosion from a hazardous waste management facility, which could threaten the environment or human health outside the facility. The description of the occurrence and its cause shall include:

11.10.12.g.2.A. Name, address, and telephone number of the owner or operator;

11.10.12.g.2.B. Name, address, and telephone number of the facility;

11.10.12.g.2.C. Date, time, and type of incident;

11.10.12.g.2.D. Name and quantity of material(s) involved;

11.10.12.g.2.E. The extent of injuries, if any;

11.10.12.g.2.F. An assessment of actual or potential hazards to the environment and human health outside the facility; and

11.10.12.g.2.G. Estimated quantity and disposition of recovered material that resulted from the incident.

11.10.12.h. Other Noncompliance. The permittee shall report all instances of noncompliance not reported under Sections 11.10.12.a, 11.10.12.e, 11.10.12.f, and 11.10.12.g of these regulations at the time monitoring reports are submitted. The report shall contain the information listed in Section 11.10.12.g of these regulations.

11.10.12.i. Other Information. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the chief, such facts or information shall be promptly submitted.

11.10.12.j. In addition, the following reports required by Section 8 of these regulations shall be submitted:

11.10.12.j.1. If a significant discrepancy in a manifest is discovered, the permittee shall attempt to reconcile the discrepancy. If not resolved within fifteen (15) days, the permittee shall submit a written manifest discrepancy report, including a copy of the manifest, to the chief. (See Section 8.5.3 of these regulations.)

11.10.12.j.2. An unmanifested waste report must be submitted to the chief within fifteen (15) days of receipt of unmanifested waste. (See Section 8.5.5 of these regulations.)

11.10.12.j.3. An annual report must be submitted

covering facility activities during the previous calendar year.
(See Section 8.5.6 of these regulations.)

11.10.12.j.4. (Reserved).

~~11-10-13---(Reserved)-~~

~~11-10-14---(Reserved)-~~

~~11-10-15---(Reserved)-~~

11.11. Establishing Permit Conditions.

11.11.1. In addition to conditions required in all permits, the chief shall establish conditions as required on a case-by-case basis, for the duration of permits, schedules of compliance, monitoring, and to provide for and assure compliance with all applicable requirements of the State Act and of these regulations, and any applicable statutory or regulatory requirement that takes effect prior to the final administrative disposition of a permit.

11.11.2. New or reissued permits, and to the extent allowed under Section 11.18 of these regulations modified or revoked and reissued permits, shall incorporate each of the applicable requirements in these regulations.

11.11.3. All preconditions shall be incorporated either expressly or by reference. If incorporated by reference, a specific citation to the applicable regulations or requirements shall be given in the permit.

11.12. Duration of Permits.

11.12.1. Hazardous waste management permits shall be effective for a fixed term not to exceed ten (10) years.

11.12.2. Except as provided in Section 11.12.3 of these regulations, the term of a permit shall not be extended by modification beyond the maximum duration specified in Section 11.12.1 of these regulations.

11.12.3. The conditions of an expired permit shall continue in force until the effective date of a new permit if:

11.12.3.a. The permittee has submitted a timely application under Section 11.5 of these regulations which is a complete application for a new permit; and

11.12.3.b. The chief, through no fault of the permittee, does not issue a new permit with an effective date on or before the expiration date of the previous permit.

11.12.4. Permits continued under Section 11.12 of these

regulations remain fully effective and enforceable. When the permittee is not in compliance with the conditions of the expiring or expired permit, the chief may choose to do any or all of the following:

11.12.4.a. Initiate enforcement action based upon the permit which has been continued;

11.12.4.b. Issue an order of denial for the new permit. If the permit is denied, the owner or operator would then be required to cease the activities authorized by the continued permit or be subject to an enforcement action for operating without a permit;

11.12.4.c. Issue a new permit with appropriate conditions; or

11.12.4.d. Take other actions authorized by statute or these regulations.

11.12.5. The chief may issue any permit for a duration that is less than the full allowable term under Section 11.12.1 of these regulations.

11.13. Effect of a Permit. Compliance with a permit during its term constitutes compliance, for purposes of enforcement with the State Act except under Section 17 of that Act; provided, however, that a permit may be modified, suspended, revoked, revoked and reissued, or terminated during its term for cause as set forth in these regulations.

11.14. Transfer of Permits. A permit may be transferred by the permittee to a new owner or operator only if the permit has been modified, or revoked and reissued, by the chief under Section 11.18.2.b of these regulations to identify the new permittee and incorporate such other requirements as may be necessary to comply with these regulations and the State Act.

11.15. Schedules of Compliance.

11.15.1. General. The permit may, when appropriate, specify a schedule of compliance leading to compliance with these regulations.

11.15.1.a. Any schedules of compliance under Section 11.15 of these regulations shall require compliance as soon as possible.

11.15.1.b. Except as otherwise provided, if a permit establishes a schedule of compliance which exceeds one (1) year from the date of permit issuance, the schedule shall set forth interim requirements and the dates for their achievements.

11.15.1.b.1. The time between interim dates shall not exceed one (1) year.

11.15.1.b.2. If the time necessary for completion of any interim requirement is more than one (1) year and is not readily divisible into stages of completion, the permit shall specify interim dates for the submission of reports of progress toward completion of the interim requirements and indicate a projected completion date.

11.15.1.c. The permit shall be written to require that no later than fourteen (14) days following each interim date and the final date of compliance, a permittee shall notify the chief, in writing, of his compliance or noncompliance with the interim or final requirements.

11.15.2. Alternative Schedules of Compliance. A permit applicant or permittee may cease conducting regulated activities rather than continue to operate and meet permit requirements as follows:

11.15.2.a. If the permittee decides to cease conducting regulated activities at a given time within the term of a permit which has already been issued:

11.15.2.a.1. The permit may be modified to contain a new or additional schedule leading to timely cessation of activities; or

11.15.2.a.2. The permittee shall cease conducting permitted activities before noncompliance with any interim or final compliance schedule requirement already specified in the permit.

11.15.2.b. If the decision to cease conducting regulated activities is made before issuance of a permit whose terms will include the termination date, the permit shall contain a schedule leading to termination which will ensure timely compliance with applicable requirements.

11.15.2.c. If the permittee is undecided whether to cease conducting regulated activities, the chief may issue or modify a permit to contain two (2) schedules as follows:

11.15.2.c.1. Both schedules shall contain an identical interim deadline requiring a final decision on whether to cease conducting regulated activities no later than a date which ensure sufficient time to comply with applicable requirements in a timely manner if the decision is to continue regulated activities.

11.15.2.c.2. One schedule shall lead to timely compliance with applicable requirements.

11.15.2.c.3. The second schedule shall lead to cessation of regulated activities by a date which will ensure timely compliance with applicable requirements.

11.15.2.c.4. Each permit containing two (2) schedules shall include a requirement that, after the permittee has made a final decision, a schedule leading to compliance shall follow if the decision is to continue conducting regulated activities, and follow the schedule leading to termination if the decision is to cease conducting regulated activities.

11.15.2.d. The applicant's or permittee's decision to cease conducting regulated activities shall be evidenced by a firm public commitment satisfactory to the chief, such as a resolution of the board of directors of a corporation.

11.16. Requirements for Recording and Reporting of Monitoring Results. All permits shall specify:

11.16.1. When appropriate, requirements concerning the proper use, maintenance, and installation of monitoring equipment or methods including biological monitoring methods and introduced tracer methods.

11.16.2. Required monitoring including type, intervals, and frequency sufficient to yield data which are representative of the monitored activity including, when appropriate, continuous monitoring.

11.16.3. Applicable reporting requirements based upon the impact of the regulated activity and as specified in these regulations.

11.17. Modification, Revocation and Reissuance, Suspension, Termination, and Revocation of Permits.

11.17.1. Permits may be modified, revoked and reissued, suspended, revoked, or terminated either at the request of any interested person (including the permittee) or upon the chief's initiative. However, permits may only be modified, revoked and reissued, suspended, revoked or terminated for the reasons specified in Sections 11.18 and 11.19 of these regulations. All requests shall be submitted in writing and shall contain facts or reasons supporting the request.

11.17.2. If the chief tentatively decides to modify or revoke and reissue a permit and the modification is not made under Section 11.20 of these regulations, a draft permit under Section 11.21 of these regulations shall be prepared incorporating the proposed changes. The chief may request additional information and, in the case of a modified permit, may require the submission of an updated permit application. In the case of revoked and reissued permits, the chief shall require the submission of a new

application.

11.17.3. In a permit modification under Section 11.17 of these regulations, only those conditions to be modified shall be reopened when a new draft permit is prepared. All other conditions of the existing permit shall remain in effect for the duration of the unmodified permit. When a permit is revoked and reissued under Section 11.17 of these regulations, the entire permit is reopened just as if the permit had expired and was being reissued. During any revocation and reissuance proceedings the permittee shall comply with all conditions of the existing permit until a new final permit is reissued.

11.17.4. "Minor modifications" as defined in Section 11.20 of these regulations are not subject to the requirements of Section 11.17 of these regulations.

11.17.5. If the chief tentatively decides to suspend, revoke, or terminate a permit, a notice of such intent shall be issued. A notice of intent to suspend, revoke, or terminate is a type of draft permit which follows the same procedure as any draft permit prepared under Section 11.21 of these regulations.

11.18. Modification or Revocation and Reissuance of Permits. When the chief receives any information (e.g., inspects the facility, receives information submitted by the permittee as required in the permit, receives a request for modification or revocation and reissuance under Section 11.17 of these regulations, or conducts a review of the permit file), a determination may be made whether or not one or more of the causes listed for modification or revocation and reissuance or both exist. If cause exists, the chief may modify or revoke and reissue the permit accordingly, subject to the limitations of Section 11.18.3 of these regulations, and may request an updated application if necessary. If cause does not exist under Section 11.18 or 11.20 of these regulations, the chief shall not modify or revoke and reissue the permit. If a permit modification satisfies the criteria in Section 11.20 of these regulations for minor modifications, the permit may be modified without a draft permit or public review. Otherwise, a draft permit shall be prepared and other appropriate procedures followed.

11.18.1. Causes for Modification. The following are causes for modification but not revocation and reissuance of permits. However, the following may be causes for revocation and reissuance as well as modification when the permittee requests or agrees:

11.18.1.a. Alterations. There are material and substantial alterations or additions to the permitted facility or activity which occurred after permit issuance which justify the application of permit conditions that are different or absent in the existing permit.

11.18.1.b. Information. If the chief has received information pertaining to circumstances or conditions existing at the time the permit was issued that were not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and would have justified the application of different permit conditions at the time of issuance, the permit may be modified accordingly.

11.18.1.c. New Regulations. The standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued. Permit may be modified during their terms for this cause only as follows:

11.18.1.c.1. For promulgation of amended standards or regulations, when:

11.18.1.c.1.A. The permit condition requested to be modified was based on a promulgated hazardous waste regulation.

11.18.1.c.1.B. The State Water Resources Board or the director, or both, have revised, withdrawn, or modified that portion of the regulation on which the permit condition was based.

11.18.1.c.1.C. A permittee requests modification within ninety (90) days after State Register notice of the action on which the request is based.

11.18.1.c.2. For judicial decision, a court of competent jurisdiction has remanded and stayed State regulations, if the remand and stay concern that portion of the regulations on which the permit condition was based and a request is filed by the permittee within ninety (90) days of judicial remand.

11.18.1.d. Compliance Schedules. The chief determines good cause exists for modification of a compliance schedule such as an act of God, strike, flood, materials shortage, or other events over which the permittee has little or no control and for which there is not reasonably available remedy.

11.18.1.e. Other Causes. The chief may also modify a permit:

11.18.1.e.1. When modification of a closure plan is required.

11.18.1.e.2. When the chief receives notification of expected closure pursuant to Section 8.6.4 of these regulations and determines the following permit conditions are unwarranted:

11.18.1.e.2.A. Extension of the ninety (90) to one hundred and eighty (180) day periods under Section 8.6.4 of these regulations;

11.18.1.e.2.B. Modification of the ~~30-year~~ thirty-year post-closure period under Section 8.6.7.a of these regulations;

11.18.1.e.2.C. Continuation of security requirements under Section 8.6.7.b of these regulations; or

11.18.1.e.2.D. Permission to disturb the integrity of a containment system under Section 8.6.7 of these regulations.

11.18.1.e.3. When the permittee has filed a request under Section 13 of these regulations for a variance to the level of financial responsibility or when the chief demonstrates that an upward adjustment of the level of financial responsibility is required.

11.18.1.e.4. When a corrective action program specified in a permit under Section 8.13.9 of these regulations has not brought the regulated unit into compliance with the groundwater protection standard within a reasonable period of time.

11.18.1.e.5. To include a monitoring program meeting the requirements of Section 8.13.8 of these regulations, when the owner or operator has been conducting a corrective action program under Section 8.13.9 of these regulations and the compliance period ends before the end of the post-closure care period for the unit.

11.18.1.e.6. To include conditions applicable to units at a facility that were not previously included in the facilities permit.

11.18.1.e.7. When a land treatment unit is not achieving complete treatment of hazardous constituents under its current permit conditions.

11.18.2. Causes for Modification or Revocation and Reissuance. The following are causes to modify or, alternatively, revoke and reissue a permit:

11.18.2.a. Cause exists for revocation under Section 11.19 of these regulations and the chief determines that modification or revocation and reissuance is appropriate.

11.18.2.b. The chief has received notification of a proposed transfer of the permit.

11.18.3. Facility Siting. The suitability of the facility location will not be considered at the time of permit modification or revocation and reissuance unless new information or standards indicate that an endangerment to human health or the environment exists which was unknown at the time of permit issuance.

11.19. Termination, Revocation, or Suspension of Permits.

11.19.1. The following are causes for revocation or suspension of a permit during its term, or for denying a permit renewal application:

11.19.1.a. Noncompliance by the permittee with any condition of the permit;

11.19.1.b. The permittee's failure in application or during the permit issuance process to disclose fully all relevant facts, or the permittee's misrepresentation of any relevant facts at any time; or

11.19.1.c. A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit revocation.

11.19.2. The chief shall follow the applicable procedures set forth in Section 11.17.5 of these regulations for terminating, revoking, or suspending a permit.

11.20. Minor Modification of Permits. Upon the consent of the permittee, the chief may modify a permit to make the corrections or allowances for changes in the permitted activity listed in Section 11.20 of these regulations, without following the required procedures found in Section 11.18 of these regulations. Any permit modification not processed as a minor modification under Section 11.20 of these regulations shall be made for causes and with draft permit and public notice as required. Minor modifications may only:

11.20.1. Correct typographical errors.

11.20.2. Require more frequent monitoring or reporting by the permittee.

11.20.3. Change an interim compliance date in a schedule of compliance, provided the new date is not more than one hundred and twenty (120) days after the date specified in the existing permit and does not interfere with attainment of the final compliance date requirement.

11.20.4. (Reserved).

11.20.5. Change the lists of facility emergency coordinators or equipment in the permit's contingency plan.

11.20.6. Change estimates of maximum inventory under Section 8.6.3 of these regulations.

11.20.7. Allow for a change in ownership or operational control of a facility where the chief determines that no other

change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility between the current and new permittees has been submitted to the chief. Changes in the ownership or operational control of the facility may be made if the new owner or operator submits a revised application no later than ninety (90) days prior to the scheduled change. When a transfer of ownership or operational control of a facility occurs, the old owner or operator shall comply with the requirements of Section 13 of these regulations, until the new owner or operator has demonstrated to the chief that he is complying with all the requirements of that section. The new owner or operator must demonstrate compliance with Section 13 of these regulations within six (6) months of the date of change in the ownership or operational control of the facility. Upon demonstration to the chief by the new owner or operator of compliance with Section 13 of these regulations, the chief shall notify the old owner or operator in writing that he no longer needs to comply with Section 13 of these regulations as of the date of demonstration.

11.20.8. Changes in estimates of expected year of closure or schedules of final closure.

11.21. Draft Permits.

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

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

11.21.2.a. All conditions under Sections 11.10 and 11.11 of these regulations;

11.21.2.b. All compliance schedules under Section 11.15 of these regulations;

11.21.2.c. All monitoring requirements under Section 11.16 of these regulations; and

11.21.2.d. Standards for treatment, storage, and disposal and other permit conditions under Section 11 of these regulations.

11.21.3. A fact sheet prepared in accordance with Section 11.22 of these regulations shall accompany the draft permit.

11.22. Fact Sheet.

11.22.1. A fact sheet shall be prepared by the chief for every draft permit for each hazardous waste management facility or

activity. The fact sheet shall briefly set forth the principal facts and the significant factual, legal, methodological, and policy questions considered in preparing the draft permit. The chief shall send this fact sheet to the applicant and, on request, to any other person.

11.22.2. The fact sheet shall include, when applicable:

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

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

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

11.22.2.d. Reasons why any requested variances or alternatives to required standards do or do not appear justified;

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

11.22.2.e.1. The beginning and ending dates of the comment period and the address where comments will be received;

11.22.2.e.2. Procedures for requesting a hearing and the nature of that hearing; and

11.22.2.e.3. Any other procedures by which the public may participate in the final decision; and

11.22.2.f. Name and telephone number of a person to contact for additional information.

11.23. Public Access to Information.

11.23.1. Any records, reports, or information and any permit, permit applications, and related documentation within the chief's possession shall be available to the public for inspection and copying; provided, however, that upon a satisfactory showing to the chief that such records, reports, permit documentation, or information, or any part thereof would, if made public, divulge methods or processes or activities entitled to protection as trade secrets, the chief shall consider, treat, and protect such records as confidential.

11.23.2. It shall be the responsibility of the person

claiming any information as confidential under the provisions of Section 11.23.1 of these regulations to clearly mark each page containing such information with the word "CONFIDENTIAL" and to submit an affidavit setting forth the reasons that said person believes that such information is entitled to protection.

11.23.3. Any document submitted to chief which contains information for which claim of confidential information is made shall be submitted in a sealed envelope marked "CONFIDENTIAL" and addressed to the chief. The document shall be submitted in two (2) separate parts. The first part shall contain all information which is not deemed by the person preparing the report as confidential and shall include appropriate cross-references to the second part which contains data, words, phrases, paragraphs, or pages and appropriate affidavits containing or relating to information which is claimed to be confidential.

11.23.4. No information shall be protected as confidential information by the chief unless it is submitted in accordance with the provisions of Section 11.23.3 of these regulations and no information which is submitted in accordance with the provisions of Section 11.23.3 of these regulations shall be afforded protection as confidential information unless the chief finds that such protection is necessary to protect trade secrets. The person who submits information claimed as confidential shall receive written notice from the chief as to whether the information has been accepted as confidential or not.

11.23.5. All information which meets the tests of Section 11.23.4 of these regulations shall be marked with the term "ACCEPTED" and shall be protected as confidential information. If said person fails to satisfactorily demonstrate to the chief that such information in the form presented to him meets the criteria of Section 11.23.5 of these regulations, the chief shall mark the information "REJECTED" and promptly return such information to the person submitting such information.

11.23.6. Nothing contained herein shall be construed so as to restrict the release of relevant confidential information during situations declared to be emergencies by the chief or his designee.

11.23.7. Nothing in Section 11.23 of these regulations may be construed as limiting the disclosure of information by the Division to any officer, employee, or authorized representative of the State or federal government concerned with effecting the purposes of Section 11.23 of these regulations.

11.23.8. Persons interested in obtaining information pursuant to Section 11.23 of these regulations should submit a request in accordance with Title 46, Water Resources Board, Series 8 (46 C.S.R. 8).

11.23.9. Claims of confidentiality for the name and address of any permit applicant or permittee will be denied.

11.24. Public Participation in Permit Process.

11.24.1. Scope. Public notice shall be given that the following actions have occurred:

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

11.24.1.b. A hearing has been scheduled.

11.24.2. Timing.

11.24.2.a. Public notice of the preparation of a draft permit required under Section 11.24 of these regulations shall allow at least forty-five (45) days for public comment.

11.24.2.b. Public notice of a public hearing shall be given at least thirty (30) days before the hearing.

11.24.3. Methods. Public notice of activities described in Section 11.24 of these regulations shall be given by the following methods:

11.24.3.a. By mailing a copy of a notice to the following persons:

11.24.3.a.1. The applicant;

11.24.3.a.2. Any federal or state agency which the chief knows has issued or is required to issue a RCRA, UIC, PSD, NPDES, or 404 permit for the same facility or activity including, but not limited to, the U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers;

11.24.3.a.3. Each State agency having authority under State law with responsibility to the construction or operation of such facility;

11.24.3.a.4. Any unit of local government having jurisdiction over the area where the facility is proposed to be located;

11.24.3.a.5. Other appropriate federal or state agencies including, but not limited to, the U.S. Fish and Wildlife Service, the U.S. Forest Service, the West Virginia Department of Culture and History, the West Virginia Department of Health, other governmental authorities including any affected states, and the Advisory Council on Historic Preservation (Suite 430, 1522 K Street, N.W., Washington, DC 20005); and

11.24.3.a.6. Persons on a mailing list developed by:

11.24.3.a.6.A. Including those who request in writing to be on the list.

11.24.3.a.6.B. Soliciting persons for "area lists" from participants in past permit proceedings in that area.

11.24.3.a.6.C. Notifying the public of the opportunity to be put on the mailing list through periodic publication in the public press and in appropriate publications of the State.

11.24.3.b. By publishing the public notice, in the form of a Class I legal advertisement in a qualified daily or weekly newspaper of general circulation and broadcasting the public notice over local radio stations in the area in which the facility is or is proposed to be located. A qualified daily or weekly newspaper is, for the purposes of Section 11.24 of these regulations, any newspaper which meets the provisions of W. Va. Code §59-3-1(b).

11.24.3.c. By 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.

11.24.3.d. Any person otherwise entitled to receive notice under Section 11.24 of these regulations may waive the right to receive notice for any classes and categories of permits.

11.24.4. Personal Notification by Facility Owner or Operator to Individual Residents.

11.24.4.a. Following submittal of a Part B application which is deemed complete by the chief, and before the public notice of the preparation of a draft permit as required under Section 11.14.1 of these regulations, the facility owner or operator shall serve notice upon the residence of all persons residing within one-quarter mile of the boundaries of the specific hazardous waste management facility.

11.24.4.b. Service of such notice as herein provided shall be made by delivering a copy to the residence of each person upon whom service must be made or by mailing it by registered mail to the last known address of each person or by such other reasonable means as the chief and the owner or operator agree will provide an effective and practical method of notification.

11.24.4.c. Following completion of service of notice as set forth herein, and no later than the date of the public notice required in Section 11.24.1 of these regulations, the owner or operator shall certify in writing to the chief that service has been completed, describe the method of service, and provide a copy of the written notice employed to the chief.

11.24.4.d. The personal notice required herein shall be a written notice containing at a minimum:

11.24.4.d.1. The name and address of the permit applicant;

11.24.4.d.2. The name, location, and type of hazardous waste management facility for which the application has been submitted;

11.24.4.d.3. A statement advising the recipients of the notice that a complete application for permit has been submitted; and

11.24.4.d.4. A statement advising the notice recipients that an opportunity for public comment upon the application and draft permit will be made available to them upon completion of Department review of the application and that such notice will be published as a legal advertisement in a local newspaper and broadcast over the radio.

11.24.5. Contents.

11.24.5.a. All public notices issued under Section 11.24 of these regulations shall contain the following information:

11.24.5.a.1. Name and address of the office processing the permit action for which notice is being given;

11.24.5.a.2. Name and address of the permittee or permit applicant and, if different, of the facility or activity regulated by the permit;

11.24.5.a.3. A brief description of the business conducted at the facility described in the permit application or the draft permit;

11.24.5.a.4. The name, address, and telephone number of a person from whom interested persons may obtain further information, including copies of the draft permit or fact sheet, and the application; and

11.24.5.a.5. A brief description of the comment procedures required by Sections 11.25 and 11.26 of these regulations and the time and place of any hearing that will be held, including a statement of procedures to request a hearing unless already scheduled, and other procedures by which the public may participate in the final permit decision.

11.24.5.b. In addition to the general public notice described in Section 11.24.5.a of these regulations, the public notice of a hearing shall contain the following information:

11.24.5.b.1. Reference to the date of previous public notices relating to the permit;

11.24.5.b.2. Date, time, and place of the hearing;

11.24.5.b.3. A brief description of the nature and purpose of the hearing, including the applicable rules and procedures; and

11.24.5.b.4. Name and address of the nearest district office where the file will be available for inspection.

11.24.5.c. In addition to the general public notice, all persons identified in Section 11.24.3 of these regulations shall be mailed a copy of the fact sheet, the permit application, and the draft permit.

11.25. Public Comment and Requests for Public Hearings. During the public comment period provided any interested person may submit written comments on the draft permit and may request a public hearing if no hearing has already been scheduled. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. All comments shall be considered in making the final decision and shall be answered as provided in Sections 11.28 and 11.29 of these regulations.

11.26. Public Hearings.

11.26.1. The chief shall hold a public hearing whenever he finds, on the basis of requests, a significant degree of public interest in a draft permit(s). The chief may also hold a public hearing at his discretion whenever, for instance, such hearing might clarify one or more issues involved in the permit decision.

11.26.2. The chief shall hold a public hearing upon receiving written notice of opposition to a draft permit and a request for a public hearing within forty-five (45) days of the public notice. Whenever possible the chief shall schedule a hearing under Section 11.26 of these regulations at a location convenient to the nearest population center to the proposed facility. Public notice of the hearing shall be given as specified in Section 11.24 of these regulations.

11.27. (Reserved).

11.28. Reopening of the Public Comment Period.

11.28.1. If any data, information, or arguments submitted during the public comment period appear to raise substantial new questions concerning a permit, the chief may take one or more of the following actions:

11.28.1.a. Prepare a new draft permit, appropriately modified, under Section 11 of these regulations.

11.28.1.b. Prepare a revised fact sheet under Section 11 of these regulations and reopen the comment period.

11.28.1.c. Reopen or extend the comment period under Section 11 of these regulations to give interested persons an opportunity to comment on the information or arguments submitted.

11.28.2. Comments filed during the reopened comment period shall be limited to the substantial new questions that caused its reopening. The public notice under Section 11 of these regulations shall define the scope of the reopening.

11.29. Response to Comments.

11.29.1. At the time that any final permit is issued, the chief shall issue a response to comments. This response shall be in writing and shall:

11.29.1.a. Specify which provisions, if any, of the draft permit have been changed in the final permit and the reasons for change; and

11.29.1.b. Briefly describe and respond to all significant comments on the draft permit raised during the public comment period or during any hearing.

11.29.2. The response to comments shall be delivered to any person who commented or any person who requests the same.

11.30. Permits for Land Treatment Demonstrations Using Field Test or Laboratory Analysis.

11.30.1. For the purpose of allowing an owner or operator to meet the treatment demonstration requirements of Section 8.12.3 of these regulations, the chief may issue a treatment demonstration permit. The permit must contain only those requirements necessary to meet the standards in Section 8.12.3.c of these regulations. The permit may be issued either as a treatment or disposal permit covering only the field test or laboratory analyses or as a two-phase facility permit covering the field tests or laboratory analyses and design, construction, operation, and maintenance of the land treatment unit.

11.30.1.a. The chief may issue a two-phase facility permit if he finds that, based on information submitted in Part B of the application, substantial, although incomplete or inconclusive, information already exists upon which to base the issuance of a facility permit.

11.30.1.b. If the chief finds that not enough

information exists upon which he can establish permit conditions to attempt to provide for compliance with all of the requirements of Section 8.12 of these regulations, he must issue a treatment demonstration permit covering only the field test or laboratory analyses.

11.30.2. If the chief finds that a phased permit may be issued, he will establish as requirements in the first phase of the facility permit conditions for conducting the field tests or laboratory analyses. These permit conditions will include design and operating parameters including the duration of the tests or analyses and, in the case of field tests, the horizontal and vertical dimensions of the treatment zone; monitoring procedures; post-demonstration clean-up activities; and any other conditions which the chief finds may be necessary under Section 8.12.3.c of these regulations. The chief will include conditions in the second phase of the facility permit to attempt to meet all Section 8.12 requirements pertaining to unit design, construction, operation, and maintenance. The chief will establish these conditions in the second phase of the permit based upon the substantial but incomplete or inconclusive information contained in the Part B application. The first and second phases of the permit shall become effective as specified by the chief regarding that permit.

11.30.3. When the owner or operator who has been issued a two-phase permit has completed the treatment demonstration, he must submit to the chief a certification, signed by a person authorized to sign a permit application or report under Section 11.7 of these regulations, that the field tests or laboratory analyses have been carried out in accordance with the conditions specified in phase one of the permit for conducting such test or analyses. The owner or operator must also submit all data collected during the field tests or laboratory analyses within ninety (90) days of completion of those tests or analyses unless the chief approves a later date.

11.30.4. If the chief determines that the results of the field tests or laboratory analyses meet the requirements of Section 8.12.3 of these regulations, he will modify the second phase of the permit to incorporate any requirements necessary for operation of the facility in compliance with Section 8.12 of these regulations based upon the results of the field tests or laboratory analyses.

11.30.4.a. This permit modification may proceed as a minor modification under Section 11.20 of these regulations, provided any such changes is minor or otherwise will proceed as a modification under Section 11.18.1 of these regulations.

11.30.4.b. If no modifications of the second phase of the permit are necessary, or if only minor modifications are necessary and have been made, the chief will give notice of his

final decision to the permit applicant and to each person who submitted written comments on the phased permit or who requested notice of the final decision on the second phase of the permit. The second phase of the permit then will become effective as specified in 40 C.F.R. §124.15(b).

11.30.4.c. If modifications under Section 11.18.1 of these regulations are necessary, the second phase of the permit will become effective only after those modifications have been made.

§47-35-12. Location Standards for Hazardous Waste Management Facilities.

12.1. General. Section 12 of these regulations describes the location restrictions for the construction or placement of new hazardous waste management facilities.

12.1.1. Seismic Considerations.

12.1.1.a. Portions of new facilities where treatment, storage, or disposal of hazardous waste must not be located within 61 meters (200 feet) of a fault which has had displacement in the Holocene.

12.1.1.b. As used in Section 12.1.1.a of these regulations:

12.1.1.b.1. "Fault" means a fracture along which rocks strata on one side have been displaced with respect to those on the other side.

12.1.1.b.2. "Displacement" means the relative movement of any two sides of a fault measured in any direction.

12.1.1.b.3. "Holocene" means the most recent epoch of the Quaternary Period, extending from the end of the Pleistocene to the present.

12.1.2. Karst Terrain.

12.1.2.a. Facilities must not be located on areas of karst terrain.

12.1.2.b. As used in Section 12.1.2.a of these regulations, "karst terrain" is that terrain underlain by carbonate (limestone and dolomite) bedrock containing voids, caves, and underground streams into which surface drainage flows through solution openings and sink holes produced by solution of the carbonate rock.

12.1.2.c. The location restriction of Section 12.1.2.a of these regulations shall be limited to all disposal facilities

and to storage or treatment surface impoundments.

12.1.3. Subsurface Mining Areas.

12.1.3.a. Portions of new facilities where hazardous waste management will be conducted must not be located within 305 meters (1,000 feet) of a surface area likely to be influenced by underground mining. The outer limits of the surface area thus influenced are defined as that area beyond the point that may be considered the practical limit of subsidence as determined by the angle of the draw.

12.1.3.b. As used in Section 12.1.3.a of these regulations:

12.1.3.b.1. "Angle of draw" is the angle between the vertical line drawn from the edge of the underground opening and the point at the surface where the subsidence diminishes to zero.

12.1.3.c. The location restriction of Section 12.1.3.a of these regulations shall be limited to all disposal facilities and to storage or treatment surface impoundments.

12.1.4. Critical Recharge Areas.

12.1.4.a. Facilities must not be located in critical recharge areas.

12.1.4.b. As used in Section 12.1.4.a of these regulations, "critical recharge areas" are those surface land areas which serve as recharge areas for those portions of aquifers used for public water supply.

12.1.4.c. The location restriction of Section 12.1.4.a of these regulations shall be limited to those surface land areas which recharge portions of aquifers serving as a public groundwater supply. A public groundwater supply means a groundwater supply system serving at least fifteen (15) service connections or an average of twenty-five (25) or more permanent residents on a year-round basis.

12.1.4.d. The location restriction of 12.1.4.a of these regulations shall be limited to all disposal facilities and to storage or treatment surface impoundments.

12.1.5. Wetlands.

12.1.5.a. No facility shall be located in wetlands or in areas that may have an impact on wetlands.

12.1.5.b. The location of facilities that have the potential for influencing wetlands shall be determined by the chief.

12.1.5.c. As used in Section 12.1.5.a of these regulations:

12.1.5.c.1. "Wetlands" are those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, wet meadows, mudflats, sandflats, and natural ponds.

12.1.6. Dam-Related Flood Hazard Areas.

~~12.1.6.a. No facility shall be located within dam-related "danger reach" flood hazard areas where a dam or any water impounding structure which when breached may cause inundation of the facility involved has not received the necessary permits or approvals from the appropriate state or federal agencies. In no case should facilities be located within the flood pool of any dam.~~

12.1.6.a. No facility shall be located within the danger reach of a dam or any water impounding structure which has not received the necessary permits or approvals from the appropriate state or federal agencies. In no case should facilities be located within the flood pool of any dam.

12.1.6.b. As used in Section 12.1.6.a of these regulations:

12.1.6.b.1. The "danger reach" is the land area immediately adjacent to a river or stream below a water-impounding structure or dam. The extent of the danger reach is that area which would be inundated by the flow of water from the impoundment created by the dam if the dam were to fail.

12.1.6.b.2. The "flood pool" is the land area above the dam or water impounding structure surrounding the impoundment which will flood due to increased water levels in the impoundment as a result of abnormally high runoff or precipitation events. The extent of the flood pool is limited by the land contour at the same elevation as the crest of the dam or impounding structure.

12.1.7. Floodplains.

12.1.7.a. A new or existing hazardous waste management floodplains facility located in a 100-year floodplain must be designed, constructed, operated, and maintained to prevent washout of any hazardous waste by a 100-year flood unless the owner or operator can demonstrate to the chief that procedures are in effect which will cause the waste to be removed safely before floodwaters can reach the facility to a location where the wastes will not be vulnerable to floodwaters.

Comment: The location where wastes are moved must be an approved facility which is either permitted by EPA under 40 C.F.R. Part 270, authorized to manage hazardous waste by a state with a hazardous waste management program authorized under 40 C.F.R. Parts 123 and 271, permitted by Section 11 of these regulations, or in interim status under 40 C.F.R. Parts 265 and 270 and Section 10 of the State Act.

12.1.7.b. As used in Section 12.1.7.a of these regulations:

12.1.7.b.1. "100 year floodplain" means any land area which is subject to a one percent (1%) or greater chance of flooding in any given year from any source.

12.1.7.b.2. "Washout" means the movement of hazardous waste from the active portion of the facility as a result of flooding.

12.1.7.b.3. "100-year flood" means a flood that has a one percent (1%) chance of being equalled or exceeded in any given year.

Comment: Procedures for demonstrating compliance with each of these standards in Part B of the permit application are specified in Section 11.5.1 of these regulations.

§47-35-13. Financial Requirements.

13.1. The director hereby adopts and incorporates by reference the provisions contained in Subpart H of 40 C.F.R. Parts 264 and 265 as published in the Code of Federal Regulations on the date specified in Section 1.5 of these regulations, with the following modifications:

13.1.1. The adopted provisions contained in 40 C.F.R. §§ 264.143(f), 265.143(e), 264.145(f), 265.145(e), 264.147(f), and 265.147(f) shall be amended by the addition of the following paragraph:

"Notwithstanding the above, the director may disallow the use of this test on the basis of information that the owner or operator has violated or is in violation of any state or federal law or regulation pertaining to environmental protection. The owner or operator must provide alternate financial assurance as specified in this section within thirty (30) days after notification of the disallowance."

13.1.2. The provisions contained in 40 C.F.R. §§264.149, 265.149, 264.150, and 265.150 shall be deleted.

13.1.3. Wherever the term Administrator or Regional Administrator is used, the term shall have the meaning of the

director of the West Virginia Department of Natural Resources.

13.1.4. Wherever the term Environmental Protection Agency or EPA is used, the term shall have the meaning of the West Virginia Department of Natural Resources.

13.1.5. The adopted provisions contained in 40 C.F.R. §§ 264.147(b)(4)(iii) and 265.147(b)(4)(iii) shall be amended to read: "All other owners or operators, thirty (30) days after the effective date of these regulations."

§47-35-14. (Reserved).

§47-35-15. Deed and Lease Disclosures; Approval for Land Disturbance.

15.1. Notice in Deed to Property.

15.1.1. The owner of the property on which a hazardous waste management facility is located must record, in accordance with State law, a notation on the deed or lease to the facility property -- or on some other instrument which is normally examined during title search -- that will in perpetuity notify any potential purchaser of the property that:

15.1.1.a. The land has been used to manage hazardous wastes; and

15.1.1.b. Its use is restricted under Section 8.6.7.c of these regulations.

15.1.2. Upon actual transfer of property which contains hazardous wastes that have been stored, treated, or disposed of, the previous owner shall notify the chief in writing of such transfer.

15.2. Approval for Land Disturbance.

15.2.1. Before the owner or operator or any subsequent owner of the land upon which a hazardous waste disposal facility was located, engages in filling, grading, excavating, building, drilling, or mining on the property, or engaging in any activity which will disturb the closure of said area, the chief must be notified and the owner or operator must obtain authorization prior to commencing such activity.

15.3. Survey Plat. No later than the submission of the certification of closure of each hazardous waste disposal unit, the owner or operator must submit to the local zoning authority, or the authority with jurisdiction over local land use, and to the chief a survey plat indicating the location and dimensions of landfill cells or other hazardous waste disposal units with respect to permanently surveyed benchmarks. This plat must be

prepared and certified by a professional land surveyor. The plat filed with the local zoning authority, or the authority with jurisdiction over local land use, must contain a prominently displayed note which states the owner's or operator's obligation to restrict disturbance of the hazardous waste disposal unit in accordance with Section 8.6.7.c of these regulations.

15.4. Post-Closure Notices.

15.4.1. No later than sixty (60) days after certification of closure of each hazardous waste disposal unit, the owner or operator must submit to the local zoning authority, or the authority with jurisdiction over local land use, and to the chief a record of the type, locations, and quantity of hazardous wastes disposed of within each cell or other disposal unit of the facility. For hazardous wastes disposed of before January 12, 1981, the owner or operator must identify the type, location, and quantity of the hazardous wastes to the best of his knowledge and in accordance with any records he has kept.

15.4.2. Within sixty (60) days of certification of closure of the first hazardous waste disposal unit and within sixty (60) days of certification of closure of the last hazardous waste disposal unit, the owner or operator must:

15.4.2.a. Record, in accordance with State law, a notation on the deed to the facility property or on some other instrument which is normally examined during title search that will in perpetuity notify any potential purchaser of the property that:

15.4.2.a.1. The survey plat and record of the type, location, and quantity of hazardous wastes disposed of within each cell or other hazardous waste disposal unit of the facility required by Sections 15.3 and 15.4.1 of these regulations have been filed with the local zoning authority or the authority with jurisdiction over local land use and with the chief; and

15.4.2.b. Submit a certification, signed by the owner or operator, that he has recorded the notation specified in Section 15.4.2.a of these regulations, including a copy of the document in which the notation has been placed to the chief.

15.4.3. If the owner or operator or any subsequent owner or operator of the land upon which a hazardous waste disposal unit is located wishes to remove hazardous wastes and hazardous waste residues, the liner (if any), or contaminated soils, he must request a modification to the post-closure permit in accordance with the applicable requirements in Section 11 of these regulations. The owner or operator must demonstrate that the removal of hazardous wastes will satisfy the criteria of Section 8.6.7.c of these regulations. By removing hazardous waste, the owner or operator may become a generator of hazardous waste and

must manage that waste in accordance with all applicable requirements of these regulations. If he is granted a permit modification or otherwise granted approval to conduct such removal activities, the owner or operator may request that the chief approve the addition of a notation to the deed or instrument indicating the removal of the hazardous waste.

15.5. Other Requirements. Nothing contained in Section 15 of these regulations shall relieve any person from complying with the requirements on deed and lease disclosures set forth in Section 20 of the State Act.

§47-35-16. Notices of Changes.

16.1. Notices of Amendments to Federal Law or Regulations. Persons desiring to call to the attention of the director amendments to ~~the federal Solid Waste Disposal Act, as amended,~~ RCRA or regulations promulgated pursuant thereto, may do so by filing a notice with the director identifying the amendment which has been made to ~~the federal Solid Waste Disposal Act, as amended,~~ RCRA or regulations promulgated pursuant thereto, and identifying the provision of these regulations which such person believes should be amended.

16.2. Petitions for Waste Exclusions.

16.2.1. Persons desiring to exclude a waste at a particular generating facility from the lists in Section 3.4 of these regulations must petition the director for such an exclusion. The petition shall include:

16.2.1.a. A copy of the petition submitted to the Administrator pursuant to 40 C.F.R. §260.22, including all demonstration information;

16.2.1.b. A copy of the Administrator's approval granting the exclusion pursuant to 40 C.F.R. §260.20(d); and

16.2.1.c. Any other additional information which may be required for the director to evaluate the petition.

16.2.2. Within one hundred and twenty (120) days of the filing of the petition the director shall decide whether to approve or to deny the petition and so advise the petitioner. Where a decision to deny a petition is made, the director shall notify the petitioner of such action in writing, setting forth the reasons therefor.

16.2.3. The director shall not deny a petition to exclude a waste at a particular facility that has been approved by the Administrator unless scientifically supportable reasons for such denial are advanced which had not been presented to the Administrator.

16.3. Variances from Classification as a Waste.

16.3.1. General. In accordance with the standards and criteria in Sections 16.3.2 of these regulations and the procedures in Section 16.3.3 of these regulations, the director may determine on a case-by-case basis that the following recycled materials are not wastes:

16.3.1.a. Materials that are accumulated speculatively without sufficient amounts being recycled (as defined in Section 3.1.1.c.8 of these regulations);

16.3.1.b. Materials that are reclaimed and then reused within the original primary production process in which they were generated; or

16.3.1.c. Materials that have been reclaimed but must be reclaimed further before the materials are completely recovered.

16.3.2. Standards and Criteria.

16.3.2.a. The director may grant requests for a variance from classification as a waste for those materials that are accumulated speculatively without sufficient amounts being recycled if the applicant demonstrates that sufficient amounts of the material will be recycled or transferred for recycling in the following calendar year. A variance granted under Section 16 of these regulations is valid only from the date of approval through the following calendar year but may be renewed on an annual basis by filing a new application for such variance. The director will base the decision to grant or deny a variance under this subsection on the following standards and criteria:

16.3.2.a.1. The manner in which the material is expected to be recycled, when the material is expected to be recycled, and whether this expected disposition is likely to occur (e.g., because of past practice, market factors, the nature of the material, or contractual arrangements for recycling);

16.3.2.a.2. The reason that the applicant has accumulated the material for one or more years without recycling seventy-five percent (75%) of the volume accumulated at the beginning of the calendar year;

16.3.2.a.3. The quantity of material already accumulated and the quantity expected to be generated and accumulated before the material is recycled;

16.3.2.a.4. The extent to which the material is handled to minimize loss; and

16.3.2.a.5. Other relevant factors.

16.3.2.b. The director may grant requests for a variance from classifying as a waste those materials that are reclaimed and then reused as feedstock within the original primary production process in which the material was generated if the reclamation operation is an essential part of the production process. This determination will be based on the following criteria:

16.3.2.b.1. How economically viable the production process would be if it were to use virgin materials, rather than reclaimed materials;

16.3.2.b.2. The prevalence of the practice on an industry-wide basis;

16.3.2.b.3. The extent to which the material is handled before reclamation to minimize loss;

16.3.2.b.4. The time periods between generating the material and its reclamation and between reclamation and return to the original primary production process;

16.3.2.b.5. The location of the reclamation operation in relation to the production process;

16.3.2.b.6. Whether the reclaimed material is used for the purpose for which it was originally produced when it is returned to the original process and whether it is returned to the process in substantially its original form;

16.3.2.b.7. Whether the person who generates the material also reclaims it; and

16.3.2.b.8. Other relevant factors.

16.3.2.c. The director may grant requests for a variance from classifying as a waste those materials that have been reclaimed but must be reclaimed further before recovery is completed if, after initial reclamation, the resulting material is commodity-like even though it is not yet a commercial product and must be reclaimed further. This determination will be based on the following factors:

16.3.2.c.1. The degree of processing the material has undergone and the degree of further processing that is required to complete recovery of the material;

16.3.2.c.2. The value of the material after it is reclaimed;

16.3.2.c.3. The degree to which the reclaimed material has been like an analogous raw material;

16.3.2.c.4. The extent to which an end market for the

reclaimed material is guaranteed;

16.3.2.c.5. The extent to which the reclaimed material is handled to minimize loss; and

16.3.2.c.6. Other relevant factors.

16.3.3. Variance Procedures.

16.3.3.a. An applicant for a variance from classification as a waste under Section 16 of these regulations must apply to the director. The application must address the applicable criteria or standards contained in Section 16.3.2 of these regulations.

16.3.3.b. The director will evaluate the application and issue a public notice of the tentative determination to grant or deny a variance from classification as a waste. Notification of this tentative determination will be provided in the manner prescribed in Section 11.24.3.b of these regulations. The director will accept public comment on the tentative variance determination for thirty (30) days, and may also hold a public hearing upon request or at his discretion. The director will issue a final decision after receipt of public comments and the hearing (if any). Such final decision may not be appealed to the State Water Resources Board.

TABLE I

Potential Waste Materials

	Use constituting disposal (1)	Energy recovery - fuel (2)	Reclamation (3)	Speculative accumulation (4)
	-----	-----	-----	-----
Spent materials	*	*	*	*
Sludges listed in Sections 3.4.2 and 3.4.3 of <u>these</u> <u>regulations</u>	*	*	*	*
Sludges exhibiting a characteristic of hazardous waste	*	*		*
By-products listed in Sections 3.4.2 and 3.4.3 <u>of these</u> <u>regulations</u>	*	*	*	*
By-products exhibit- ing a characteristic of hazardous waste	*	*		*
Commercial chemical products listed in Section 3.4.4 <u>of</u> <u>these regulations</u>	*	*		
Scrap metal	*	*	*	*

NOTE: The terms "spent materials", "sludges", "by-products", and "scrap metal" are defined in Section 3.1.1.c of these regulations.

TABLE II

Maximum Concentration of Contaminants
for Characteristic of EP Toxicity

EPA Hazardous Waste Number	Contaminant	Maximum Concentration (Milligrams per liter)
D004	Arsenic	5.0
D005	Barium	100.0
D006	Cadmium	1.0
D007	Chromium	5.0
D008	Lead	5.0
D009	Mercury	0.2
D010	Selenium	1.0
D011	Silver	5.0
D012	Endrin (1,2,3,4,10,10-Hexachloro- 1,7-epoxy-1,4,4a,5,6,7,8,8a- octahydro-1,4-endo,endo-5,8- dimethanonaphthalene)	0.02
D013	Lindane (1,2,3,4,5,6-Hexachloro- cyclohexane, gamma isomer)	0.4
D014	Methoxychlor (1,1,1-Trichloro- 2,2-bis(p-methoxyphenyl)ethane)	10.0
D015	Toxaphene (Technical chlorinated camphene, 67-69% chlorine)	0.5
D016	2,4-D (2,4-Dichlorophenoxyacetic acid)	10.0
D017	2,4,5-TP (Silvex) (2,4,5-Trichloro- phenoxypropionic acid)	1.0

TABLE III

Hazardous Waste from Nonspecific Sources

EPA Hazardous Waste Number	Hazardous Waste	Hazard Code
F001 . . .	The following spent halogenated solvents used in degreasing: tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures or blends used in degreasing containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(T)
F002 . . .	The following spent halogenated solvents: tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, orthodichlorobenzene, trichlorofluoromethane, and 1,1,2-trichloroethane; all spent solvent mixtures or blends containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F001, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(T)
F003 . . .	The following spent non-halogenated solvents: xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures or blends containing, before use, only the above spent non-halogenated solvents; and all spent solvent mixtures or blends containing, before use, one or more of the above non-halogenated solvents, and a total of ten percent or more (by volume) of one or more of those solvents listed in F001, F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(I)*

* (I,T) should be used to specify mixtures containing ignitable and toxic constituents.

TABLE III continued

Hazardous Waste from Nonspecific Sources

EPA Hazardous Waste Number	Hazardous Waste	Hazard Code
F004 . . .	The following spent non-halogenated solvents: cresols and cresylic acid, and nitrobenzene; all spent solvent mixtures or blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(T)
F005 . . .	The following spent non-halogenated solvents: toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures or blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, and F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(I,T)
F006 . . .	Wastewater treatment sludges from electroplating operations except from the following processes: (1) sulfuric acid anodizing of aluminum; (2) tin plating on carbon steel; (3) zinc plating (segregated basis) on carbon steel; (4) aluminum or zinc-aluminum plating on carbon steel; (5) cleaning/stripping associated with tin, zinc and aluminum plating on carbon steel; and (6) chemical etching and milling of aluminum.	(T)
F019 . . .	Wastewater treatment sludges from the chemical conversion coating of aluminum.	(T)
F007 . . .	Spent cyanide plating bath solutions from electroplating operations.	(R,T)
F008 . . .	Plating bath residues from the bottom of plating -plating baths from electroplating operations where cyanides are used in the process.	(R,T)

TABLE III continued

Hazardous Waste from Nonspecific Sources

EPA Hazardous Waste Number	Hazardous Waste	Hazard Code
F009 . . .	Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process.	(R,T)
F010 . . .	Quenching bath sludge residues from oil baths from metal heat treating operations where cyanides are used in the process.	(R,T)
F011 . . .	Spent cyanide solutions from salt bath pot cleaning from metal heat treating operations.	(R,T)
F012 . . .	Quenching wastewater treatment sludges from metal heat treating operations where cyanides are used in the process.	(T)
F019 . . .	Wastewater treatment sludges from the chemical conversion coating of aluminum.	(T)
F020 . . .	(Reserved).	
F021 . . .	(Reserved).	
F022 . . .	(Reserved).	
F023 . . .	(Reserved).	
F024 . . .	Wastes, including but not limited to, distillation residues, heavy ends, tars, and reactor cleanout wastes from the production of chlorinated aliphatic hydrocarbons, having a carbon content from one to five, utilizing free radical catalyzed processes. This listing does not include light ends, spent filters and filter aids, spent dessicants, wastewater, wastewater treatment sludges, spent catalysts and waste listed in Section 3.4.3 of these regulations.	(T)
F026 . . .	(Reserved).	
F027 . . .	(Reserved).	
F028 . . .	(Reserved).	

TABLE IV

Hazardous Waste from Specific Sources

EPA Hazardous Waste Number	Hazardous Waste	Hazard Code
<u>Wood Preservation:</u>		
K001 . . .	Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote or pentachlorophenol or both.	(T)
<u>Inorganic Pigments:</u>		
K002 . . .	Wastewater treatment sludge from the production of chrome yellow and orange pigments.	(T)
K003 . . .	Wastewater treatment sludge from the production of molybdate orange pigments.	(T)
K004 . . .	Wastewater treatment sludge from the production of zinc yellow pigments.	(T)
K005 . . .	Wastewater treatment sludge from the production of chrome green pigments.	(T)
K006 . . .	Wastewater treatment sludge from the production of chrome oxide green pigments (anhydrous and hydrated).	(T)
K007 . . .	Wastewater treatment sludge from the production of iron blue pigments.	(T)
K008 . . .	Oven residue from the production of chrome oxide green pigments.	(T)
<u>Organic Chemicals:</u>		
K009 . . .	Distillation bottoms from the production of acetaldehyde from ethylene.	(T)
K010 . . .	Distillation side cuts from the production of acetaldehyde from ethylene.	(T)
K011 . . .	Bottom stream from the wastewater stripper in the production of acrylonitrile.	(R,T)
K013 . . .	Bottom stream from the acetonitrile column in the production of acrylonitrile.	(R,T)

TABLE IV continued
Hazardous Waste from Specific Sources

EPA Hazardous Waste Number	Hazardous Waste	Hazard Code
K014 . . .	Bottoms from the acetonitrile purification column in the production of acrylonitrile.	(T)
K015 . . .	Still bottoms from the distillation of benzyl chloride.	(T)
K016 . . .	Heavy ends or distillation residues from the production of carbon tetrachloride.	(T)
K017 . . .	Heavy ends (still bottoms) from the purification column in the production of epichlorohydrin.	(T)
K018 . . .	Heavy ends from the fractionation column in ethyl chloride production.	(T)
K019 . . .	Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production.	(T)
K020 . . .	Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production.	(T)
K021 . . .	Aqueous spent antimony catalyst waste from fluoromethanes production.	(T)
K022 . . .	Distillation bottom tars from the production of phenol/acetone from cumene.	(T)
K023 . . .	Distillation light ends from the production of phthalic anhydride from naphthalene.	(T)
K024 . . .	Distillation bottoms from the production of phthalic anhydride from naphthalene.	(T)
K093 . . .	Distillation light ends from the production of phthalic anhydride from o-xylene.	(T)
K094 . . .	Distillation bottoms from the production of phthalic anhydride from o-xylene.	(T)
K025 . . .	Distillation bottoms from production of nitrobenzene by the nitration of benzene.	(T)

TABLE IV continued

Hazardous Waste from Specific Sources

EPA Hazardous Waste Number	Hazardous Waste	Hazard Code
K026 . . .	Stripping still tails from the production of methyl ethyl pyridines.	(T)
K027 . . .	Centrifuge and distillation residues from toluene diisocyanate production.	(R,T)
K028 . . .	Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane.	(T)
K029 . . .	Waste from the product stream stripper in the production of 1,1,1-trichloroethane.	(T)
K095 . . .	Distillation bottoms from the production of 1,1,1-trichloroethane.	(T)
K096 . . .	Heavy ends from the heavy ends column from the production of 1,1,1-trichloroethane.	(T)
K030 . . .	Column bottoms or heavy ends from the combined production of trichloroethylene and perchloroethylene.	(T)
K083 . . .	Distillation bottoms from aniline production.	(T)
K103 . . .	Process residues from aniline extraction from the production of aniline.	(T)
K104 . . .	Combined wastewater streams generated from nitrobenzene/aniline production.	(T)
K085 . . .	Distillation or fractionation column bottoms from the production of chlorobenzenes.	(T)
K105 . . .	Separated aqueous stream from the reactor product washing step in the production of chlorobenzenes.	(T)
Inorganic Chemicals:		
K071 . . .	Brine purification muds from the mercury cell process in chlorine production, where separately pre-purified brine is not used.	(T)

TABLE IV continued

Hazardous Waste from Specific Sources

EPA Hazardous Waste Number	Hazardous Waste	Hazard Code
K073 . . .	Chlorinated hydrocarbon waste from the purification step of the diaphragm cell process using graphite anodes in chlorine production.	(T)
K106 . . .	Wastewater treatment sludge from the mercury cell process in chlorine production.	(T)
Pesticides:		
K031 . . .	By-product salts generated in the production of MSMA and cacodylic acid.	(T)
K032 . . .	Wastewater treatment sludge from the production of chlordane.	(T)
K033 . . .	Wastewater and scrub water from the chlorination of cyclopentadiene in the production of chlordane.	(T)
K034 . . .	Filter solids from the filtration of hexachlorocyclopentadiene in the production of chlordane.	(T)
K097 . . .	Vacuum stripper discharge from the chlordane chlorinator in the production of chlordane.	(T)
K035 . . .	Wastewater treatment sludges generated in the production of creosote.	(T)
K036 . . .	Still bottoms from toluene reclamation distillation in the production of disulfoton.	(T)
K037 . . .	Wastewater treatment sludges from the production of disulfoton.	(T)
K038 . . .	Wastewater from the washing and stripping of phorate production.	(T)
K039 . . .	Filter cake from the filtration of diethylphosphorodithioic acid in the production of phorate.	(T)

TABLE IV continued
Hazardous Waste from Specific Sources

EPA Hazardous Waste Number	Hazardous Waste	Hazard Code
K040 . . .	Wastewater treatment sludge from the production of phorate.	(T)
K041 . . .	Wastewater treatment sludge from the production of toxaphene.	(T)
K098 . . .	Untreated process wastewater from the production of toxaphene.	(T)
K042 . . .	Heavy ends or distillation residues from the distillation of tetrachlorobenzene in the production of 2,4,5-T.	(T)
K043 . . .	2,6-dichlorophenol waste from the production of 2,4-D.	(T)
K099 . . .	Untreated wastewater from the production of 2,4-D.	(T)
Explosives:		
K044 . . .	Wastewater treatment sludges from the manufacturing and processing of explosives.	(R)
K045 . . .	Spent carbon from the treatment of wastewater containing explosives.	(R)
K046 . . .	Wastewater treatment sludges from the manufacturing, formulation and loading of lead-based initiating compounds.	(T)
K047 . . .	Pink/red water from TNT operations.	(R)
Petroleum Refining:		
K048 . . .	Dissolved air flotation (DAF) float from the petroleum refining industry.	(T)
K049 . . .	Slop oil emulsion solids from the petroleum refining industry.	(T)

TABLE IV continued
Hazardous Waste from Specific Sources

EPA Hazardous Waste Number	Hazardous Waste	Hazard Code
K050 . . .	Heat exchanger bundle cleaning sludge from the petroleum refining industry.	(T)
K051 . . .	API separator sludge from the petroleum refining industry.	(T)
K052 . . .	Tank bottoms (leaded) from the petroleum refining industry.	(T)
Iron and Steel:		
K061 . . .	Emission control dust/sludge from the primary production of steel in electric furnaces.	(T)
K062 . . .	Spent pickle liquor generated by steel finishing operations of the facilities within the iron and steel industry (SIC Groups 331 and 332).	(C,T)
Secondary Lead:		
K069 . . .	Emission control dust/sludge from secondary lead smelting.	(T)
K100 . . .	Waste leaching solution from acid leaching of emission control dust/sludge from secondary lead smelting.	(T)
Veterinary Pharmaceuticals:		
K084 . . .	Wastewater treatment sludges generated during the production of veterinary pharmaceuticals from arsenic or organoarsenic compounds.	(T)
K101 . . .	Distillation tar residues from the distillation of aniline-based compounds in the production of veterinary pharmaceuticals from arsenic or organoarsenic compounds.	(T)
K102 . . .	Residue from the use of activated carbon for decolorization in the production of veterinary pharmaceuticals from arsenic or organoarsenic compounds.	(T)

TABLE IV continued
 Hazardous Waste from Specific Sources

EPA Hazardous Waste Number	Hazardous Waste	Hazard Code
Ink Formulation:		
K086 . . .	Solvent washes and sludges, caustic washes and sludges, or water washes and sludges from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps, and stabilizers containing chromium and lead.	(T)
Coking:		
K060 . . .	Ammonia still lime sludge from coking operations.	(T)
K087 . . .	Decanter tank car sludge from coking operations.	(T)

TABLE V

Acute Hazardous Wastes (H)

EPA Haz. Waste Number	Chemical Abstracts Number	Substance
P023	107-20-0	Acetaldehyde, chloro-
P002	591-08-2	Acetamide, N-(aminothioxomethyl)-
P057	640-19-7	Acetamide, 2-fluoro-
P058	62-74-8	Acetic acid, fluoro-, sodium salt
P066	16752-77-5	Acetimidic acid, N-((methylcarbamoyl)-oxy)thio-7-methyl-ester
P002	591-08-2	1-Acetyl-2-thiourea
P003	107-02-8	Acrolein
P070	116-06-3	Aldicarb
P004	309-00-2	Aldrin
P005	107-18-6	Allyl alcohol
P006	20859-73-8	Aluminum phosphide (R,T)
P007	2763-96-4	5-(Aminomethyl)-3-isoxazolol
P008	504-24-5	4-alpha-Aminopyridine
P008	504-24-5	4-Aminopyridine
P009	131-74-8	Ammonium picrate (R)
P119	7803-55-6	Ammonium vanadate
P099	506-61-6	Argentate(1-), bis(cyano-C)-, potassium
P010	7778-39-4	Arsenic acid
P011	1303-28-2	Arsenic pentoxide
P012	1327-53-3	Arsenic trioxide
P038	692-42-2	Arsine, diethyl
P036	696-28-6	Arsonous dichloride, phenyl-
P054	151-56-4	Aziridine
P067	75-55-8	Aziridine, 2-methyl-
P013	542-62-1	Barium cyanide
P024	106-47-8	Benzenamine, 4-chloro-
P077	100-01-6	Benzenamine, 4-nitro-
P028	100-44-7	Benzene, (chloromethyl)-
P042	51-43-4	1,2-Benzenediol, 4-(1-hydroxy-2-(methylamino)ethyl)- (R)
P046	122-09-8	Benzeneethanamine, alpha,alpha-dimethyl-
P014	108-98-5	Benzenethiol
P001	81-81-2*	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, and salts, when present at concentrations greater than 0.3%
P028	100-44-7	Benzyl chloride
P015	7440-41-7	Beryllium dust

* CAS Number given for parent compound only.

TABLE V continued
Acute Hazardous Wastes (H)

EPA Haz. Waste Number	Chemical Abstracts Number	Substance
P016	542-88-1	Bis(chloromethyl)-ether
P017	598-31-2	Bromoacetone
P018	357-57-3	Brucine
P045	39196-18-4	2-Butanone, 3,3-dimethyl-1-(methylthio)-, O-((methylamino)carbonyl)oxime
P021	592-01-8	Calcium cyanide
P022	75-15-0	Carbon disulfide
P022	75-15-0	Carbon disulfide
P095	75-44-5	Carbonic dichloride
P023	107-20-0	Chloroacetaldehyde
P024	106-47-8	p-Chloroaniline
P026	5344-82-1	1-(o-Chlorophenyl)thiourea
P027	542-76-7	3-Chloropropionitrile
P029	544-92-3	Copper cyanide
P030	-----	Cyanides (soluble cyanide salts), not otherwise specified
P031	460-19-5	Cyanogen
P033	506-77-4	Cyanogen chloride
P034	131-89-5	2-Cyclohexyl-4,6-dinitrophenol
P016	542-88-1	Dichloromethyl ether
P036	696-28-6	Dichlorophenylarsine
P037	60-57-1	Dieldrin
P038	692-42-2	Diethylarsine
P041	311-45-5	Diethyl-p-nitrophenyl phosphate
P040	297-97-2	O,O-Diethyl O-pyrazinyl phosphorothioate
P043	55-91-4	Diisopropylfluorophosphate (DEP)
P004	309-00-2	±,4±5,8- 1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4abeta,5alpha,8alpha,8abeta)-
P060	465-73-6	±,4±5,8- 1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4abeta,5beta,8beta,8abeta)-
P037	60-57-1	2,7:3,6-Dimethanonaphth(2,3-b)oxirane, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1alpha,2beta,2alpha,3beta,6beta,6alpha,7beta,7alpha)-

TABLE V continued
Acute Hazardous Wastes (H)

EPA Haz. Waste Number	Chemical Abstracts Number	Substance
P051	72-20-8	2,7:3,6-Dimethanonaphth(2,3-b)oxirane, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2abeta,3alpha,6alpha,6abeta,7beta,7aalpha)-, and metabolites
P044	60-51-5	Dimethoate
P045	39196-18-4	3,3-Dimethyl-1-(methylthio)-2-butanone; O-((methylamino)carbonyl)oxime
P046	122-09-8	alpha, alpha-Dimethylphenethylamine
P047	534-52-1*	4,6-Dinitro-o-cresol, and salts
P048	51-28-5	2,4-Dinitrophenol
P020	88-85-7	Dinoseb
P085	152-16-9	Diphosphoramidate, octamethyl-
P111	107-49-3	Diphosphoric acid, tetraethyl ester
P039	298-04-5	Disulfoton
P049	541-53-7	2,4-Dithiobiuret <u>Dithiobiuret</u>
P050	115-29-7	Endosulfan
P088	145-73-3	Endethal <u>Endothall</u>
P051	72-20-8	Endrin, and metabolites
P042	51-43-4	Epinephrine
P031	460-19-5	Ethanedinitrile
P066	16752-77-5	Ethanimidothioic acid, N-(((methylamino)carbonyl)oxy)-, methyl ester
P101	107-12-0	Ethyl cyanide
P054	151-56-4	Ethyleneimine
P097	52-85-7	Famphur
P056	7782-41-4	Fluorine
P057	640-19-7	Fluoroacetamide
P058	62-74-8	Fluoroacetic acid, sodium salt
P065	628-86-4	Fulminic acid, mercury(2+) salt (R,T)
P059	76-44-8	Heptachlor
P062	757-58-4	Hexaethyltetraphosphate
P116	79-19-6	Hydrazinecarbothioamide
P068	60-34-4	Hydrazine, methyl-
P063	74-90-8	Hydrocyanic acid
P063	74-90-8	Hydrogen cyanide
P096	7803-51-2	Hydrogen phosphide
P064	624-83-9	Isoeyanic acid, methyl ester

* CAS Number given for parent compound only.

TABLE V continued
Acute Hazardous Wastes (H)

EPA Haz. Waste Number	Chemical Abstracts Number	Substance
P060	465-73-6	Isodrin
P007	2763-96-4	3(2H)-Isoxazolone, 5-(aminomethyl)-
P092	62-38-4	Mercury, (acetato-O)phenyl-
P065	628-86-4	Mercury fulminate (R,T)
P082	62-75-9	Methanamine, N-methyl-N-nitroso-
P064	624-83-9	Methane, isocyanato-
P016	542-88-1	Methane, oxybis(chloro-
P122	509-14-8	Methane, tetranitro- (R)
P118	75-70-7	Methanethiol, trichloro-
P050	115-29-7	6,9-Methano-2,3,4-benzodioxathiepen, 6,7,8,9,10,10-hexachloro- 1,5,5a,6,9,9a-hexahydro-, 3-oxide
P059	76-44-8	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro- 3a,4,7,7a-tetrahydro-
P066	16752-77-5	Methomyl
P067	75-55-8	2-Methylaziridine
P068	60-34-4	Methyl hydrazine
P064	624-83-9	Methyl isocyanate
P069	75-86-5	2-Methylactonitrile
P071	298-00-0	Methyl parathion
P072	86-88-4	alpha-Naphthylthiourea
P073	13463-39-3	Nickel carbonyl
P073	13463-39-3	Nickel carbonyl, (F-4)-
P074	557-19-7	Nickel cyanide
P075	54-11-5*	Nicotine, and salts
P076	10102-43-9	Nitric oxide (Nitrogen oxide)
P077	100-01-6	p-Nitroaniline
P078	10102-44-0	Nitrogen dioxide
P076	10102-43-9	Nitrogen-oxide
P081	55-63-0	Nitroglycerine (R)
P082	62-75-9	N-Nitrosodimethylamine
P084	4549-40-0	N-Nitrosomethylvinylamine
P074	557-19-7	Nickel-cyanide
P085	152-16-9	Octamethylpyrophosphoramidate
P087	20816-12-0	Osmium-oxide
P087	20816-12-0	Osmium tetroxide
P088	145-73-3	7-Oxabicyclo(2.2.1)heptane- 2,3-dicarboxylic acid

* CAS Number given for parent compound only.

TABLE V continued
Acute Hazardous Wastes (H)

EPA Haz. Waste Number	Chemical Abstracts Number	Substance
P089	56-38-2	Parathion
P034	131-89-5	Phenol, 2-cyclohexyl-4,6-dinitro-
P048	51-28-5	Phenol, 2,4-dinitro-
P047	534-52-1*	Phenol, 2-methyl-4,6-dinitro-, and salts
P020	88-85-7	Phenol, 2-(1-methylpropyl)-4,6-dinitro-
P009	131-74-8	Phenol, 2,4,6-trinitro-, ammonium salt (R)
P092	62-38-4	Phenylmercury acetate
P093	103-85-5	Phenylthiourea
P094	298-02-2	Phorate
P095	75-44-5	Phosgene
P096	7803-51-2	Phosphine
P041	311-45-5	Phosphoric acid, diethyl 4-nitrophenyl ester
P039	298-04-4	Phosphorodithioic acid, O,O-diethyl S-(2-(ethylthio)ethyl) ester
P094	298-02-2	Phosphorodithioic acid, O,O-diethyl S-((ethylthio)methyl) ester
P044	60-51-5	Phosphorodithioic acid, O,O-diethyl <u>S-(2-(methylamino)-2-oxoethyl) ester</u>
P043	55-91-4	Phosphorofluoric acid, bis(1-methylethyl) ester
P089	56-38-2	Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester
P040	297-97-2	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester
P097	52-85-7	Phosphorothioic acid, O-(4-((dimethylamino)-sulfonyl)phenyl) O,O-dimethyl ester
P071	298-00-0	Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester
P110	78-00-2	Plumbane, tetraethyl-
P098	151-50-8	Potassium cyanide
P099	506-61-6	Potassium silver cyanide
P070	116-06-3	Propanal, 2-methyl-2-(methylthio)-, O-((methylamino)carbonyl) oxime
P101	107-12-0	Propanenitrile
P027	542-76-7	Propanenitrile, 3-chloro-
P069	75-86-5	Propanenitrile, 2-hydroxy-2-methyl-
P081	55-63-0	1,2,3-Propanetriol, trinitrate (R)
P017	598-31-2	2-Propanone, 1-bromo-
P102	107-19-7	Propargyl alcohol

* CAS Number given for parent compound only.

TABLE V continued
Acute Hazardous Wastes (H)

EPA Haz. Waste Number	Chemical Abstracts Number	Substance
P003	107-02-8	2-Propenal
P005	107-18-6	2-Propen-1-ol
P067	75-55-8	1,2-Propylenimine
P102	591-08-2	2-Propyn-1-ol
P102	107-19-7	2-Propyn-1-ol
P008	504-24-5	Pyridinamine 4-Pyridinamine
P075	54-11-5*	Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-, and salts
P111	107-49-3	Pyrophosphoric acid, tetraethyl ester
P114	12039-52-0	Selenious acid, dithallium(1+) salt
P103	630-10-4	Selenourea
P104	506-64-9	Silver cyanide
P105	26628-22-8	Sodium azide
P106	143-33-9	Sodium cyanide
P107	1314-96-1	Strontium sulfide
P108	57-24-9*	Strychnidin-10-one, and salts
P018	357-57-3	Strychnidin-10-one, 2,3-dimethoxy-
P108	57-24-9*	Strychnine, and salts
P115	10091-59-1	Sulfuric acid, thallium(I) salt
P115	7446-18-6	Sulfuric acid, dithallium(1+) salt
P109	3689-24-5	Tetraethyldithiopyrophosphate
P110	78-00-2	Tetraethyl lead
P111	107-49-3	Tetraethylpyrophosphate
P112	509-14-8	Tetranitromethane (R)
P062	757-58-4	Tetraphosphoric acid, hexaethyl ester
P113	1314-32-5	Thallic oxide (Thallium oxide)
P113	1314-32-5	Thallium(III) oxide
P114	12039-52-0	Thallium(I) selenite
P115	10091-59-1	Thallium(I) sulfate
P115	7446-18-6	Thallium(I) sulfate
P109	3689-24-5	Thiodiphosphoric acid, tetraethyl ester
P045	39196-18-4	Thiofanox
P049	541-53-7	Thioimidodicarbonic diamide
P014	108-98-5	Thiophenol
P116	79-19-6	Thiosemicarbazide
P026	5344-82-1	Thiourea, (2-chlorophenyl)-
P072	86-88-4	Thiourea, 1-naphthalenyl-
P093	103-85-5	Thiourea, phenyl-
P123	8001-35-2	Toxaphene

* CAS Number given for parent compound only.

TABLE V continued
Acute Hazardous Wastes (H)

EPA Haz. Waste Number	Chemical Abstracts Number	Substance
P118	75-70-7	Trichloromethanethiol
P119	7803-55-6	Vanadic acid, ammonium salt
P120	1314-62-1	Vanadium(V)-oxide <u>Vanadium pentoxide</u>
P084	4549-40-0	Vinylamine, N-methyl-N-nitroso-
P001	81-81-2	Warfarin
P001	81-81-2*	Warfarin, and salts, when present at <u>concentrations greater than 0.3%</u>
P121	557-21-1	Zinc cyanide
P122	1314-84-7	Zinc phosphide, when present at <u>concentrations greater than 10% (R,T)</u>

* CAS Number given for parent compound only.

TABLE VI
Toxic Wastes (T)

EPA Haz. Waste Number	Chemical Abstracts Number	Substance
U001	75-07-0	Acetaldehyde (I)
U034	75-87-6	Acetaldehyde, trichloro-
U187	62-44-2	Acetamide, N-(4-ethoxyphenyl)-
U005	53-96-3	Acetamide, N-9H-fluoren-2-yl
U240	94-75-7*	Acetic acid, (2,4-dichlorophenoxy)-, salts and esters
U112	141-78-6	Acetic acid, ethyl ester (I)
U144	301-04-2	Acetic acid, lead(2+) salt
U214	563-68-8	Acetic acid, thallium(1+) salt
U232	93-76-5	Acetic acid, (2,4,5-trichlorophenoxy)-
++	93-76-5	Acetic acid, (2,4,5-trichlorophenoxy)-
U002	67-64-1	Acetone (I)
U003	75-05-8	Acetonitrile (I,T)
U004	98-86-2	Acetophenone
U005	53-96-3	2-Acetylamino fluorene
U006	75-36-5	Acetyl chloride (C,R,T)
U007	79-06-1	Acrylamide
U008	79-10-7	Acrylic acid (I)
U009	107-13-1	Acrylonitrile
U011	61-82-5	Amitrole
U012	62-53-3	Aniline (I,T)
U136	75-60-5	Arsinic acid, dimethyl
U014	492-80-8	Auramine
U015	115-02-6	Azaserine
U010	50-07-7	Azirino(2',3':3,4)pyrrolo(1,2-a)indole-4,7-dione, 6-amino-8-(((aminocarbonyl)oxy)methyl)-1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methyl-, (1aS-(1aalpha, 8beta, 8aalpha, 8balpha))-
U157	56-49-5	Benz(j)aceanthrylene, 1,2-dihydro-3-methyl-
U016	225-51-4	3,4-Benzacridine Benz(c)acridine
U017	98-87-3	Benzal chloride
U192	23950-58-5	Benzamide, 3,5-dichloro-N-(1,1-diethyl-dimethyl-2-propynyl)-
U018	56-55-3	Benz(a)anthracene
U094	57-97-6	Benz(a)anthracene, 7,12-dimethyl-
U012	62-53-3	Benzenamine (I,T)

* CAS Number given for parent compound only.
++ See F027.

TABLE VI continued

Toxic Wastes (T)

EPA Haz. Waste Number	Chemical Abstracts Number	Substance
U014	492-80-8	Benzenamine, 4,4'-carbonimidoyl-bis(N,N-dimethyl-
U049	3165-93-3	Benzenamine, 4-chloro-2-methyl-
U093	60-11-7	Benzenamine, N,N-dimethyl-4-(phenylazo)-
U328	95-53-4	Benzenamine, 2-methyl-
U353	106-49-0	Benzenamine, 4-methyl-
U158	101-14-4	Benzenamine, 4,4'-methylenebis(2-chloro-
U222	636-21-5	Benzenamine, 2-methyl-, hydrochloride
U181	99-55-8	Benzenamine, 2-methyl-5-nitro-
U019	71-43-2	Benzene (I,T)
U038	510-15-6	Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy-, ethyl ester
U030	101-55-3	Benzene, 1-bromo-4-phenoxy-
U035	305-03-3	Benzenebutanoic acid, 4-(bis(2-chloroethyl)amino)-
U037	108-90-7	Benzene, chloro-
U221	25376-45-8	Benzenediamine, ar-methyl-
U028	117-81-7	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester
U069	84-74-2	1,2-Benzenedicarboxylic acid, dibutyl ester
U088	84-66-2	1,2-Benzenedicarboxylic acid, diethyl ester
U102	131-11-3	1,2-Benzenedicarboxylic acid, dimethyl ester
U107	117-84-0	1,2-Benzenedicarboxylic acid, di-n-octyl dioctyl ester
U070	95-50-1	Benzene, 1,2-dichloro-
U071	541-73-1	Benzene, 1,3-dichloro-
U072	106-46-7	Benzene, 1,4-dichloro-
U060	72-54-8	Benzene, 1,1'-(2,2-dichloroethylidene)-bis(4-chloro-
U017	98-87-3	Benzene, (dichloromethyl)-
U223	26471-62-5	Benzene, 1,3-diisocyanatomethyl- (R,T)
U239	1330-20-7	Benzene, dimethyl- (I,T)
U201	108-46-3	1,3-Benzenediol
U127	118-74-1	Benzene, hexachloro-
U056	110-82-7	Benzene, hexahydro- (I)
U220	108-88-3	Benzene, methyl-
U105	121-14-2	Benzene, 1-methyl-2,4-dinitro-
U106	606-20-2	Benzene, 2-methyl-1,3-dinitro-

TABLE VI continued

Toxic Wastes (T)

EPA Haz. Waste Number	Chemical Abstracts Number	Substance
U055	98-82-8	Benzene, (1-methylethyl)- (I)
U169	98-95-3	Benzene, nitro- (I,T)
U183	608-93-5	Benzene, pentachloro-
U185	82-68-8	Benzene, pentachloronitro-
U020	98-09-9	Benzenesulfonic acid chloride (C,R)
U020	98-09-9	Benzenesulfonyl chloride (C,R)
U207	95-94-3	Benzene, 1,2,4,5-tetrachloro-
U061	50-29-3	Benzene, 1,1'-(2,2,2-trichloroethylidene)-bis(4-chloro-
U247	72-43-5	Benzene, 1,1'-(2,2,2-trichloroethylidene)-(4-methoxy-
U023	98-07-7	Benzene, (trichloromethyl)- (E ₇ R ₇ F)
U234	99-35-4	Benzene, 1,3,5-trinitro- (R ₇ F)
U021	92-87-5	Benzidine
U202	81-07-2*	1,2-Benzisothiazol-3-(2H)-one, 1,1-dioxide, and salts
U203	94-59-7	1,3-Benzodioxole, 5-(2-propenyl)-
U141	120-58-1	1,3-Benzodioxole, 5-(1-propenyl)-
U090	94-58-6	1,3-Benzodioxole, 5-propyl-
U064	189-55-9	Benzo(rst)pentaphene
U248	81-81-2*	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, and salts when present at concentrations of 0.3% or less
U022	50-32-8	Benzo(a)pyrene
U197	106-51-4	p-Benzoquinone
U023	98-07-7	Benzotrichloride (C,R,T)
U085	1464-53-5	2,2'-Bioxirane (F ₇ F)
U021	92-87-5	(1,1'-Biphenyl)-4,4'-diamine
U073	91-94-1	(1,1'-Biphenyl)-4,4'-diamine, 3,3'-dichloro-
U091	119-90-4	(1,1'-Biphenyl)-4,4'-diamine, 3,3'-dimethoxy-
U095	119-93-7	(1,1'-Biphenyl)-4,4'-diamine, 3,3'-dimethyl-
U027	39638-32-9	Bis(2-chloroisopropyl)-ether
U024	111-91-1	Bis(2-chloromethoxy)-ethane
U028	117-81-7	Bis(2-ethylhexyl)-phthalate
U225	75-25-2	Bromoform

* CAS Number given for parent compound only.

TABLE VI continued

Toxic Wastes (T)

EPA Haz. Waste Number	Chemical Abstracts Number	Substance
U030	101-55-3	4-Bromophenyl phenyl ether
U128	87-68-3	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-
U172	924-16-3	1-Butanamine, N-butyl-N-nitroso-
U031	71-36-3	1-Butanol (I)
U159	78-93-3	2-Butanone (I,T)
U160	1338-23-4	2-Butanone, peroxide (R,T)
U053	4170-30-3	2-Butenal
U074	764-41-0	2-Butene, 1,4-dichloro- (I,T)
U143	303-34-4	2-Butenoic acid, 2-methyl-, 7-((2,3-dihydroxy-2-(1-methoxyethyl)- 3-methyl-1-oxobutoxy)methyl)-2,3,5,7a- tetrahydro-1H-pyrrolizin-1-yl ester, (1S-(1alpha(Z),7(2S*,3R*),7aalpha))-
U031	71-36-3	n-Butyl alcohol (I)
U136	75-60-5	Cacodylic acid
U032	13765-19-0	Calcium chromate
U238	51-79-6	Carbamic acid, ethyl ester
U178	615-53-2	Carbamic acid, methylnitroso-, ethyl ester
U097	79-44-7	Carbamic chloride, dimethyl-
U114	111-54-6*	Carbamodithioic acid, 1,2-ethanediybis-, salts and esters
U062	2303-16-4	Carbamothioic acid, bis(1-methylethyl)- S-(2,3-dichloro-2-propenyl) ester
U215	6533-73-9	Carbonic acid, dithallium(1+) salt
U033	353-50-4	Carbonic difluoride
U156	79-22-1	Carbonochloridic acid, methyl ester (I,T)
U033	353-50-4	Carbon oxyfluoride (R,T)
U211	56-23-5	Carbon tetrachloride
U034	75-87-6	Chloral
U035	305-03-3	Chlorambucil
U036	12789-88-6	Chlordane
U036	57-74-9	Chlordane, <u>alpha</u> and <u>gamma</u> <u>isomers</u>
U026	494-03-1	Chlornaphazine
U037	108-90-7	Chlorobenzene
U038	510-15-6	Chlorobenzilate
U039	59-50-7	p-Chloro-m-cresol
U041	166-89-8	1-Chloro-2,7-epoxypropene
U042	110-75-8	2-Chloroethyl vinyl ether
U044	67-66-3	Chloroform

* CAS Number given for parent compound only.

TABLE VI continued

Toxic Wastes (T)

EPA Haz. Waste Number	Chemical Abstracts Number	Substance
U046	107-30-2	Chloromethyl methyl ether
U047	91-58-7	beta-Chloronaphthalene
U048	95-57-8	o-Chlorophenol
U049	3165-93-3	4-Chloro-o-toluidine, hydrochloride
U032	13765-19-0	Chromic acid, calcium salt
U050	218-01-9	Chrysene
U051	8021-39-4	Creosote
U051	-----	Creosote
U052	1319-77-3	Creosols Cresol (Cresylic acid)
U053	4170-30-3	Crotonaldehyde
U055	98-82-8	Cumene (I)
U246	506-68-3	Cyanogen bromide
U197	106-51-4	2,5-Cyclohexadiene-1,4-dione
U056	110-82-7	Cyclohexane (I)
U129	58-88-9	Cyclohexane, 1,2,3,4,5,6-hexachloro- (1alpha,2alpha,3beta,4alpha,5alpha,6beta)-
U057	108-94-1	Cyclohexanone (I)
U130	77-47-4	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-
U058	50-18-0	Cyclophosphamide
U240	94-75-7*	2,4-D, salts and esters
U059	20830-81-3	Daunomycin
U060	72-54-8	DDD
U061	50-29-3	DDT
U062	2303-16-4	Diallate
U063	53-70-3	Dibenz(a,h)anthracene
U064	189-55-9	Dibenzo(a,i)pyrene
U066	96-12-8	1,2-Dibromo-3-chloropropane
U069	84-74-2	Dibutyl phthalate
U070	95-50-1	o-Dichlorobenzene
U071	541-73-1	m-Dichlorobenzene
U072	106-46-7	p-Dichlorobenzene
U073	91-94-1	3,3'-Dichlorobenzidine
U074	764-41-0	1,4-Dichloro-2-butene (I,T)
U075	75-71-8	Dichlorodifluoromethane
U078	75-35-4	1,1-Dichloroethylene
U079	156-60-5	1,2-Dichloroethylene
U025	111-44-1	Dichloroethyl ether
U027	108-60-1	Dichloroisopropyl ether

* CAS Number given for parent compound only.

TABLE VI continued

Toxic Wastes (T)

EPA Haz. Waste Number	Chemical Abstracts Number	Substance
U024	111-91-1	Dichloromethoxy ethane
U081	120-83-2	2,4-Dichlorophenol
U082	87-65-0	2,6-Dichlorophenol
U240	94-75-7*	2,4-Dichlorophenoxyacetic acid, salts and esters
U083	78-87-5	1,2-Dichloropropane
U084	542-75-6	1,3-Dichloropropane
U085	1464-53-5	1,2:3,4-Diepoxybutane (I,T)
U108	123-91-1	1,4-Diethyleneoxide
U028	117-81-7	Diethylhexyl phthalate
U086	1615-80-1	N,N'-Diethylhydrazine
U087	3288-58-2	O,O-Diethyl-S-methyl-dithiophosphate
U088	84-66-2	Diethyl phthalate
U089	56-53-1	Diethylstilbestrol
U090	94-58-6	Dihydrosafrole
U091	119-90-4	3,3'-Dimethoxybenzidine
U092	124-40-3	Dimethylamine (I)
U093	60-11-7	p-Dimethylaminoazobenzene
U094	57-97-6	7,12-Dimethylbenz(a)anthracene
U095	119-93-7	3,3'-Dimethylbenzidine
U096	80-15-9	alpha,alpha-Dimethylbenzylhydroperoxide (R)
U097	79-44-7	Dimethylcarbonyl chloride
U098	57-14-7	1,1-Dimethylhydrazine
U099	540-73-8	1,2-Dimethylhydrazine
U101	105-67-9	2,4-Dimethylphenol
U102	131-11-3	Dimethyl phthalate
U103	77-78-1	Dimethyl sulfate
U105	121-14-2	2,4-Dinitrotoluene
U106	606-20-2	2,6-Dinitrotoluene
U107	117-84-0	Di-n-octyl phthalate
U108	123-91-1	1,4-Dioxane
U109	122-66-7	1,2-Diphenylhydrazine
U110	142-84-7	Dipropylamine (I)
U111	621-64-7	Di-n-propylnitrosamine
U041	106-89-8	Epichlorohydrin
U001	75-07-0	Ethanal (I)
U174	55-18-5	Ethanamine, N-ethyl-N-nitroso-
U155	91-80-5	1,2-Ethanediamine, N,N-dimethyl-N'-2-pyridinyl-N'-(2-thienylmethyl)-
U067	106-93-4	Ethane, 1,2-dibromo-
U076	75-34-3	Ethane, 1,1-dichloro-
U077	107-06-2	Ethane, 1,2-dichloro-

TABLE VI continued

Toxic Wastes (T)

EPA Haz. Waste Number	Chemical Abstracts Number	Substance
U131	67-72-1	Ethane, hexachloro-
U024	111-91-1	Ethane, 1,1'-(methylenebis(oxy))-bis(2-chloro-
U117	60-29-7	Ethane, 1,1'-oxybis- (I)
U025	111-44-4	Ethane, 1,1'-oxybis(2-chloro-
U184	76-01-7	Ethane, pentachloro-
U208	630-20-6	Ethane, 1,1,1,2-tetrachloro-
U209	79-34-5	Ethane, 1,1,2,2-tetrachloro-
U218	62-55-5	Ethanethioamide
U227	110-80-5	Ethanol, 2-ethoxy-
U359	79-80-5	Ethane, 1,1,2-trichloro-
U226	71-55-6	Ethane, 1,1,1-trichloro-
U227	79-00-5	Ethane, 1,1,2-trichloro-
U359	110-80-5	Ethanol, 2-ethoxy-
U173	1116-54-7	Ethanol, 2,2'-(nitrosoimino)bis-
U004	98-86-2	Ethanone, 1-phenyl-
U043	75-01-4	Ethene, chloro-
U042	110-75-8	Ethene, (2-chloroethoxy)-
U078	75-35-4	Ethene, 1,1-dichloro-
U079	156-60-5	Ethene, 1,2-dichloro-, (E)-
U210	127-18-4	Ethene, tetrachloro
U228	79-01-6	Ethene, trichloro
U112	141-78-6	Ethyl acetate (I)
U113	140-88-5	Ethyl acrylate (I)
U238	51-79-6	Ethyl carbamate (urethane)
U117	60-29-7	Ethyl ether (I)
U038	510-15-6	Ethyl 4,4'-dichlorobenzilate
U114	111-54-6*	Ethylenebisdithiocarbamic acid, salts and esters
U067	106-93-4	Ethylene dibromide
U077	107-06-2	Ethylene dichloride
U359	110-80-5	Ethylene glycol monoethyl ether
U115	75-21-8	Ethylene oxide (I,T)
U116	96-45-7	Ethylenethiourea
U117	60-29-7	Ethyl ether (I)
U076	75-34-3	Ethylidene dichloride
U118	97-63-2	Ethyl methacrylate
U119	62-50-0	Ethyl methanesulfonate
U120	206-44-0	Fluoranthene

* CAS Number given for parent compound only.

TABLE VI continued

Toxic Wastes (T)

EPA Haz. Waste Number	Chemical Abstracts Number	Substance
U122	50-00-0	Formaldehyde
U123	64-18-6	Formic acid (C,T)
U124	110-00-9	Furan (I)
U125	98-01-1	2-Furancarboxaldehyde (I)
U147	108-31-6	2,5-Furandione
U213	109-99-9	Furan, tetrahydro- (I)
U125	98-01-1	Furfural (I)
U124	110-00-9	Furfuran (I)
U206	18883-66-4	D-Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido)-
U206	18883-66-4	Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido)-, D-
U206	18883-66-4	D-Glucose, 2-deoxy-2(((methylnitrosoamino)carbonyl)amino)-
U126	765-34-4	Glycidylaldehyde
U163	70-25-7	Guanidine, N-methyl-N'-nitro-N-nitroso-
U127	118-74-1	Hexachlorobenzene
U128	87-68-3	Hexachlorobutadiene
U129	58-88-9	Hexachlorocyclohexane-(gamma-isomer)
U130	77-47-4	Hexachlorocyclopentadiene
U131	67-72-1	Hexachloroethane
U132	70-30-4	Hexachlorophene
U243	1888-71-7	Hexachloropropene
U133	302-01-2	Hydrazine (R,T)
U086	1615-80-1	Hydrazine, 1,2-diethyl-
U098	57-14-7	Hydrazine, 1,1-dimethyl-
U099	540-73-8	Hydrazine, 1,2-dimethyl-
U109	122-66-7	Hydrazine, 1,2-diphenyl-
U134	7664-39-3	Hydrofluoric acid (C,T)
U134	7664-39-3	Hydrogen fluoride (C,T)
U135	7783-06-4	Hydrogen sulfide
U096	80-15-9	Hydroperoxide, 1-methyl-1-phenylethyl- (R)
U136	75-60-5	Hydroxydimethylarsine oxide
U116	96-45-7	2-Imidazolidinethione
U137	193-39-5	Indeno(1,2,3-cd)pyrene
U139	9004-66-4	Iron dextran
U190	85-44-9	1,3-Isobenzofurandione
U140	78-83-1	Isobutyl alcohol (I,T)
U141	120-58-1	Isosafrole
U142	143-50-0	Kepone
U143	303-34-4	Lasiocarpine
U144	301-04-2	Lead acetate

TABLE VI continued

Toxic Wastes (T)

EPA Haz. Waste Number	Chemical Abstracts Number	Substance
U146	1335-32-6	Lead, bis(acetato-O)tetrahydroxytri-
U145	7446-27-7	Lead phosphate
U146	1335-32-6	Lead subacetate
U129	58-89-9	Lindane
U163	70-25-7	MNNG
U147	108-31-6	Maleic anhydride
U148	123-33-1	Maleic hydrazide
U149	109-77-3	Malononitrile
U150	148-82-3	Melphalan
U151	7439-97-6	Mercury
U152	126-98-7	Methacrylonitrile (I,T)
U092	124-40-3	Methanamine, N-methyl- (I)
U029	74-83-9	Methane, bromo-
U045	74-87-3	Methane, chloro- (I,T)
U046	107-30-2	Methane, chloromethoxy-
U068	74-95-3	Methane, dibromo-
U080	75-09-2	Methane, dichloro-
U075	75-71-8	Methane, dichlorodifluoro-
U138	74-88-4	Methane, iodo-
U119	62-50-0	Methanesulfonic acid, ethyl ester
U211	56-23-5	Methane, tetrachloro-
U153	74-93-1	Methanethiol (I,T)
U225	75-25-2	Methane, tribromo-
U044	67-66-3	Methane, trichloro-
U121	75-69-4	Methane, trichlorofluoro-
U123	64-18-6	Methanoic acid-(E,F)
U036	57-74-9	4,7-Methano-1H-indene, <u>1,2,4,5,6,7,8,8-octachloro-</u> <u>2,3,3a,4,7,7a-hexahydro-</u>
U154	67-56-1	Methanol (I)
U155	91-80-5	Methapyrilene
U142	143-50-0	1,3,4-Metheno-2H-cyclo- buta(cd)pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,6-deca- chlorooctahydro-
U247	72-43-5	Methoxychlor
U154	67-56-1	Methyl alcohol (I)
U029	74-83-9	Methyl bromide
U186	504-60-9	1-Methylbutadiene (I)
U045	74-87-3	Methyl chloride (I,T)
U156	79-22-1	Methyl chlorocarbonate (I,T)
U226	71-55-6	Methyl chloroform

TABLE VI continued

Toxic Wastes (T)

EPA Haz. Waste Number	Chemical Abstracts Number	Substance
U157	56-49-5	3-Methylcholanthrene
U158	101-14-4	4,4'-Methylenebis(2-chloroaniline)
U068	74-95-3	Methylene bromide
U080	75-09-2	Methylene chloride
U159	78-93-3	Methyl ethyl ketone (MEK) (I,T)
U160	1338-23-4	Methyl ethyl ketone peroxide (R,T)
U138	74-88-4	Methyl iodide
U161	108-10-1	Methyl isobutyl ketone (I)
U162	80-62-6	Methyl methacrylate (I,T)
U163	76-25-7	N-Methyl-N'-nitro-N-nitrosoguanidine
U161	108-10-1	4-Methyl-2-pentanone (I)
U164	56-04-2	Methylthiouracil
U010	50-07-7	Mitomycin C
U059	20830-81-3	5,12-Naphthacenedione, (8S-cis)-8-acetyl-10-((3-amino-2,3,6-trideoxy)-alpha-L-lyxo-hexopyranosyl)oxy)-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-, (8S-cis)-
U167	134-32-7	1-Naphthalenamine
U168	91-59-8	2-Naphthalenamine
U026	494-03-1	Naphthalenamine, N,N'-bis(2-chloroethyl)-
U165	91-20-3	Naphthalene
U047	91-58-7	Naphthalene, 2-chloro-
U166	130-15-4	1,4-Naphthalenedione
U236	72-57-1	2,7-Naphthalenedisulfonic acid, 3,3'-dimethyl-(1,1'-biphenyl)- 4,4'-diyl)-bis(azo)bis(5-amino-4-hydroxy)-, tetrasodium salt
U166	130-15-4	1,4-Naphthoquinone
U167	134-32-7	alpha-Naphthylamine
U168	91-59-8	beta-Naphthylamine
U026	494-03-1	2-Naphthylamine, N,N'-bis(2-chloroethyl)-
U167	134-32-7	1-Naphthylamine
U168	91-59-8	2-Naphthylamine
U217	10102-45-1	Nitric acid, thallium(1+) salt
U169	98-95-3	Nitrobenzene (I,T)
U170	100-02-7	p-Nitrophenol
U171	79-46-9	2-Nitropropane (I,T)
U172	924-16-3	N-Nitrosodi-n-butylamine
U173	1116-54-7	N-Nitrosodiethanolamine
U174	55-18-5	N-Nitrosodiethylamine

TABLE VI continued

Toxic Wastes (T)

EPA Haz. Waste Number	Chemical Abstracts Number	Substance
U176	759-73-9	N-Nitroso-N-ethylurea
U177	684-93-5	N-Nitroso-N-methylurea
U178	615-53-2	N-Nitroso-N-methylurethane
U179	100-75-4	N-Nitrosopiperidine
U180	930-55-2	N-Nitrosopyrrolidine
U181	99-55-8	5-Nitro-o-toluidine
U193	1120-71-4	1,2-Oxathiolane, 2,2-dioxide
U058	50-18-0	2H-1,3,2-Oxazaphosphorin-2-amine, N,N-bis(2-chloroethyl)tetrahydro-, 2-oxide
U115	75-21-8	Oxirane (I,T)
U126	765-34-4	Oxiranecarboxyaldehyde
U041	106-89-8	Oxirane, (chloromethyl)-
U182	123-63-7	Paraldehyde
U183	608-93-5	Pentachlorobenzene
U184	76-01-7	Pentachloroethane
U185	82-68-8	Pentachloronitrobenzene (PCNB)
U242	87-86-5	Pentachlorophenol
++	87-86-5	Pentachlorophenol
U161	108-10-1	Pentanol, 4-methyl-
U186	504-60-9	1,3-Pentadiene (I)
U187	62-44-2	Phenacetin
U188	108-95-2	Phenol
U048	95-57-8	Phenol, 2-chloro-
U039	59-50-7	Phenol, 4-chloro-3-methyl-
U081	120-83-2	Phenol, 2,4-dichloro-
U082	87-65-0	Phenol, 2,6-dichloro-
U089	56-53-1	Phenol, 4,4'-(1,2-diethyl- 1,2-ethenediyl)bis-, (E)-
U101	105-67-9	Phenol, 2,4-dimethyl-
U052	1319-77-3	Phenol, methyl-
U132	70-30-4	Phenol, 2,2'-methylenebis(3,4,6-trichloro-
U170	100-02-7	Phenol, 4-nitro-
U242	87-86-5	Phenol, pentachloro-
U212	58-90-2	Phenol, 2,3,4,6-tetrachloro-
U230	95-94-4	Phenol, 2,4,5-trichloro-
U231	88-06-2	Phenol, 2,4,6-trichloro-
++	87-86-5	Phenol, pentachloro-
++	58-90-2	Phenol, 2,3,4,6-tetrachloro-

++ See F027.

TABLE VI continued

Toxic Wastes (T)

EPA Haz. Waste Number	Chemical Abstracts Number	Substance
++	95-94-4	Phenol, 2,4,5-trichloro-
++	88-06-2	Phenol, 2,4,6-trichloro-
U150	148-82-3	L-Phenylalanine, 4-(bis(2-chloroethyl)amino)-
U145	7446-27-7	Phosphoric acid, lead(2+) salt (2:3)
U087	3288-58-2	Phosphorodithioic acid, O,O-diethyl S-methyl ester
U189	108-95-2	Phosphorous sulfide (R)
U189	1314-80-3	Phosphorous sulfide (R)
U190	85-44-9	Phthalic anhydride
U191	109-06-8	2-Picoline
U179	100-75-4	Piperidine, 1-nitroso-
U192	23950-58-5	Pronamide
U194	107-10-8	1-Propanamine (I,T)
U111	621-64-7	1-Propanamine, N-nitroso-N-propyl-
U110	142-84-7	1-Propanamine, N-propyl- (I)
U066	96-12-8	Propane, 1,2-dibromo-3-chloro-
U083	78-87-5	Propane, 1,2-dichloro-
U149	109-77-3	Propanedinitrile
U171	79-46-9	Propane, 2-nitro- (I,T)
U027	39638-32-9	Propane, 2,2'-oxybis(2-chloro-
U027	108-60-1	Propane, 2,2'-oxybis(2-chloro-
U193	1120-71-4	1,3-Propane sultone
++	93-72-1	Propanoic acid, 2-(2,4,5-trichloro- phenoxy)-
U235	126-72-7	1-Propanol, 2,3-dibromo-, phosphate (3:1)
U140	78-83-1	1-Propanol, 2-methyl- (I,T)
U002	67-64-1	2-Propanone (I)
U084	542-75-6	1-Propane, 1,3-dichloro-
U152	126-98-7	2-Propanenitrile, 2-methyl- (I,T)
U007	79-06-1	2-Propanamide
U084	542-75-6	1-Propene, 1,3-dichloro-
U243	1888-71-7	1-Propene, 1,1,2,3,3,3-hexachloro-
U009	107-13-1	2-Propanenitrile
U152	126-98-7	2-Propanenitrile, 2-methyl- (I,T)
U008	79-10-7	2-Propenoic acid (I)
U113	140-88-5	2-Propenoic acid, ethyl ester (I)
U118	97-63-2	2-Propenoic acid, 2-methyl-, ethyl ester

++ See F027.

TABLE VI continued

Toxic Wastes (T)

EPA Haz. Waste Number	Chemical Abstracts Number	Substance
U162	80-62-2	2-Propenoic acid, 2-methyl-, methyl ester (I,T)
U233	93-72-1	Propionic acid, 2-(2,4,5-trichlorophenoxy)-
U194	107-10-8	n-Propylamine (I,T)
U083	78-87-5	Propylene dichloride
U148	123-33-1	3,6-Pyridazinedione, 1,2-dihydro-
U196	110-86-1	Pyridine
U191	109-06-8	Pyridine, 2-methyl-
U237	66-75-1	2,4-(1H,3H)-Pyrimidinedione, 5-(bis(2-chloroethyl)amino)-
U164	56-04-2	4-(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-
U180	930-55-2	Pyrrolidine, 1-nitroso-
U200	50-55-5	Reserpine
U201	108-46-3	Resorcinol
U202	81-07-2*	Saccharin, and salts
U203	94-59-7	Safrole
U204	7783-00-8	Selenious acid
U204	7783-00-8	Selenium dioxide
U205	7446-34-6	Selenium sulfide (R,T)
U015	115-02-6	L-Serine, diazoacetate (ester)
U233	93-72-1	Silvex
++	93-72-1	Silvex (2,4,5-TP)
U206	18883-66-4	Streptozotocin
U103	77-78-1	Sulfuric acid, dimethyl ester
U189	1314-80-3	Sulfur phosphide (R)
U232	93-76-5	2,4,5-T
++	93-76-5	2,4,5-T
U207	95-94-3	1,2,4,5-Tetrachlorobenzene
U208	630-20-6	1,1,1,2-Tetrachloroethane
U209	79-34-5	1,1,2,2-Tetrachloroethane
U210	127-18-4	Tetrachloroethylene
U212	58-90-2	2,3,4,6-Tetrachlorophenol
++	58-90-2	2,3,4,6-Tetrachlorophenol
U213	109-99-9	Tetrahydrofuran (I)
U214	15843-14-8	Thallium(I) acetate
U214	563-68-8	Thallium(I) acetate
U215	6533-73-9	Thallium(I) carbonate

* CAS Number given for parent compound only.

++ See F027.

TABLE VI continued

Toxic Wastes (T)

EPA Haz. Waste Number	Chemical Abstracts Number	Substance
U216	7791-12-0	Thallium(I) chloride
U217	10102-45-1	Thallium(I) nitrate
U218	62-55-5	Thioacetamide
U153	74-93-1	Thiomethanol (I,T)
U244	137-26-8	Thioperoxydicarbonic diamide, tetramethyl-
U219	62-56-6	Thiourea
U244	137-26-8	Thiuram <u>Thiram</u>
U220	108-88-3	Toluene
U221	25376-45-8	Toluenediamine
U223	26471-62-5	Toluene diisocyanate (R,T)
U328	95-53-4	o-Toluidine
U353	106-49-0	p-Toluidine
U222	636-21-5	o-Toluidine hydrochloride
U011	61-82-5	1H-1,2,4-Triazol-3-amine
U226	71-55-6	1,1,1-Trichloroethane
U227	79-00-5	1,1,2-Trichloroethane
U228	79-01-6	Trichloroethylene
U121	75-69-4	Trichloromonofluoromethane
U230	95-95-4	2,4,5-Trichlorophenol
U231	88-06-2	2,4,6-Trichlorophenol
U234	99-35-4	sym-Trinitrobenzene-(R,T)
++	95-95-4	2,4,5-Trichlorophenol
++	88-06-2	2,4,6-Trichlorophenol
U234	99-35-4	1,3,5-Trinitrobenzene (R,T)
U182	123-63-7	1,3,5-Trioxane, 2,4,6-trimethyl-
U235	126-72-7	Tris(2,3-dibromopropyl) phosphate
U236	72-57-1	Trypan blue
U237	66-75-1	Uracil mustard
U176	759-73-9	Urea, N-ethyl-N-nitroso-
U177	684-93-5	Urea, N-methyl-N-nitroso-
U043	75-01-4	Vinyl chloride
U248	81-81-2*	Warfarin, and salts, when present at concentrations of 0.3% or less
U239	1330-20-7	Xylene (I)

* CAS Number given for parent compound only.

++ See F027.

TABLE VI continued

Toxic Wastes (T)

EPA Haz. Waste Number	Chemical Abstracts Number	Substance
U200	50-55-5	Yohimban-16-carboxylic acid, 11,17-dimethoxy-18-((3,4,5-trimethoxy- benzoyl)oxy)-, methyl ester, (<u>3beta</u> , <u>16beta</u> , <u>17alpha</u> , <u>18beta</u> , <u>20alpha</u>)-
U249	1314-84-7	Zinc phosphide, when present at concentrations of 10% or less

TABLE VII
Permit Application Fee Schedule

-- STORAGE --			
EPA Code	Activity		Fee
S01	Drum	100 tons capacity \$1,000.00	\geq 100 tons capacity \$3,000.00
S02	Tank	100 tons capacity \$1,000.00	\geq 100 tons capacity \$3,000.00
S03	Waste Pile	100 tons capacity \$1,500.00	\geq 100 tons capacity \$3,000.00
S04	Surface Impoundment	1,000 tons capacity \$2,500.00	\geq 1,000 tons capacity \$3,000.00
-- DISPOSAL --			
EPA Code	Activity		Fee
D80	Landfill	1,000 tons/year \$2,500.00	\geq 1,000 tons/year \$5,000.00
D81	Land Application	1,000 tons/year \$2,500.00	\geq 1,000 tons/year \$5,000.00
D83	Surface Impoundment	1,000 tons/year \$2,500.00	\geq 1,000 tons/year \$5,000.00
-- TREATMENT --			
EPA Code	Activity		Fee
T01	Tank	100 tons capacity \$1,000.00	\geq 100 tons capacity \$3,000.00
T02	Surface Impoundment	1,000 tons/year \$2,500.00	\geq 1,000 tons/year \$3,000.00
T03	Incinerator	1,000 tons/year \$1,000.00	\geq 1,000 tons/year \$3,000.00
T04	Other	(Reserved)	(Reserved)

APPENDIX I

Representative Sampling Methods

The methods and equipment used for sampling waste materials will vary with the form and consistency of the waste materials to be sampled. Samples collected using the sampling protocols listed below, for sampling waste with properties similar to the indicated materials, will be considered by the Department to be representative of the waste.

Extremely viscous liquid: ASTM Standard D140-70.

Crushed or powdered material: ASTM Standard D346-75.

Rock-like material: ASTM Standard D420-69.

Soil-like material: ASTM Standard D1452-65.

Fly ash-like Ash-like material: ASTM Standard D2234-76.

Note: ASTM standards are available from the American Society for Testing and Materials (ASTM), 1916 Race Street, Philadelphia, PA 19103.

Containerized liquid wastes: "COLIWASA" described in SW-846. ~~"Test---Methods---for---the---Evaluation---of---Solid---Waste, Physical/Chemical---Methods,"---SW-846---(Second---Edition,---1982,---as amended---by---Update---I---of---April---1984---and---Update---II---of---April---1985), U.S.---Environmental---Protection---Agency,---Office---of---Solid---Waste, Washington,---DC.---Copies---of---this---document---may---be---obtained---from---the Superintendent---of---Documents,---U.S.---Government---Printing---Office, Washington,---D.C.---20402.~~

Liquid waste in pits, ponds, lagoons, and similar reservoirs: "Pond Sampler" described in SW-846.

APPENDIX II

EP Toxicity Test Procedure

A. Extraction Procedure (EP).

1. A representative sample of the waste to be tested (minimum size 100 grams) should be obtained using the methods specified in Appendix I of these regulations or any other methods capable of yielding a representative sample within the meaning of 40 C.F.R. Part 260. (For detailed guidance on conducting the various aspects of the EP, see SW-846.)

2. The sample should be separated into its component liquid and solid phases using the method described in "Separation Procedure" below. If the solid residue obtained using this method totals less than 0.5 percent (0.5 %) of the original weight of the waste, the residue can be discarded and the operator should treat the liquid phase as the extract and proceed immediately to Step 8 below. The percent solids is determined by ~~drawing~~ drying the filter pad at 80 degrees C until it reaches the constant weight and then calculating the percent solids using the following equation:

$$\frac{(\text{Weight of pad + solid}) - (\text{tare weight of pad})}{\text{Initial weight of sample}} \times 100 = \% \text{ solids}$$

3. The solid material obtained from the ~~separation procedure~~ "Separation Procedure" should be evaluated for its particle size. If the solid material has a surface area per gram of material equal to or greater than ~~9.7-cm~~ 3.1 centimeters squared or passes through a ~~9.5-mm~~ 9.5 millimeter (0.375 inch) standard sieve, the operator should proceed to Step 4 below. If the surface area is smaller or the particle size larger than specified above, the solid material should be prepared for extraction by crushing, cutting or grinding the material so that it passes through a ~~9.5-mm~~ 9.5 millimeter (0.375 inch) sieve or, if the material is in a single piece, by subjecting the material to the "Structural Integrity Procedure" described below.

4. The solid material obtained in Step 3 above should be weighed and placed in an extractor with sixteen (16) times its weight of deionized water. Do not allow the material to dry prior to weighing. For purposes of this test, an acceptable extractor is one which will impart sufficient agitation to the mixture to not only prevent stratification of the sample and extraction fluid but also insure that all sample surfaces are continuously brought into contact with well mixed extraction fluid.

5. After the solid material and deionized water are placed

in the extractor, the operator should begin agitation and measure the pH of the solution in the extractor. If the pH is greater than 5.0, the pH of the solution should be decreased to 5.0 plus or minus 0.2 by adding 0.5N acetic acid. If the pH is equal to or less than 5.0, no acetic acid should be added. The pH of the solution should be monitored, as described below, during the course of the extraction and, if the pH rises above 5.2, 0.5N acetic acid should be added to bring the pH down to 5.0 plus or minus 0.2. However, in no event shall the aggregate amount of acid added to the solution exceed ~~four milliliters~~ (4 ml) 4 milliliters of acid per gram of solid. The mixture should be agitated for twenty-four (24) hours and maintained at 20 to 40 degrees C (68 to 104 degrees F) during this time. It is recommended that the operator monitor and adjust the pH during the course of the extraction with a device such as the Type 45-A pH Controller manufactured by Chemtrix, Inc., Hillsboro, Oregon 97123 or its equivalent, in conjunction with a metering pump and reservoir of 0.5N acetic acid. If such a system is not available, the following manual procedure shall be employed:

(a) A pH meter should be calibrated in accordance with the manufacturer's specifications.

(b) The pH of the solution should be checked and, if necessary, 0.5N acetic acid should be manually added to the extractor until the pH reaches 5.0 plus or minus 0.2. The pH of the solution should be adjusted at fifteen-, thirty-, and sixty-minute intervals, moving to the next longer interval if the pH does not have to be adjusted more than 0.5N pH units.

(c) The adjustment procedure should be continued for at least six (6) hours.

(d) If at the end of the ~~24-hour~~ twenty-four hour extraction period the pH of the solution is not below 5.2 and the maximum amount of acid (~~4 ml~~ 4 milliliters per gram of solids) has not been added, the pH should be adjusted to 5.0 plus or minus 0.2 and the extraction continued for an additional four (4) hours, during which the pH should be adjusted at one hour intervals.

6. At the end of the ~~24-hour~~ twenty-four hour extraction period, deionized water should be added to the extractor in an amount determined by the following equation:

$$V = (20)(W) - 16(W) - A$$

V = ml milliliters of deionized water to be added

W = weight in grams of solid charged to extractor

A = ml milliliters of 0.5N acetic acid added during extraction

7. The material in the extractor should be separated into its component liquid and solid phases as described under "Separation Procedure" below.

8. The liquids resulting from Steps 2 and 7 above should be combined. This combined liquid (or the waste itself if it has less than 0.5 percent solids, as noted in Step 2) is the extract and should be analyzed for the presence of any of the contaminants specified in Table II of these regulations using the "Analytical Procedures" designated below.

B. Separation Procedure.

1. Equipment. A filter holder designed for filtration media having a nominal pore size of 0.45 micrometers and capable of applying a 5.3 kg/cm (75 pounds per square inch (psi)) hydrostatic pressure to the solution being filtered shall be used. For mixtures containing nonabsorptive solids, where separation can be affected without imposing a 5.3 kg/cm (75 psi) pressure differential, vacuum filters employing a 0.45 micrometer filter media can be used. (For further guidance on filtration equipment or procedures, see SW-846.)

2. Procedure. This procedure is intended to result in separation of the "free" liquid portion of the waste from any solid matter having a particle size of less than 0.45 micrometer. If the sample will not filter, various other separation techniques can be used to aid in the filtration. As described above, pressure filtration is employed to speed up the filtration process. This does not alter the nature of the separation. If liquid does not separate during filtration, the waste can be centrifuged. If separation occurs during centrifugation, the liquid portion (centrifugate) is filtered through the 0.45 micrometer filter prior to becoming mixed with the liquid portion of the waste obtained from the initial filtration. Any material that will not pass through the filter after centrifugation is considered a solid and is extracted.

(a) Following manufacturers' directions, the filter unit should be assembled with a filter bed consisting of a 0.45 micrometer filter membrane. For difficult or ~~slow-to-filter mixtures~~ slow-to-filter mixtures, a prefilter bed consisting of the following prefilters in increasing pore size (0.65 micrometer membrane, fine glass fiber prefilter, and coarse glass fiber prefilter) can be used.

(b) The waste should be poured into the filtration unit.

(c) The reservoir should be slowly pressurized until liquid begins to flow from the filtrate outlet at which point the pressure in the filter should be immediately lowered to 10 to 15 psig. Filtration should be continued until liquid flow ceases.

(d) The pressure should be increased stepwise in 10 psi increments to 75 psig and filtration continued until flow ceases or the pressurizing gas begins to exit from the filtrate outlet.

(e) The filter unit should be depressurized, the solid material removed and weighed and then transferred to the extraction apparatus, or, in the case of final filtration prior to analysis, discarded. Do not allow the material retained on the filter pad to dry prior to weighing.

(f) The liquid phase should be stored at 4 degrees C for subsequent use in Step 8 above.

C. Structural Integrity Procedure.

1. Equipment. A structural integrity tester having 3.18 cm (1.25 in.) diameter hammer weighing 0.33 kg (0.73 lbs.) and having a free fall of 15.24 cm (6 in.) shall be used. This device is available from Associated Design and Manufacturing Company, Alexandria, VA 22314, as Part No. 125, or it may be fabricated to meet the specifications shown in Figure 1 below.

2. Procedure.

(a) The sample holder should be filled with the material to be tested. If the sample of waste is a large monolithic block, a portion should be cut from the block having the dimensions of a 3.3 cm (1.3 in.) diameter x 7.1 cm (2.8 in.) cylinder. For a fixated waste, samples may be cast in the form of a 3.3 cm (1.3 in.) diameter x 7.1 cm (2.8 in.) cylinder for purposes of conducting this test. In such cases, the waste may be allowed to cure for thirty days prior to further testing.

1. Equipment. A structural integrity tester having a 3.18 centimeter (1.25 inch) diameter hammer weighing 0.33 kilograms (0.73 pounds) and having a free fall of 15.24 centimeters (6 inches) shall be used. This device is available from Associated Design and Manufacturing Company, Alexandria, VA 22314 (as Part No. 125) or it may be fabricated to meet the specifications shown in Figure 1 of these regulations.

2. Procedure.

(a) The sample holder should be filled with the material to be tested. If the sample of waste is a large monolithic block, a portion should be cut from the block having the dimensions of a 3.3 centimeter (1.3 inch) diameter by 7.1 centimeter (2.8 inch) cylinder. For a fixated waste, samples may be cast in the form of a 3.3 centimeter (1.3 inch) diameter by 7.1 centimeter (2.8 inch) cylinder for purposes of conducting this test. In such cases, the waste may be allowed to cure for thirty (30) days prior to further testing.

(b) The sample holder should be placed into the structural integrity tester, then the hammer should be raised to its maximum height and dropped. This should be repeated fifteen (15) times.

(c) The material should be removed from the sample holder, weighed, and transferred to the extraction apparatus for extraction.

D. Analytical Procedures for Analyzing Extract Contaminants.

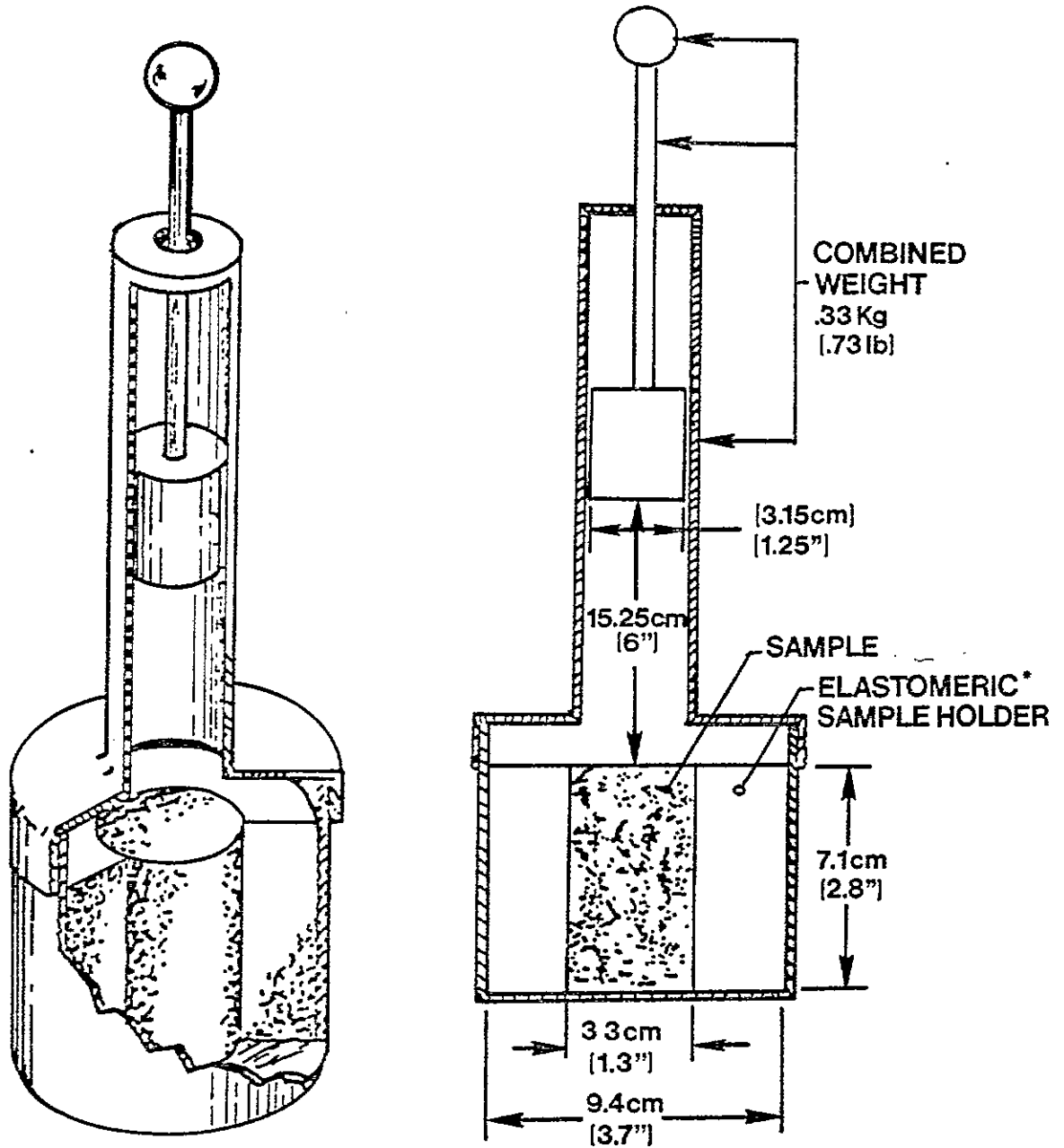
1. The test methods for analyzing the extract are as follows:

(a) For arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, endrin, lindane, methoxychlor, toxaphene, 2,4-D (2,4-dichlorophenoxyacetic acid) or 2,4,5-TP (2,4,5-trichlorophenoxypropionic acid): see SW-846.

(b) (Reserved).

2. For all analyses, the methods of standard addition shall be used for quantification of species concentration.

Figure 1
COMPACTION TESTER



*ELASTOMERIC SAMPLE HOLDER FABRICATED OF MATERIAL FIRM ENOUGH TO SUPPORT THE SAMPLE

APPENDIX III

Chemical Analysis Test Methods

Tables A, B, and C below specify the appropriate analytical procedures, described in SW-846, which shall be used to determine whether a sample contains a given toxic constituent listed in Appendix VII or VIII of these regulations.

Table A identifies each Appendix VII or VIII organic constituent along with the approved measurement method. Table B identifies the corresponding methods for inorganic species. Table C summarizes the contents of SW-846 and supplies specific section and method numbers for sampling and analysis methods.

Prior to final sampling and analysis method selection the analyst should consult the specific section or method described in SW-846 for additional guidance on which of the approved methods should be employed for a specific sample analysis situation.

TABLE A

Analysis Methods for Organic Chemicals Contained in SW-846

Compound	Method Numbers
Acetonitrile	8030,8240
Acrolein	8030,8240
Acrylamide	8015,8240
Acrylonitrile	8030,8240
2-Amino-1-methylbenzene (o-Toluidine)	8250
4-Amino-1-methylbenzene (p-Toluidine)	8250
Aniline	8250
Benzene	8020,8024
Benz(a)anthracene	8100,8250,8310
Benzo(a)pyrene	8100,8250,8310
Benzotrichloride	8120,8250
Benzyl chloride	8120,8250
Benzo(b)fluoranthene	8100,8250,8310
Bis(2-chloroethoxymethane)	8010,8240
Bis(2-chloroethyl)ether	8010,8240
Bis(2-chloroisopropyl)ether	8010,8240
Carbon disulfide	8015,8240
Carbon tetrachloride	8010,8240
Chlordane	8080,8250
Chlorinated biphenyls	8080,8250
Chlorinated dibenzo-p-dioxins	8280
Chlorinated dibenzofurans	8280
Chloroacetaldehyde	8010,8240
Chlorobenzene	8020,8240
Chloroform	8010,8240
Chloromethane	8010,8240
2-Chlorophenol	8040,8250
Chrysene	8100,8250,8310
Creosote*	8100,8250
Cresol(s)	8040,8250
Cresylic Acid(s)	8040,8250
Dichlorobenzene(s)	8010,8120,8250
Dichloroethane(s)	8010,8240
Dichloromethane	8010,8240
Dichlorophenoxyacetic acid	8150,8250
Dichloropropanol	8120,8250
2,4-Dimethylphenol	8040,8250
Dinitrobenzene	8090,8250

* Analyne for phenanthrene and carbazole: if present in a ratio between 1.4:1 and 5:1, creosote should be considered to be present.

TABLE A continued

Analysis Methods for Organic Chemicals Contained in SW-846

Compound	Method Numbers
4,6-Dinitro-o-cresol	8040,8250
2,4-Dinitrotoluene	8090,8250
2,6-Dinitrotoluene	8060,8250
Endrin	8080,8250
2-Ethoxyethanol	8030,8240
Ethyl ether	8015,8240
Ethylene dibromide	8010,8240
Formaldehyde	8015,8240
Formic acid	8250
Heptachlor	8080,8250
Hexachlorobenzene	8120,8250
Hexachlorobutadiene	8120,8250
Hexachloroethane	8010,8240
Hexachlorocyclopentadiene	8120,8250
Lindane	8080,8250
Maleic anhydride	8250
Methanol	8010,8240
Methomyl	8250
Methyl ethyl ketone	8015,8240
Methyl isobutyl ketone	8015,8240
Napthalene	8100,8250
Napthoquinone	8090,8250
Nitrobenzene	8090,8250
4-Nitrophenol	8040,8240
2-Nitropropane	8030,8240
Paraldehyde (trimer of acetaldehyde)	8015,8240
Pentachlorophenol	8040,8250
Phenol	8040,8250
Phorate	8140
Phosphorodithioic acid esters	8140
Phthalic anhydride	8090,8250
2-Picoline	8090,8250
Pyridine	8090,8250
Tetrachlorobenzene(s)	8120,8250
Tetrachloroethane(s)	8010,8240
Tetrachloroethene	8010,8240
Tetrachlorophenol	8040,8250
Toluene	8020,8024
Toluene diisocyanate(s)	8250
Toluenediamine	8250
2,4-Toluenediamine	8250
2,6-Toluenediamine	8250
3,4-Toluenediamine	8250

TABLE A continued

Analysis Methods for Organic Chemicals Contained in SW-846

Compound	Method Numbers
Toxaphene	8080,8250
Trichloroethane	8010,8240
Trichloroethene(s)	8010,8240
Trichlorofluoromethane	8010,8240
Trichlorophenol(s)	8040,8250
2,4,5-Trichlorophenoxy propionic acid	8150,8250
Trichloropropane	8010,8240
Vinyl chloride	8010,8240
Vinylidene chloride	8010,8240
Xylene	8020,8240

TABLE B

Analysis Methods for Inorganic Chemicals Contained in SW-846

Compound	First Edition Method(s)	Second Edition Method(s)
Antimony	8.50	7040,7041
Arsenic	8.51	7060,7061
Barium	8.52	7080,7081
Cadmium	8.53	7090,7091
Chromium	8.54	7190,7191
Chromium (Hexavalent)	8.545,8.546, and 8.547	7195,7196, and 7197
Cyanides	8.55	9010
Lead	8.56	7420,7421
Mercury	8.57	7470,7471
Nickel	8.58	7520,7521
Selenium	8.59	7740,7741
Silver	8.60	7760,7761
Sulfides	8.67	9030
Total Organic Halogen	8.66	9020

TABLE C

Sampling and Analysis Methods Contained in SW-846

Title	First edition		Second edition	
	Section No.	Method No.	Section No.	Method No.
Sampling of Solid Wastes	1.0		1.0	
Development of Appropriate Sampling Plans	1.0		1.1	
Regulatory and Scientific Objectives	1.0-2		1.1.1	
Fundamental Statistical Concepts	1.0-3		1.1.2	
Basic Statistical Strategies	1.0-7		1.1.3	
Simple Random Sampling			1.1.3.1	
Stratified Random Sampling			1.1.3.2	
Systematic Random Sampling			1.1.3.3	
Special Considerations	1.0-7			
Composite Sampling			1.1.4.1	
Subsampling			1.1.4.2	
Cost and Loss Functions			1.1.4.3	
Implementation of Sampling Plan	1.0-7		1.2	
Selection of Sampling Equipment			1.2.1	
Composite Liquid Waste Sampler	3.2.1		1.2.1.1	
Weighted Bottle	3.2.2		1.2.1.2	
Dipper	3.2.3		1.2.1.3	
Thief	3.2.4		1.2.1.4	
Trier	3.2.5		1.2.1.5	
Auger	3.2.6		1.2.1.6	
Scoop and Shovel	3.2.7		1.2.1.7	
Selection of Sample Containers	3.3		1.2.2	
Processing and Storage of Samples	3.3		1.2.3	
Documentation of Chain of Custody	2.0		1.3	
Sample Labels	2.0-1		1.3.1	
Sample Seals	2.0-3		1.3.2	
Field Log Book	2.0-5		1.3.3	
Chain-of-Custody Record	2.0-6		1.3.4	
Sample Analysis Request Sheet	2.0-9		1.3.5	
Sample Delivery to Laboratory	2.0-10		1.3.6	
Shipping of Samples	2.0-10		1.3.7	
Receipt and Logging of Sample	2.0-12		1.3.8	
Assignment of Sample for Analysis	2.0-13		1.3.9	
Sampling Methodology	3.0		1.4	
Containers	3.2-2		1.4.1	
Tanks	3.2-2		1.4.2	
Waste Piles	3.2-2		1.4.3	
Landfills and Lagoons	3.2-2		1.4.4	
Waste Evaluation Procedures			2.0	
Characteristics of Hazardous Waste			2.1	
Ignitability	4.0		2.1.1	
Pensky-Martens Closed-Cup Method	4.1		2.1.1	1010
Seitash Closed-Cup Method	4.1		2.1.1	1020
Corrosivity	5.0		2.1.2	
Corrosivity Toward Steel	5.3		2.1.2	1110
Reactivity	6.0		2.1.3	
Extraction Procedure Toxicity	7.0		2.1.4	
Extraction Procedure Toxicity Test	7.1, 7.2, 7.5			
Method and Structural Integrity Test	7.4		2.1.4	1310
Sample Workup Techniques			4.0	
Inorganic Techniques	8.49		4.1	
Acid Digestion for Flame AAS	1		4.1	3010
Acid Digestion for Furnace AAS	1		4.1	3020
Acid Digestion of Oil, Grease, or Wax	8.49-9		4.1	3030
Dissolution Procedure for Oil, Grease or Wax	8.49-8			
Alkaline Digestion	8.0	8.458	4.1	3060
Organic Techniques	8.0		4.2	
Separatory Funnel Liquid-Liquid Extraction	9.0	9.1	4.2	3510
Continuous Liquid-Liquid Extraction	9.0	9.01	4.2	3520
Acid-Base Cleanup Extraction	8.0	8.84	4.2	3530
Soxhlet Extraction	8.0	8.86	4.2	3540
Sonication Extraction	8.0	8.85	4.2	3550
Sample Introduction Techniques			5.0	
Headspace	8.0	8.82	5.0	5020
Purge-and-Trap	8.0	8.83	5.0	5030
Inorganic Analytical Methods	8.0		7.0	
Antimony, Flame AAS	8.0	8.50	7.0	7470
Antimony, Furnace AAS	8.0	8.50	7.0	7471
Arsenic, Flame AAS	8.0	8.51	7.0	7060
Arsenic, Furnace AAS	8.0	8.51	7.0	7061
Barium, Flame AAS	8.0	8.52	7.0	7090
Barium, Furnace AAS	8.0	8.52	7.0	7081
Cadmium, Flame AAS	8.0	8.53	7.0	7130
Cadmium, Furnace AAS	8.0	8.53	7.0	7131

TABLE C continued

Sampling and Analysis Methods Contained in SW-846

Title	First edition		Second edition	
	Section No.	Method No.	Section No.	Method No.
Chromium, Flame AAS.....	8.0	8.54	7.0	7090
Chromium, Furnace AAS.....	8.0	8.54	7.0	7191
Chromium, Hexavalent, Coprecipitation.....	8.0	8.545	7.0	7195
Chromium, Hexavalent, Colorimetric.....	8.0	8.546	7.0	7196
Chromium, Hexavalent, Chelation.....	8.0	8.547	7.0	7197
Lead, Flame AAS.....	8.0	8.55	7.0	7420
Lead, Furnace AAS.....	8.0	8.56	7.0	7421
Mercury, Cold Vapor, Liquid.....	8.0	8.57	7.0	7470
Mercury, Cold Vapor, Solid.....	8.0	8.57	7.0	7471
Nickel, Flame AAS.....	8.0	8.58	7.0	7520
Nickel, Furnace AAS.....	8.0	8.58	7.0	7521
Selenium, Flame AAS.....	8.0	8.59	7.0	7740
Selenium, Gaseous Hydride AAS.....	8.0	8.59	7.0	7741
Silver, Flame AAS.....	8.0	8.60	7.0	7760
Silver, Furnace AAS.....	8.0	8.60	7.0	7761
Organic Analytical Methods.....	8.0		8.0	
Gas Chromatographic Methods.....	8.0		8.1	
Halogenated Volatile Organics.....	8.0	8.01	8.1	8010
Nonhalogenated Volatile Organics.....	8.0	8.01	8.1	8015
Aromatic Volatile Organics.....	8.0	8.02	8.1	8020
Acrolein, Acrylonitrile, Acetonitrile.....	8.0	8.03	8.1	8030
Phenols.....	8.0	8.04	8.1	8040
Phthalate Esters.....	8.0	8.06	8.1	8060
Organochlorine Pesticides and PCBs.....	8.0	8.08	8.1	8080
Nitroaromatics and Cyclic Ketones.....	8.0	8.09	8.1	8090
Polynuclear Aromatic Hydrocarbons.....	8.0	8.10	8.1	8100
Chlorinated Hydrocarbons.....	8.0	8.12	8.1	8120
Organophosphorus Pesticides.....	8.0	8.22	8.1	8140
Chlorinated Herbicides.....	8.0	8.40	8.1	8150
Gas Chromatographic/Mass Spectroscopy Methods (GC/MS).....	8.0		8.2	
GC/MS Volatiles.....	8.0	8.24	8.2	8240
GC/MS Semi-Volatiles, Packed Column.....	8.0	8.25	8.2	8250
GC/MS Semi-Volatiles, Capillary.....	8.0	8.27	8.2	8270
Analysis of Chlorinated Dioxins and Dibenzofurans.....			8.2	8280
High Performance Liquid Chromatographic Methods (HPLC).....	8.0		8.3	
Polynuclear Aromatic Hydrocarbons.....	8.0	8.10	8.3	8310
Miscellaneous Analytical Methods.....	8.0		9.0	
Cyanide: Total and Amenable to Chlorination.....	8.0	8.55	9.0	9010
Total Organic Halogen (TOX).....	8.0	8.66	9.0	9020
Sulfides.....	8.0	8.67	9.0	9030
pH Measurement.....	5.0	5.2	9.0	9040
Quality Control/Quality Assurance.....	10.0		10.1	
Introduction.....	10.0		10.1	
Program Design.....	10.0		10.2	
Sampling.....	10.0		10.3	
Analysis.....	10.0		10.4	
Data Handling.....	10.0		10.5	

APPENDIX XIV continued

Groundwater Monitoring Constituents

Common name ¹	CAS RN ²	Chemical abstracts service index name ⁴	Suggested methods ⁵	PQL (µg/L) ⁶
Safrole.....	94-59-7	1,3-Benzodioxole, 5-(2-propenyl)-.....	9270	10
Selenium.....	(Total)	Selenium.....	6010 7740 7741	750 20 20
Silver.....	(Total)	Silver.....	6010 7760	70 100
Silver; 2,4,5-TP.....	33-72-1	Propanoic acid, 2-(2,4,5-trichlorophenoxy)-.....	8150	2
Styrene.....	100-42-5	Benzene, ethenyl-.....	8020 8240	1 5
Sulfide.....	18499-25-8	Sulfide.....	9030	10,000
2,4,5-T, 2,4,5-Trichlorophenoxyacetic acid.....	93-78-5	Acetic acid, (2,4,5-trichlorophenoxy)-.....	8150	2
2,3,7,8-TCDD; 2,3,7,8-Tetrachlorodibenzo-p-dioxin.....	1746-01-8	Dibenzo[b,e][1,4]dioxin, 2,3,7,8-tetrachloro-.....	8280	0.005
1,2,4,5-Tetrachlorobenzene.....	95-94-3	Benzene, 1,2,4,5-tetrachloro-.....	8270	10
1,1,1,2-Tetrachloroethane.....	630-20-6	Ethane, 1,1,1,2-tetrachloro-.....	8010 8240	5 5
1,1,2,2-Tetrachloroethane.....	79-34-5	Ethane, 1,1,2,2-tetrachloro-.....	8010 8240	0.5 5
Tetrachloroethylene; Perchloroethylene; Tetrachloroethene.....	127-18-4	Ethene, tetrachloro-.....	8010 8240	0.5 5
2,3,4,6-Tetrachlorophenol.....	58-90-2	Phenol, 2,3,4,6-tetrachloro-.....	8270	10
Tetraethyl dithiopyrophosphate; Sulfotep.....	3689-24-5	Thiophosphoric acid ((HO) ₂ P(S) ₂ O), tetraethyl ester.....	8270	10
Thallium.....	(Total)	Thallium.....	6010 7840 7841	400 1,000 10
Tin.....	(Total)	Tin.....	7970	8,000
Toluene.....	108-68-3	Benzene, methyl-.....	8020 8240	2 5
o-Toluidine.....	95-53-4	Benzanamine, 2-methyl-.....	8270	10
Toxaphene.....	8001-35-2	Toxaphene.....	8080 8250	2 10
1,2,4-Trichlorobenzene.....	120-82-1	Benzene, 1,2,4-trichloro-.....	8270	10
1,1,1-Trichloroethane; Methylchloroform.....	71-55-6	Ethane, 1,1,1-trichloro-.....	8240	5
1,1,2-Trichloroethane.....	79-00-5	Ethane, 1,1,2-trichloro-.....	8010 8240	0.2 5
Trichloroethylene; Trichloroethene.....	79-31-6	Ethene, trichloro-.....	8010 8240	1 5
Trichlorofluoromethane.....	75-69-4	Methane, trichlorofluoro-.....	8010 8240	10 5
2,4,5-Trichlorophenol.....	35-95-4	Phenol, 2,4,5-trichloro-.....	8270	10
2,4,6-Trichlorophenol.....	88-06-2	Phenol, 2,4,6-trichloro-.....	8040	5
1,2,3-Trichloropropane.....	98-18-4	Propane, 1,2,3-trichloro-.....	8270 8010	10 10
O,O,O-Triethyl phosphorothioate.....	126-68-1	Phosphorothioic acid, O,O,O-triethyl ester.....	8240	5
sym-Trinitrobenzene.....	99-35-4	Benzene, 1,3,5-trinitro-.....	8270	10
Vanadium.....	(Total)	Vanadium.....	6010 7910 7911	80 2,000 40
Vinyl acetate.....	108-05-4	Acetic acid, ethenyl ester.....	8040	5
Vinyl chloride.....	75-01-4	Ethene, chloro-.....	8010 8140	2 10
Xylene (total).....	1000-20-7	Benzene, cumethyl-.....	8020 8240	5 5
Zinc.....	(Total)	Zinc.....	6010 7750	20 50

¹ The regulatory requirements pertain only to the list of substances; the right hand columns (Methods and PQL) are given for informational purposes only. See also footnotes 5 and 6.

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.

⁴ CAS index names are those used in the 9th Cumulative Index.

⁵ Suggested Methods refer to analytical procedure numbers used in EPA Report SW-846 "Test Methods for Evaluating Solid Waste", 7th ed. edition, November 1988. Analytical details can be found in SW-846 and in documentation on file at the agency. CAUTION: The methods listed are representative SW-846 procedures and may not always be the most suitable method(s) for monitoring an analyte under the regulations.

⁶ Practical Quantitation Limits (PQLs) are the lowest concentrations of analytes in ground waters that can be reliably determined within specified limits of precision and accuracy by the indicated methods under routine laboratory operating conditions. The PQLs listed are generally stated to one significant figure. CAUTION: The PQL values in many cases are based only on a general estimate for the method and not on a determination for individual compounds. PQLs are not a part of the regulation.

⁷ Polychlorinated biphenyls (CAS RN 1336-36-3), this category contains congener chemicals, including constituents of Aroclor-1016 (CAS RN 12674-11-2), Aroclor-1221 (CAS RN 11104-29-2), Aroclor-1232 (CAS RN 11141-16-5), Aroclor-1242 (CAS RN 53469-21-9), Aroclor-1248 (CAS RN 12672-29-6), Aroclor-1254 (CAS RN 11097-69-1), and Aroclor-1260 (CAS RN 11096-82-5). The PQL shown is an average value for PCB congeners.

⁸ This category contains congener chemicals, including tetrachlorodibenzo-p-dioxins (see also 2,3,7,8-TCDD), pentachlorodibenzo-p-dioxins, and hexachlorodibenzo-p-dioxins. The PQL shown is an average value for PCDD congeners.

⁹ This category contains congener chemicals, including tetrachlorodibenzofurans, pentachlorodibenzofurans, and hexachlorodibenzofurans. The PQL shown is an average value for PCDF congeners.

APPENDIX IV
Radioactive Waste Test Methods
(Reserved)

APPENDIX V

(Reserved)

APPENDIX VI
Etiologic Agents
(Reserved)

APPENDIX VII

Basis for Listing Hazardous Waste

EPA Hazardous Waste Number	Hazardous Constituents For Which Listed
F001	Tetrachloroethylene, methylene chloride trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, chlorinated fluorocarbons.
F002	Tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trichloroethane, <u>trifluoroethane</u> , o-dichlorobenzene, trichlorofluoromethane.
F003	N.A.
F004	Cresols and cresylic acid, nitrobenzene.
F005	Toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, 2-ethoxyethanol, benzene, 2-nitropropane.
F006	Cadmium, hexavalent chromium, nickel, cyanide (complexed).
F007	Cyanide (salts).
F008	Cyanide (salts).
F009	Cyanide (salts).
F010	Cyanide (salts).
F011	Cyanide (salts).
F012	Cyanide (complexed).
F019	Hexavalent chromium, cyanide (complexed).
F020	(Reserved).
F021	(Reserved).
F022	(Reserved).
F023	(Reserved).
F024	Chloromethane, dichloromethane, trichloromethane, carbon tetrachloride, chloroethylene, 1,1-dichloroethane, 1,2-dichloroethane, <u>trans-1-2-dichloroethylene</u> , 1,1-dichloroethylene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethylene, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, tetrachloroethylene, pentachloroethane, hexachloroethane, allyl chloride (3-chloropropene), dichloropropane, dichloropropene, 2-chloro-1,3-butadiene, hexachloro-1,3-butadiene, hexachlorocyclopentadiene, hexachlorocyclohexane, benzene, chlorobenzene <u>chlorobenzene</u> , dichlorobenzenes, 1,2,4-trichlorobenzene, tetrachlorobenzene, pentachlorobenzene, hexachlorobenzene, toluene, naphthalene.
F026	(Reserved).
F027	(Reserved).
F028	(Reserved).

APPENDIX VII continued

Basis for Listing Hazardous Waste

EPA Hazardous Waste Number	Hazardous Constituents For Which Listed
K001	Pentachlorophenol, phenol, 2-chlorophenol, p-chloro-m-cresol, 2,4-dimethylphenyl, 2,4-dinitrophenol, trichlorophenols, tetrachlorophenols, 2,4-dinitrophenol, cresosote, chrysene, naphthalene, fluoranthene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benz(a)anthracene, dibenz(a)anthracene, acenaphthalene.
K002	Hexavalent chromium, lead.
K003	Hexavalent chromium, lead.
K004	Hexavalent chromium.
K005	Hexavalent chromium, lead.
K006	Hexavalent chromium.
K007	Cyanide (complexed), hexavalent chromium.
K008	Hexavalent chromium.
K009	Chloroform, formaldehyde, methylene chloride, methyl chloride, paraldehyde, formic acid.
K010	Chloroform, formaldehyde, methylene chloride, methyl chloride, paraldehyde, formic acid, chloroacetaldehyde.
K011	Acrylonitrile, acetonitrile, hydrocyanic acid.
K013	Hydrocyanic acid, acrylonitrile, acetonitrile.
K014	Acetonitrile, acrylamide.
K015	Benzyl chloride, chlorobenzene, toluene, benzotrichloride.
K016	Hexachlorobenzene, hexachlorobutadiene, carbon tetrachloride, hexachloroethane, perchloroethylene.
K017	Epichlorohydrin, chloroethers (bis(chloromethyl) ether and bis(2-chloroethyl) ethers), trichloropropane, dichloropropanols.
K018	1,2-dichloroethane, trichloroethylene, hexachlorobutadiene, hexachlorobenzene.
K019	Ethylene dichloride, 1,1,1-trichloroethane, 1,1,2-trichloroethane, tetrachloroethanes (1,1,2,2-tetrachloroethane and 1,1,1,2-tetrachloroethane), trichloroethylene, tetrachloroethylene, carbon tetrachloride, chloroform, vinyl chloride, vinylidene chloride.
K020	Ethylene dichloride, 1,1,1-trichloroethane, 1,1,2-trichloroethane, tetrachloroethanes (1,1,2,2-tetrachloroethane and 1,1,1,2-tetrachloroethane), trichloroethylene, tetrachloroethylene, carbon tetrachloride, chloroform, vinyl chloride, vinylidene chloride.

APPENDIX VII continued

Basis for Listing Hazardous Waste

EPA Hazardous Waste Number	Hazardous Constituents For Which Listed
K021	Antimony, carbon tetrachloride, chloroform.
K022	Phenol, tars (polycyclic aromatic hydrocarbons).
K023	Phthalic anhydride, maleic anhydride.
K024	Phthalic anhydride, 1,4-naphthoquinone.
K025	Meta-dinitrobenzene, 2,4-dinitrotoluene.
K026	Paraldehyde, pyridines, 2-picoline.
K027	Toluene diisocyanate, toluene-2,4-diamine.
K028	1,1,1-trichloroethane, vinyl chloride.
K029	1,2-dichloroethane, 1,1,1-trichloroethane, vinyl chloride, vinylidene chloride, chloroform.
K030	Hexachlorobenzene, hexachlorobutadiene, hexachloroethane, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, ethylene dichloride.
K031	Arsenic.
K032	Hexachlorocyclopentadiene.
K033	Hexachlorocyclopentadiene.
K034	Hexachlorocyclopentadiene.
K035	Creosote, chrysene, naphthalene, fluoranthene benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(a)anthracene, dibenzo(a)anthracene, acenaphthalene.
K036	Toluene, phosphorodithioic and phosphorothioic acid esters.
K037	Toluene, phosphorodithioic and phosphorothioic acid esters.
K038	Phorate, formaldehyde, phosphorodithioic and phosphorothioic acid esters.
K039	Phosphorodithioic and phosphorothioic acid esters.
K040	Phorate, formaldehyde, phosphorodithioic and phosphorothioic acid esters.
K041	Toxaphene.
K042	Hexachlorobenzene, o-dichlorobenzene.
K043	2,4-dichlorophenol, 2,6-dichlorophenol, 2,4,6-trichlorophenol.
K044	N.A.
K045	N.A.
K046	Lead.
K047	N.A.
K048	Hexavalent chromium, lead.
K049	Hexavalent chromium, lead.
K050	Hexavalent chromium.
K051	Hexavalent chromium, lead.
K052	Lead.
K060	Cyanide, naphthalene, phenolic compounds, arsenic.

APPENDIX VII continued

Basis for Listing Hazardous Waste

EPA Hazardous Waste Number	Hazardous Constituents For Which Listed
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K061	Hexavalent chromium, lead, cadmium.
K062	Hexavalent chromium, lead.
K069	Hexavalent chromium, lead, cadmium.
K071	Mercury.
K073	Chloroform, carbon tetrachloride, hexachloroethane, trichloroethane, tetrachloroethylene, dichloroethylene, 1,1,2,2-tetrachloroethane.
K083	Aniline, diphenylamine, nitrobenzene, phenylenediamine.
K084	Arsenic.
K085	Benzene, dichlorobenzenes, trichlorobenzenes, tetrachlorobenzenes, pentachlorobenzene, hexachlorobenzene, benzyl chloride.
K086	Lead, hexavalent chromium.
K087	Phenol, naphthalene.
K093	Phthalic anhydride, maleic anhydride.
K094	Phthalic anhydride.
K095	1,1,2-trichloroethane, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane.
K096	1,2-dichloroethane, 1,1,1-trichloroethane, 1,1,2-trichloroethane.
K097	Chlordane, heptachlor.
K098	Toxaphene.
K099	2,4-dichlorophenol, 2,4,6-trichlorophenol.
K100	Hexavalent chromium, lead, cadmium.
K101	Arsenic.
K102	Arsenic.
K103	Aniline, nitrobenzene, phenylenediamine.
K104	Aniline, benzene, diphenylamine, nitrobenzene, phenylenediamine.
K105	Benzene, monochlorobenzene, dichlorobenzenes, 2,4,6-trichlorophenol.
K106	Mercury.
K111	(Reserved).
K112	(Reserved).
K113	(Reserved).
K114	(Reserved).
K115	(Reserved).
K116	(Reserved).
K117	(Reserved).
K118	(Reserved).
K136	(Reserved).

APPENDIX VIII

Hazardous Constituents

Common name	Chemical abstract name	Chemical abstract No.	Hazardous waste No.
Acetonitrile	Same	75-05-6	U003
Acetophenone	Ethanone, 1-phenyl	98-86-2	U004
2-Acetylaminofluorene	Acetamide, N-(9H-fluoren-2-yl)	53-36-3	U005
Acetyl chloride	Same	75-36-5	U006
1-Acetyl-2-hydroxy	Acetamide, N-(aminothioxomethyl)	591-08-2	P002
Acrolein	2-Propenal	107-02-8	P003
Acrylamide	2-Propenamido	79-05-1	U007
Acrylonitrile	2-Propenamido	107-13-1	U009
Aflatoxins	Same	1402-68-2	
Aldoarb	Fropanal, 2-methyl-2-(methylthio)-, O-[(methylsulfenyl)carbonyl]oxime	116-08-3	P004
Alidin	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8a-hexahydro-, (1alpha,4alpha,4aceta,5alpha,8alpha,betaeta)	309-00-2	P004
Allyl alcohol	2-Propen-1-ol	107-18-6	P005
Aluminum phosphide	Same	20859-73-8	P006
4-Aminobiphenyl	(1,1'-Biphenyl)-4-amine	92-67-1	
5-(Aminomethyl)-3-isoxazol	3(2H)-isoxazolone, 5-(aminomethyl)-	2763-98-4	P007
4-Aminopyridine	4-Pyridinamine	504-24-5	P008
Amoxicillin	(1H)-1,2,4-Triazol-3-amine	51-82-5	U011
Ammonium vanadate	Vanadic acid, ammonium salt	7803-55-8	P119
AN-9	Benzenamine	62-53-3	U012
Antimony	Same	7440-36-0	
Antimony compounds, N.O.S. ¹	Same		
Arsenic	Sulfurous acid, 2-chloroethyl 2-[4-(1,1-dimethylethoxyphenyl)-1-methylsilyl ester]	140-57-8	
Arsenic compounds, N.O.S. ¹	Same	7440-38-2	
Arsenic acid	Arsenic acid H ₃ AsO ₄	7778-39-4	P010
Arsenic pentoxide	Arsenic oxide As ₂ O ₅	1203-28-2	P011
Arsenic trioxide	Arsenic oxide As ₂ O ₃	1327-53-3	P012
Auramine	Benzenamine, 4,4'-carbonyldi(bis[N,N-dimethyl-L-Serine, pantoic acid ester])	432-03-8	U014
Asarone	Same	115-00-3	U015
Barium	Same	7440-39-3	
Barium compounds, N.O.S. ¹	Same		
Barium cyanide	Same	542-52-1	P013
Benz(c)acridine	Same	225-51-4	U016
Benz(a)anthracene	Same	56-56-3	U017
Benzal chloride	Benzene, (dichloromethyl)	98-87-3	U017
Benzene	Same	71-43-2	U019
Benzeneboronic acid	Arsenic acid, phenyl-	98-05-5	
Benzene	(1,1'-Biphenyl)-4,4'-diamine	82-87-5	U021
Benzobifluoromethane	Benz(e)acephanthrylene	205-99-3	
Benzofluoranthene	Same	205-99-3	
Benzofuran	Same	50-32-6	U022
p-Benzodioxane	2,5-Cychohexadiene-1,4-dione	105-51-4	U187
Benzochloride	Benzene, (trichloromethyl)	59-07-7	U023
Benzyl chloride	Benzene, (chloromethyl)	100-44-7	P028
Beryllium	Same	7440-41-7	P015
Beryllium compounds, N.O.S. ¹	Same		
Bromoacetic acid	2-Propanone, 1-bromo-	599-31-2	P017
Bromobenzene	Methane, tribromo-	75-25-2	U025
4-Bromophenyl phenyl ether	Benzene, 1-bromo-4-phenoxy	101-55-3	U029
Brunerite	Styrylid-5(10-one), 2,2-dimethyl-	357-51-3	P018
Buthyl benzyl phthalate	1,2-Benzene dicarboxylic acid, butyl phenylmethyl ester	85-69-7	
Cacodylic acid	Arsinic acid, dimethyl-	75-60-5	U126
Cadmium	Same	7440-43-8	
Cadmium compounds, N.O.S. ¹	Same		
Calcium chromate	Chromic acid H ₂ CrO ₄ , calcium salt	10785-13-0	U032
Calcium cyanide	Calcium cyanide Ca(CN) ₂	592-01-9	P021
Carbon disulfide	Same	75-15-0	P022
Carbon disulfide	Carbon disulfide	75-15-0	U033
Carbon tetrachloride	Methane, tetrachloro-	56-23-5	U011
Chloral	Acetaldehyde, trichloro-	75-87-6	U034
Chlorambucil	Benzenebutanoic acid, 4-[bis(2-chloroethyl)amino]-	005-03-3	U035
Chloroacetic acid	4,7-Methano-1H-indene, 1,2,4,5,6,7,8,9-octachloro-2,3,8a,4,7,7a-hexahydro-	57-74-9	U036
Chloroacetic acid	Same		
Chlorinated benzenes, N.O.S. ¹	Same		
Chlorinated ethane, N.O.S. ¹	Same		
Chlorinated fluorocarbons, N.O.S. ¹	Same		
Chlorinated naphthalene, N.O.S. ¹	Same		
Chlorinated phenol, N.O.S. ¹	Same		
Chloroacetylene	Acetylene, dichloro-	494-03-1	U036
Chloroacetaldehyde	Acetaldehyde, chloro-	107-23-0	P020
Chloroalkyl ethers, N.O.S. ¹	Same		
p-Chloroaniline	Benzenamine, 4-chloro-	106-47-8	P024
Chlorobenzene	Benzene, chloro-	108-90-7	U037
Chlorobenzilate	Benzenoacetic acid, 4-chloro-3-phenyl-2-chlorophenyl-alpha-hydroxy-, ethyl ester	510-15-6	U038

APPENDIX VIII continued

Hazardous Constituents

Common name	Chemical abstracts name	Chemical abstracts No.	Hazardous waste No.
p-Chloro-m-cresol	Phenol, 4-chloro-3-methyl	59-50-7	U030
2-Chlorobutyl vinyl ether	Ethene, (2-chloroethoxy)-	110-75-8	U042
Chloroform	Methane, trichloro	67-66-3	U044
Chloromethyl methyl ether	Methane, chloromethoxy	107-30-2	U045
beta-Chloronaphthalene	Naphthalene, 2-chloro	91-58-7	U047
o-Chlorophenol	Phenol, 2-chloro	95-57-6	U048
1-(o-Chlorophenyl)thiourea	Thiourea, (2-chlorophenyl)-	5344-82-1	PC28
Chloroacene	1,3-Butadiene, 2-chloro	126-99-8	
3-Chloropropene	Propene, 3-chloro	542-70-7	PC27
Chromium	Same	7440-47-3	
Chromium compounds, N.O.S.1	Same		
Chrysene	Same	215-01-8	U050
Citrus red No. 2	2-Naphthalenol, 1-(2,5-dimethoxyphenoxy)-	4358-83-8	
Coal tar creosote	Same	8007-45-2	
Copper cyanide	Copper cyanide CuCN	544-92-3	PC29
Creosote	Same		U051
Creosol (Greasy acid)	Phenol, methyl	1319-77-3	U052
Crotonaldehyde	2-Butenal	4170-30-3	U053
Cyanides (soluble salts and complexes) N.O.S.1	Same		PC30
Cyanogen	Ethanedinitrile	480-18-5	PC31
Cyanogen bromide	Cyanogen bromide (CNBr)	506-68-3	U054
Cyanogen chloride	Cyanogen chloride (CNCl)	506-77-4	PC32
Cyclam	beta-D-Glucopyranoside, (methyl-OH)-azorylmethyl	14901-06-7	
2-Cydonaryl-4,6-dimethylphenol	Phenol, 2-cydonaryl-4,6-dimethyl	131-89-5	PC34
Cydnosphaeride	2H-1,3,2-Oxazaphosphon-2-amine, N,N-bis(2-chloroethyl)tetrahydro-, 2-oxide	50-18-0	U058
2,4-D	Acetic acid, (2,4-dichlorophenoxy)-	94-75-7	U240
2,4-D, salts, esters	Same		U240
Deuronyon	5,12-Naphthecenedione, 8-acetyl-10-(3-amino-2,3,5-trideoxy-alpha-L-lyxohexopyranosyloxy)-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-, (8S-cis)-	20630-81-3	U059
DDO	Benzene, 1,1-(2,2-dichloroethoxy)bis(4-chloro-	72-54-8	U060
DDP	Benzene, 1,1-(4-chloroethoxy)bis(4-chloro-	72-55-9	
DDT	Benzene, 1,1-(2,2,2-trichloroethyl)bis(4-chloro-	50-29-3	U061
Dialate	Carbomethoxy acid, bis(1-methylethyl), S-(2,2-dichloro-2-propenyl) ester	2303-16-4	U06
Dibenz[a,h]acridine	Same	226-96-8	
Dibenz[a,j]acridine	Same	224-42-0	
Dibenz[a,h]anthracene	Same	53-70-3	U062
7H-Dibenz[e,g]carbazole	Same	194-59-2	
Dibenzofluorene	Naphthal(1,2,3,4-def)chrysene	192-65-4	
Dibenzofluorenylene	Dibenzofluorenylene	189-64-0	
Dibenzofluorenylene	Dibenzofluorenylene	189-65-9	U064
1,2-Dibromo-3-chloropropane	Propane, 1,2-dibromo-3-chloro	96-12-8	U066
Di-butyl phthalate	1,2-Benzenedicarboxylic acid, di-butyl ester	84-74-2	U068
o-Dichlorobenzene	Benzene, 1,2-dichloro	95-50-1	U070
m-Dichlorobenzene	Benzene, 1,3-dichloro	541-73-1	U071
p-Dichlorobenzene	Benzene, 1,4-dichloro	106-46-7	U072
Dichlorobenzene, N.O.S.1	Benzene, dichloro	25321-22-6	
3,3'-Dichlorobenzidine	(1,1'-Biphenyl)-4,4'-diamine, 3,3'-dichloro-	91-94-1	U073
1,4-Dichloro-2-butene	2-Butene, 1,4-dichloro	784-41-9	U074
Dichlorodifluoromethane	Methane, dichlorodifluoro	75-71-8	U075
Dichloroethylene, N.O.S.1	Dichloroethylene	25323-90-2	
1,1-Dichloroethylene	Ethene, 1,1-dichloro	75-35-4	U076
1,2-Dichloroethylene	Ethene, 1,2-dichloro, (E)-	156-60-5	U079
Dichloroethyl ether	Ethane, 1,1'-oxybis(2-chloro-	111-44-4	U025
Dichlorodimethyl ether	Propane, 2,2'-oxybis(2-chloro-	108-60-1	U027
Dichloromethoxy ethane	Ethane, 1,1'-(methoxy)bis(2-chloro-	111-91-1	U024
Dichloromethyl ether	Methane, oxybis(chloro-	542-88-1	PC18
2,4-Dichlorophenol	Phenol, 2,4-dichloro	120-83-2	U081
2,6-Dichlorophenol	Phenol, 2,6-dichloro	87-65-0	U082
Dichlorophenylarsine	Arsenic dichloride, phenyl-	590-29-8	PC36
Dichloropropane, N.O.S.1	Propane, dichloro	28638-18-7	
Dichloropropanol, N.O.S.1	Propanol, dichloro	26545-73-3	
Dichloropropane, N.O.S.1	1-Propane, dichloro	28952-23-8	
1,3-Dichloropropane	1-Propane, 1,3-dichloro	542-75-8	U084
Deidrin	2,7,3,5-Dimethanonaphth(2,3-b)azarene, 3,4,5,6,8,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octa-	60-57-1	PC37
1,2,3,4-Dibromobutane	2,2-Dibromane	1464-53-5	U085
Dibutylacene	Arsine, dibutyl	612-42-2	PC38
1,4-Dibutylbenzene	1,4-Dioxane	123-91-1	U106
Diethylmethyl phosphite	1,2-Benzenedicarboxylic acid, bis(2-ethylmethyl) ester	117-81-7	U028
N,N-Diethylhydrazine	Hydrazine, 1,2-diethyl-	1615-80-1	U096
O,O-Diethyl S-methyl dithiophosphate	Phosphorodithioic acid, O,O-diethyl S-methyl ester	3228-58-2	U087
Diethyl-p-nitrophenyl phosphite	Phosphonic acid, diethyl 4-nitrophenyl ester	311-45-5	PC41
Diethyl phthalate	1,2-Benzenedicarboxylic acid, diethyl ester	81-66-2	U088
O,O-Diethyl O-pyrazinyl phosphorothioate	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester	297-97-2	PC40
Diethylstilbestrol	Phenol, 4,4'-(1,2-diethyl-1,2-ethenediyl)bis-, (E)-	56-53-1	U089
Dihydrostilbene	1,3-Benzodioxole, 5-propyl	94-58-6	U090
Diisopropylthiophosphate (DIP)	Phosphorothioic acid, bis(1-methyl)ethyl ester	55-91-4	PC43

APPENDIX VIII continued

Hazardous Constituents

Common name	Chemical abstracts name	Chemical abstracts No.	Hazardous waste No.
Dimethoate	Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester	50-51-5	P044
o,p-Dimethylphenazone	[1,1-Biphenyl]-4,4'-diamine, 3,3'-dimethoxy-	119-90-4	U091
p-Dimethylaminobenzene	Benzeneamine, N,N-dimethyl-(phenylazo)-	60-11-7	U093
7,12-Dimethylbenz[<i>a</i>]anthracene	Benz[<i>a</i>]anthracene, 7,12-dimethyl-	57-97-6	U094
o,p-Dimethylbenzothiazole	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-	119-93-7	U095
Dimethylcarbamoyl chloride	Carbamic chloride, dimethyl-	79-44-7	U097
1,1-Dimethylhydrazine	Hydrazine, 1,1-dimethyl-	57-14-7	U098
1,2-Dimethylhydrazine	Hydrazine, 1,2-dimethyl-	543-73-8	U099
alpha,alpha-Dimethylphenethylamine	Benzeneethanamine, alpha,alpha-dimethyl-	122-08-8	P046
2,4-Dimethylphenol	Phenol, 2,4-dimethyl-	105-87-9	U101
Dimethyl phthalate	1,2-Benzenedicarboxylic acid, dimethyl ester	131-11-3	U102
Dimethyl sulfate	Sulfuric acid, dimethyl ester	77-78-1	U103
Dinitrobenzene, N.O.S.†	Benzene, dinitro-	25154-54-5	
4,6-Dinitro-o-cresol	Phenol, 2-methyl-4,6-dinitro-	534-52-1	P047
4,6-Dinitro-o-cresol salts			P047
2,4-Dinitrophenol	Phenol, 2,4-dinitro-	51-25-5	P048
2,4-Dinitrotoluene	Benzene, 1-methyl-2,4-dinitro-	121-14-2	U105
2,6-Dinitrotoluene	Benzene, 2-methyl-2,6-dinitro-	605-20-2	U106
Dinitroeth	Phenol, 2-(1-methylpropyl)-4,6-dinitro-	88-85-7	P050
Dio-n-octyl phthalate	1,2-Benzenedicarboxylic acid, dioctyl ester	117-84-0	U017
Diphenylamine	Benzeneamine, N-phenyl-	122-39-4	
1,2-Diphenylhydrazine	Hydrazine, 1,2-diphenyl-	122-66-7	U109
Di-n-propylhydrazine	1-Propanamine, N-nitroso-N-propyl-	621-64-7	U111
Disulfoton	Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthioethyl)] ester	298-04-4	P039
Dithiocarbamate	Thiomethylcarbonic diamide [(H ₂ NC(S)) ₂ NH]	541-53-7	P049
Endosulfan	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide	115-29-7	P050
Endothal	7-Chlorobicyclo[2,2,1]heptane-2,3-dicarboxylic acid	145-73-3	P058
Endrin	2,3,6-Dimethanonaphth[2,3-b]pyrene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7-octahydro-, (1a.alpha.,2.beta.,3.beta.,3.alpha.,5.alpha.,6.beta.,7.beta.,7.alpha.)-	72-20-8	P051
Endrin metabolites			P051
Epichlorohydrin	Oxirane, (chloromethyl)-	106-89-8	U041
Epinephrine	1,2-Benzenediol, 4-[(1-hydroxy-2-(methylamino)ethyl)-], (R)-	51-43-4	P042
Ethyl carbamate (urethane)	Carbamic acid, ethyl ester	51-79-5	U238
Ethyl cyanide	Propanenitrile	107-12-0	P101
Ethylenebis(dithiocarbamic acid, salts and esters)	Carbamodithioic acid, 1,2-bis(ethyldio)-	117-54-8	U114
Ethylene dibromide	Ethane, 1,2-dibromo-	106-93-4	U067
Ethylene dichloride	Ethane, 1,2-dichloro-	107-06-2	U077
Ethylene glycol monoethyl ether	Ethanol, 2-ethoxy-	110-80-5	U059
Ethyleneimine	Azirane	151-56-4	P054
Ethylene oxide	Oxirane	75-21-8	U115
Ethylene thiourea	2-Iminodiazolidinethione	95-45-7	U118
Ethylene dichloride	Ethane, 1,1-dichloro-	75-34-3	U078
Ethyl methacrylate	2-Propenoic acid, 2-methyl-, ethyl ester	87-63-2	U118
Ethyl methanesulfonate	Methanesulfonic acid, ethyl ester	62-50-0	U119
Famphur	Phosphorothioic acid, O-[4-[(dimethylamino)sulfonyl]phenyl] O,O-dimethyl ester	52-55-7	P097
Fluoranthene	Same	206-44-0	U120
Fluorine	Same	7782-41-4	P056
Fluoroacetamide	Acetamide, 2-fluoro-	640-19-7	P057
Fluoroacetic acid, sodium salt	Acetic acid, fluoro-, sodium salt	62-74-8	P058
Formaldehyde	Same	50-00-0	U122
Formic acid	Same	64-18-6	U123
Glyoxylic aldehyde	Oxalocarbonylaldehyde	765-94-4	U126
Halometanols, N.O.S.†			
Heptachlor	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-5a,4,7,7a-tetrahydro-	75-44-8	P059
Heptachlor epoxide	2,5-Methano-2H-indeno[1,2-b]oxirane, 2,3,4,5,6,7,7-heptachloro-1a,1b,5,5a,6,6a-hexahydro-, (1a.alpha.,1b.beta.,2.alpha.,3.alpha.,5.alpha.,6.beta.,6.alpha.)-	1024-57-3	
Heptachlor epoxide (alpha, beta, and gamma isomers)			
Hexachlorobenzene	Benzene, hexachloro-	118-74-1	U127
Hexachlorobutadiene	1,2-Butadiene, 1,1,2,3,4,4-hexachloro-	87-69-3	U128
Hexachlorocyclopentadiene	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-	77-47-4	U130
Hexachlorodibenzo-p-dioxin			
Hexachlorodibenzofuran			
Hexachloroethane	Ethane, hexachloro-	67-72-1	U131
Hexachlorophene	Phenol, 2,2-methylenebis[3,4,6-trichloro-	70-30-4	U132
Hexachloropropene	1-Propene, 1,1,2,3,3,3-hexachloro-	1888-71-7	U243
Hexaethyl tetraarsophthalate	Tetraarsophthalic acid, hexaethyl ester	751-58-4	P062
Hydrazine	Same	302-01-2	U133
Hydrogen cyanide	Hydrocyanic acid	74-90-6	P063
Hydrogen fluoride	Hydrofluoric acid	7664-39-3	U134
Hydrogen sulfide	Hydrogen sulfide H ₂ S	7783-06-4	U135
Indeno[1,2,3-cd]pyrene	Same	193-39-5	U137
Iron dextran	Same	9004-96-4	U139
Isobutyl alcohol	1-Propanol, 2-methyl-	78-83-1	U140
Isodrin	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-, (1.alpha.,4.alpha.,4.beta.,5.alpha.,8.alpha.,8.beta.)-	465-73-6	P060

APPENDIX VIII continued
Hazardous Constituents

Common name	Chemical abstracts name	Chemical abstracts No	Hazardous waste No
Isosafrole	1,3-Benzodioxole, 5-(1-propenyl)-	120-56-1	U141
Kepon	1,3,4,4-Metheno-2H-cyclobuta[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,9-decachlorooctahydro-	143-50-0	U142
Lasocarpine	2-Butanoic acid, 2-methyl-, 7-[[[2,3-dihydroxy-2-(1-methoxyethyl)-3-methyl-1-oxobutanyl]methyl]-2,3,5,7a-tetrahydro-1H-pyrrolizin-1-yl] ester, [1S-[1alpha(2),7(2S),3R],7aalpha)]-	303-34-1	4143
Lead	Same	7439-92-1	
Lead compounds, N.O.S. ¹			
Lead acetate	Acetic acid, lead(2+) salt	301-04-2	U144
Lead phosphate	Phosphoric acid, lead(2+) salt (2:3)	7446-27-7	U145
Lead subacetate	Lead, bis(aceto- <i>O</i> -methylhydroxy-	1335-32-6	U146
Lindane	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1alpha,2alpha,3beta,4beta,5alpha,6beta)-	55-89-9	U120
Maleic anhydride	2,5-Furandione	108-31-6	U147
Maleic hydrazide	3,5-Pyridazinedione, 1,2-dihydro-	123-33-1	U148
Majnonine	Propanedinitrile	109-77-3	U149
Methylan	L-Phenylalanine, 4-[(2-chloroethyl)amino]-	148-82-3	U150
Mercury	Same	7439-97-6	U151
Mercury compounds, N.O.S. ¹			
Mercury fulminate	Fulminic acid, mercury(2+) salt	625-96-4	P066
Methacrylonitrile	2-Propenenitrile, 2-methyl-	126-98-7	U152
Methacrylonitrile	1,2-Etanedinitrile, N,N-dimethyl-N'-2-pyridinyl-N-(2-phenylmethyl)-	91-80-5	U155
Methoxy	Ethanedioic acid, N-[[[methylamino]carbonyloxy]-, methyl ester	18752-77-5	P066
Methoxychlor	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-methoxy-	72-43-5	U247
Methyl bromide	Methane, bromo-	74-83-9	U020
Methyl chloride	Methane, chloro-	74-87-3	U045
Methyl chloroacetate	Carboxyethanoic acid, methyl ester	79-22-1	U156
Methyl chloroform	Ethane, 1,1,1-trichloro-	71-55-6	U226
3-Methylcholanthrene	Benz[<i>b</i>]aceanthrylene, 1,2-dihydro-3-methyl-	56-49-5	U157
4,4'-Methylenebis(2-chloroaniline)	Benzeneamine, 4,4'-methylenebis[2-chloro-	101-14-4	U158
Methylene bromide	Methane, dibromo-	74-95-3	U068
Methylene chloride	Methane, dichloro-	75-09-2	U080
Methyl ethyl ketone (MEK)	2-Butanone	78-93-3	U159
Methyl ethyl ketone peroxide	2-Butanone, peroxide	1336-23-4	U160
Methyl hydrazine	Hydrazine, methyl-	60-34-4	P068
Methyl iodide	Methane, iodo-	74-85-4	U138
Methyl isocyanate	Methane, isocyanato-	624-83-9	P064
2-Methylacrylonitrile	Propanenitrile, 2-hydroxy-2-methyl-	75-96-5	P069
Methyl methacrylate	2-Propenoic acid, 2-methyl-, methyl ester	80-52-5	U162
Methyl methanesulfonate	Methanesulfonic acid, methyl ester	66-27-3	
Methyl parathion	Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester	298-00-0	P071
Methylthiourea	4(1H)-Pyrimidinone, 2,3-dihydro-5-methyl-2-thio-	56-04-2	U164
Miscronyl C	Acryl(2,2,2-trifluoroethyl)pyrrolid-1,2-ylidene-7-dione, 8-azano-8-[[[amino]carbonyloxy]methyl]-1,1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methyl-, [1AS-(1alpha,3beta,5alpha,8beta)]-	50-07-7	U010
MNNG	Guandine, N-methyl-N'-nitro-N-nitroso-	70-25-7	U163
Mustard gas	Ethane, 1,1'-thiobis[2-chloro-	505-60-2	
Naphthalene	Same	91-20-3	U165
1,4-Naphthoquinone	1,4-Naphthalenedione	130-15-4	U166
alpha-Naphthylamine	1-Naphthalenamine	134-32-7	U167
beta-Naphthylamine	2-Naphthalenamine	91-59-8	U168
alpha-Naphthylthiourea	Thiourea, 1-naphthalenyl-	86-29-4	P072
Nickel	Same	7440-02-0	
Nickel compounds, N.O.S. ¹			
Nickel carbonyl	Nickel carbonyl Ni(CO) ₄ (T-4)	13463-39-3	P073
Nickel cyanide	Nickel cyanide Ni(CN) ₂	557-19-7	P074
Nicotine	Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-	54-11-5	P075
Nicotine salts			P075
Nitric oxide	Nitrogen oxide NO	10102-43-9	P076
p-Nitroaniline	Benzeneamine, 4-nitro-	100-01-6	P077
Nitrobenzene	Benzene, nitro-	96-95-3	U189
Nitrogen dioxide	Nitrogen oxide NO ₂	10102-44-0	P078
Nitrogen mustard	Ethanamine, 2-chloro-N-(2-chloroethyl)-N-methyl-	51-75-2	
Nitrogen mustard, hydrochloride salt			
Nitrogen mustard N-oxide	Ethanamine, 2-chloro-N-(2-chloroethyl)-N-methyl-, N-oxide	126-85-2	
Nitrogen mustard, N-oxide, hydrochloride salt			
Nitroglycann	1,2,3-Propanetriol, trinitrate	55-63-0	P081
p-Nitrophenol	Phenol, 4-nitro-	100-02-7	U170
2-Nitropropane	Propane, 2-nitro-	79-65-9	U171
Nitrosamines, N.O.S. ¹		35576-91-10	
N-Nitrosodimethylamine	1-Butanamine, N-butyl-N-nitroso-	924-15-3	U172
N-Nitrosodiphenylamine	Ethanol, 2,2'-(nitrosomethylene)bis-	1118-54-7	U173
N-Nitrosodiethylamine	Ethanamine, N-ethyl-N-nitroso-	55-18-5	U174
N-Nitrosodimethylamine	Methanamine, N-methyl-N-nitroso-	62-75-8	P082
N-Nitroso-N-methylurea	Urea, N-ethyl-N-nitroso-	759-73-9	U176
N-Nitroso-N-methylurea	Ethanamine, N-methyl-N-nitroso-	10595-95-6	
N-Nitroso-N-methylurea	Urea, N-methyl-N-nitroso-	884-93-5	U177
N-Nitroso-N-methylurethane	Carbamic acid, methylnitroso-, ethyl ester	615-53-2	U178
N-Nitrosomethylphenylamine	Vinylamine, N-methyl-N-nitroso-	4549-40-0	P084

APPENDIX VIII continued
Hazardous Constituents

Common name	Chemical abstracts name	Chemical abstracts No.	Hazardous waste No.
N-Nitrosomorpholine	Morpholine, 4-nitroso	59-59-2	
N-Nitrosopyrrolidine	Pyridine, 3-(1-nitroso-2-pyrrolidinyl)-, (S)-	18543-55-8	
N-Nitrosopiperidine	Pyridine, 1-nitroso	100-75-4	U179
N-Nitrosopyrrolidine	Pyridine, 1-nitroso	930-55-2	U180
N-Nitrososarcosine	Glycine, N-methyl-N-nitroso	13255-22-9	
5-Nitro- <i>o</i> -toulidine	Benzeneamine, 2-methyl-5-nitro	99-55-6	U181
Octamethylpyrophosphoramide	Diphosphoramide, octamethyl-	152-18-9	P085
Osmium tetroxide	Osmium oxide OsO ₄ (T-4)	20616-12-0	P087
Paraldehyde	1,3,5-Trioxane, 2,4,6-trimethyl-	121-53-7	U182
Parathion	Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester	56-38-2	P089
Pentachlorobenzene	Benzene, pentachloro-	608-93-5	U183
Pentachlorobenzene- <i>o</i> -dioxins			
Pentachlorobenzofurans			
Pentachloroethane	Ethane, pentachloro-	76-01-7	U184
Pentachloronitrobenzene (PCNB)	Benzene, pentachloronitro-	82-68-8	U185
Pentachlorophenol	Phenol, pentachloro-	87-96-5	See P027
Phenacetin	Acetamide, N-(4-ethoxyphenyl)-	82-44-2	U187
Phenol	Same		U188
Phenylacetamide	Same		
Phenylmercury acetate	Mercury, (acetato-O)phenyl-	25265-72-3	
Phenylthiourea	Thiourea, phenyl-	82-38-4	P092
Phosgene	Carbonic dichloride	103-55-5	P093
Phosphine	Same	75-44-5	P095
Phosphate	Same	7803-51-2	P096
Phthalic acid esters, N.O.S. ¹	Phosphorodithioic acid, O,O-diethyl S-(1-ethoxyethylmethyl) ester	298-02-2	P094
Phthalic anhydride	1,3-isobenzofurandione	85-44-9	U190
2-Picoline	Pyridine, 2-methyl-	109-06-8	U191
Polychlorinated biphenyls, N.O.S. ¹			
Potassium cyanide	Potassium cyanide KCN	151-50-8	P098
Potassium silver cyanide	Argentate(1-), dicyano-O-, potassium	506-61-5	P099
Promazine	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propenyl)-	20850-58-5	U192
1,3-Propane sultone	1,2-Oxathiolane, 2,2-dioxole	1120-71-4	U193
n-Propylamine	1-Propanamine	107-10-8	U194
Propargyl alcohol	2-Propyn-1-ol	107-19-7	P102
Propylene dichloride	Propane, 1,2-dichloro-	78-87-5	U083
1,2-Propyleneimine	Azidine, 2-methyl-	75-55-8	P067
Propylthiourea	4(1H)-Pyrimidinone, 2,3-dihydro-5-propyl-2-thio-	61-82-5	
Pyridine	Same	110-86-1	U196
Rosepine	Yohimban-16-carboxylic acid, 11,17-dimethoxy-15-[(3,4,5-trimethoxybenzoyloxy)-methyl ester, (beta.1,1beta.17alpha.18beta.20alpha.)	50-55-5	U200
Resorcinol	1,3-Benzenediol	106-46-3	U201
Saccharin	1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide	81-07-2	U202
Saccharin salts	Same		U202
Safrole	1,3-Benzodioxole, 5-(2-propenyl)-	94-59-7	U203
Selenium	Same	7782-49-2	
Selenium compounds, N.O.S. ¹			
Selenium dioxide	Selenic acid	7783-00-6	U204
Selenium sulfide	Selenium sulfide SeS ₂	7488-58-4	U205
Selenous acid	Same	630-10-4	P103
Silver	Same	7440-22-4	
Silver compounds, N.O.S. ¹			
Silver cyanide	Silver cyanide Ag(CN)	506-64-9	P104
Silver (2,4,5-TP)	Propionic acid, 2-(2,4,5-trichlorophenoxy)-	93-72-1	See P027
Sodium cyanide	Sodium cyanide Na(CN)	143-20-9	P106
Strofantolololol	D-Glucose, 2-deoxy-2-(((methylthio)samino)carbonyl)amino-	18883-65-4	U206
Strontium sulfide	Strontium sulfide SrS	1314-96-1	P107
Styrene	Styrene-1,0-one	57-24-9	P108
Styrene salts	Same		P108
TCCD	Dibenz[1,6]([1,4]dioxin, 2,3,7,8-tetrachloro-	1746-01-5	
1,2,4,5-Tetrachlorobenzene	Benzene, 1,2,4,5-tetrachloro-	95-94-3	U207
Tetrachlorobenzene- <i>o</i> -dioxins			
Tetrachlorobenzofurans			
Tetrachloroethane, N.O.S. ¹	Ethane, tetrachloro-, N.O.S.	25322-20-7	
1,1,1,2-Tetrachloroethane	Ethane, 1,1,1,2-tetrachloro-	630-22-6	U208
1,1,2,2-Tetrachloroethane	Ethane, 1,1,2,2-tetrachloro-	79-34-5	U209
Tetrachloroethylene	Ethene, tetrachloro-	127-10-4	U210
2,3,4,6-Tetrachlorophenol	Phenol, 2,3,4,6-tetrachloro-	58-30-2	See P027
Tetraethylpyrophosphoramide	Thiodiphosphoric acid, tetraethyl ester	9689-24-5	P109
Tetraethyl lead	Pumpbne tetraethyl-	75-00-2	P110
Tetraethyl pyrophosphate	Diphosphoric acid, tetraethyl ester	107-13-3	P111
Tetrahydrofuran	Methane, tetrahydro-	659-14-8	P112
Thallium	Same	7449-29-0	
Thallium compounds, N.O.S. ¹			
Thalic acid	Thallium oxide Tl ₂ O	1314-32-5	P113
Thallium(I) acetate	Acetic acid, thallium(1+) salt	561-65-8	U214
Thallium(I) carbonate	Carbonic acid, thallium(1+) salt	6239-73-9	U215
Thallium(I) chloride	Thallium chloride TlCl	7791-12-0	U216
Thallium(I) nitrate	Nitric acid, thallium(1+) salt	10102-45-1	U217
Thallium selenite	Selenious acid, thallium(1+) salt	12029-52-0	P114

APPENDIX VIII continued
Hazardous Constituents

Common name	Chemical abstracts name	Chemical abstracts No.	Hazardous waste No.
Thallium(I) sulfate	Sulfuric acid, dithallium(1+4) salt	7446-18-8	P115
Thioacetamide	Ethanethioamide	82-55-5	U218
Thioflanzol	2-Butanone, 3,3-dimethyl-1-(methylthio)-, O-[(methylamino)carbonyl] oxime	39196-18-4	P045
Thiomethanol	Methanethiol	74-93-1	U153
Thioophenol	Benzenethiol	106-98-5	P014
Thiosemicarbazide	Hydrozinecarbothioamide	79-19-6	P116
Thiourea	Same	82-50-6	U219
Thiram	Thiosemicarbonylcarbonyl diamide [(H ₂ N)(CS) ₂] ₂ S, tetramethyl-	137-26-8	U244
Toluene	Benzene, methyl-	108-88-3	U220
Toluenediamine	Benzenediamine, ar-methyl-	25376-45-8	U221
Toluene-2,4-diamine	1,3-Benzenediamine, 4-methyl-	95-90-7	
Toluene-2,6-diamine	1,3-Benzenediamine, 2-methyl-	829-40-5	
Toluene-3,4-diamine	1,2-Benzenediamine, 4-methyl-	496-72-0	
Toluene diisocyanate	Benzene, 1,3-diisocyanatomethyl-	26471-62-5	U223
o-Toluidine	Benzenamine, 2-methyl-	95-53-4	U328
o-Toluidine hydrochloride	Benzenamine, 2-methyl-, hydrochloride	836-21-5	U222
p-Toluidine	Benzenamine, 4-methyl-	105-49-0	U253
Toxaphene	Same	8001-35-2	P123
1,2,4-Trichlorobenzene	Benzene, 1,2,4-trichloro-	120-82-1	
1,1,2-Trichloroethane	Ethane, 1,1,2-trichloro-	79-00-5	U227
Trichloroethylene	Ethane, trichloro-	79-01-6	U228
Trichloromethanol	Methanethiol, trichloro-	75-70-7	P118
Trichloromonofluoromethane	Methane, trichlorofluoro-	75-89-4	U121
2,4,5-Trichlorophenol	Phenol, 2,4,5-trichloro-	95-95-4	See F027
2,4,6-Trichlorophenol	Phenol, 2,4,6-trichloro-	86-06-2	See F027
2,4,5-T	Acetic acid, (2,4,5-trichlorophenoxy)-	93-76-5	See F027
Trichloropropane, N.O.S. ¹		25735-29-9	
1,2,3-Trichloropropane	Propane, 1,2,3-trichloro-	96-18-4	
O,O,O-Triethyl phosphorothioate	Phosphorothioic acid, O,O,O-triethyl ester	126-68-1	
1,3,5-Trinitrobenzene	Benzene, 1,3,5-trinitro-	99-05-4	U234
Tris(1-azidanyl)phosphine sulfide	Azidine, 1,1',1''-phosphinothioylidynetrims-	52-24-4	
Tris(2,3-dibromopropyl) phosphite	1-Propanol, 2,3-dibromo-, phosphite (3:1)	126-72-7	U235
Trypan blue	2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'-dimethyl(1,1'-biphenyl)-4,4'-diyl]bis(azo)-bis[5-amino-4-hydroxy-, tetrasodium salt	72-57-1	U236
Uracil mustard	2,4,4'-(H ₂ N) ₂ -Pyrimidinedione, 5-[(bis(2-chloroethyl)amino)-	86-75-1	U237
Vanadium pentoxide	Vanadium oxide V ₂ O ₅	1314-62-1	P120
Vinyl chloride	Ethane, chloro-	75-01-4	U043
Warfarin	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, when present at concentrations less than 0.3%	81-81-2	U248
Warfarin	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, when present at concentrations greater than 0.3%	81-81-2	P001
Warfarin salts, when present at concentrations less than 0.3%			U248
Warfarin salts, when present at concentrations greater than 0.3%			P001
Zinc cyanide	Zinc cyanide Zn(CN) ₂	557-21-1	P121
Zinc phosphide	Zinc phosphide Zn ₃ P ₂ , when present at concentrations greater than 10%	1314-84-7	P122
Zinc phosphide	Zinc phosphide Zn ₃ P ₂ , when present at concentrations of 10% or less	1314-84-7	U249

¹ The abbreviation N.O.S. (not otherwise specified) signifies those members of the general class not specifically listed by name in this appendix.

APPENDIX IX

Uniform Hazardous Waste Manifest

The director hereby adopts and incorporates by reference 40 C.F.R. Part 262, Appendix - Uniform Hazardous Waste Manifest and instructions, as published in 50 F.R. 28742 (July 15, 1985), as amended by 51 F.R. 35192 (October 1, 1986).

Wherever the term Administrator or Regional Administrator is used, the term shall have the meaning of the director of the West Virginia Department of Natural Resources.

Wherever the term Environmental Protection Agency or EPA is used, the term shall have the meaning of the West Virginia Department of Natural Resources.

APPENDIX X

Record Keeping Instructions

The record keeping provisions of Section 8.5.4 of these regulations specify that an owner or operator must keep a written operating record at his facility. This appendix provides additional instructions for keeping portions of the operating record. (See Section 8.5.4.b of these regulations for additional record keeping requirements.)

The following information must be recorded, as it becomes available, and maintained in the operating record until closure of the facility in the following manner:

1. Records of each hazardous waste received, treated, stored, or disposed of at the facility which include the following:

(a) A description by its common name and the EPA Hazardous Waste Number(s) from Section 3 of these regulations which apply to the waste. The waste description also must include the waste's physical form, i.e., liquid, sludge, solid, or contained gas. If the waste is not listed in Section 3.4 of these regulations, the description also must include the process that produced it (for example, solid filter cake from production of _____, EPA Hazardous Waste Number W051).

Each hazardous waste listed in Section 3.4 of these regulations and each hazardous waste characteristic defined in Section 3.8 of these regulations has a four-digit EPA Hazardous Waste Number assigned to it. This number must be used for record keeping and reporting purposes. Where a hazardous waste contains more than one listed hazardous waste, or where more than one hazardous waste characteristic applies to the waste, the waste description must include all applicable EPA Hazardous Waste Numbers.

(b) The estimated or manifest-reported weight, or volume and density, where applicable, in one of the units of measured specified in Table D of these regulations.

(c) The method(s) (by handling code(s) as specified in Table E of these regulations) and date(s) of treatment, storage, or disposal.

TABLE D
Units of Measure

Unit of Measure	Symbol	Density
Pounds	P	
Short tons (2,000 lbs)	T	
Gallons (U.S.)	G	P/G
Cubic yards	Y	T/Y
Kilograms	K	
Tonnes (1,000 kg)	M	
Liters	L	K/L
Cubic meters	C	M/C

Single digit symbols are used here for data processing purposes.

TABLE E

Handling Codes for Treatment, Storage, and Disposal Methods

Enter the handling code(s) listed below that most closely represents the technique(s) used at the facility to treat, store, or dispose of each quantity of hazardous waste received.

1. Storage

- S01 Container (barrel, drum, etc.)
- S02 Tank
- S03 Waste Pile
- S04 Surface Impoundment
- S05 Other (specify)

2. Treatment

(a) Thermal Treatment

- T06 Liquid injection incinerator
- T07 Rotary kiln incinerator
- T08 Fluidized bed incinerator
- T09 Multiple hearth incinerator
- T10 Infrared furnace incinerator
- T11 Molten salt destructor
- T12 Pyrolysis
- T13 Wet Air oxidation
- T14 Calcination
- T15 Microwave discharge
- T16 Cement kiln
- T17 Lime kiln
- T18 Other (specify)

(b) Chemical Treatment

- T19 Absorption mound
- T20 Absorption field
- T21 Chemical fixation
- T22 Chemical oxidation
- T23 Chemical precipitation
- T24 Chemical reduction
- T25 Chlorination
- T26 Chlorinolysis
- T27 Cyanide destruction
- T28 Degradation
- T29 Detoxification
- T30 Ion exchange
- T31 Neutralization
- T32 Ozonation

TABLE E continued

Handling Codes for Treatment, Storage, and Disposal Methods

Enter the handling code(s) listed below that most closely represents the technique(s) used at the facility to treat, store, or dispose of each quantity of hazardous waste received.

(b) Chemical Treatment (continued)

T33 Photolysis
T34 Other (specify)

(c) Physical Treatment

- Separation of Components -

T35 Centrifugation
T36 Clarification
T37 Coagulation
T38 Decanting
T39 Encapsulation
T40 Filtration
T41 Flocculation
T42 Flotation
T43 Foaming
T44 Sedimentation
T45 Thickening
T46 Ultrafiltration
T47 Other (specify)

- Removal of Specific Components -

T48 Absorption-molecular sieve
T49 Activated carbon
T50 Blending
T51 Catalysis
T52 Crystallization
T53 Dialysis
T54 Distillation
T55 Electrodialysis
T56 Electrolysis
T57 Evaporation
T58 High gradient magnetic separation
T59 Leaching
T60 Liquid ion exchange
T61 Liquid-liquid extraction
T62 Reverse osmosis
T63 Solvent recovery
T64 Stripping
T65 Sand filter
T66 Other (specify)

TABLE E continued

Handling Codes for Treatment, Storage, and Disposal Methods

Enter the handling code(s) listed below that most closely represents the technique(s) used at the facility to treat, store, or dispose of each quantity of hazardous waste received.

(d) Biological Treatment

T67 Activated sludge
T68 Aerobic lagoon
T69 Aerobic tank
T70 Anaerobic lagoon
T71 Composting
T72 Septic tank
T73 Spray irrigation
T74 Thickening filter
T75 Tricking filter
T76 Waste stabilization pond
T77 Other (specify)
T78 (Reserved)
T79 (Reserved)

3. Disposal

D80 Underground injection
D81 Landfill
D82 Land treatment
D83 Ocean disposal
D84 Surface impoundment (to be closed as a landfill)
D85 Other (specify)

APPENDIX-KK

Cochran's Approximation to the Behrens-Fisher Student's T-test

Using all the available background data (n readings), calculate the background mean (\bar{X}) and background variance (s^2). For the single monitoring well under investigation (n reading), calculate the monitoring mean (\bar{X}) and monitoring variance (s^2).

For any set of data (X_1, X_2, \dots, X_n) the mean is calculated by:

$$\bar{X} = \frac{X_1 + X_2 + \dots + X_n}{n}$$

and the variance is calculated by:

$$s^2 = \frac{(X_1 - \bar{X})^2 + (X_2 - \bar{X})^2 + \dots + (X_n - \bar{X})^2}{n - 1}$$

where "n" denotes the number of observations in the set of data.

The t-test uses these data summary measures to calculate a t-statistic (t^*) and a comparison t-statistic (t). The t^* value is compared to the t value and a conclusion reached as to whether there has been a statistically significant change in any indicator parameter.

The t-statistic for all parameters except pH and similar monitoring parameters is:

$$t^* = \frac{\bar{X} - \bar{X}_0}{s \sqrt{\frac{1}{n} + \frac{1}{n_0}}}$$

If the value of this t-statistic is negative then there is no significant difference between the monitoring data and background data. It should be noted that significantly small negative values may be indicative of a failure of the assumption made for test validity or errors have been made in collecting the background data.

The t-statistics (t), against which t^* will be compared necessitates finding t and t from standard (one-tailed) tables where,

t_{α} - t-tables with $(n - 1)$ degrees of freedom, at the 0.05 level of significance.

$t_{\alpha/2}$ - t-tables with $(n - 1)$ degrees of freedom, at the 0.05 level of significance.

Finally, the special weightings W_1 and W_2 are defined as:
and so the comparison t -statistic is:

The t -statistic (t^*) is now compared with the comparison t -statistic (t) using the following decision rule:

If t^* is equal to or larger than t , then conclude that there most likely has been a significant increase in this specific parameter.

If t^* is less than t , then conclude that most likely there has not been a change in this specific parameter.

The t -statistic for testing pH and similar monitoring parameters is constructed in the same manner as previously described except the negative sign (if any) is discarded and the caveat concerning the negative value is ignored. The standard (two-tailed) tables are used in the construction of t for pH and similar monitoring parameters.

If t^* is equal to or larger than t , then conclude that there most likely has been a significant increase (if the initial t^* had been negative, this would imply a significant decrease). If t^* is less than t , then conclude that there most likely has been no change.

A further discussion of the test may be found in "Statistical Methods" (6th Edition, Section 4.14) by G. W. Snedecor and W. G. Cochran, or "Principles and Procedures of Statistics" (1st Edition, Section 5.8) by R. G. D. Steel and G. H. Ferris.

TABLE IV
Standard-t Tables
(0.05 Level of Significance)

Degrees of Freedom	t-values (one-tail)	t-values (two-tail)
1	6.314	12.706
2	2.920	4.303
3	2.353	3.182
4	2.132	2.776
5	2.015	2.571
6	1.943	2.447
7	1.895	2.365
8	1.860	2.306
9	1.833	2.262
10	1.812	2.228
11	1.796	2.201
12	1.782	2.179
13	1.771	2.160
14	1.761	2.145
15	1.753	2.131
16	1.746	2.120
17	1.740	2.110
18	1.734	2.101
19	1.729	2.093
20	1.725	2.086
21	1.721	2.080
22	1.717	2.074
23	1.714	2.069
24	1.711	2.064
25	1.708	2.060
30	1.697	2.042
40	1.684	2.021

Adopted from Table III of "Statistical Tables for Biological, Agricultural, and Medical Research," R. A. Fisher and F. Yates, 1947.

APPENDIX XII
APPENDIX XI

Mann-Whitney Test

The Mann-Whitney test is a non-parametric statistical method which is described in the following tests:

"Statistical Methods," G. W. Snedecor & W. G. Cochran, 6th Edition, 1967, the Iowa State University Press, Ames, Iowa, pp. 130-131.

"Elementary Statistics and Decision Making," S. J. Armore, 1973, Charles E. Merrill Publishing Company, Columbus, Ohio, pp. 251-252.

Armore, S.J., 1973, Elementary Statistics and Decision Making, Charles E. Merrill Publishing Company, Columbus, Ohio (see pages 251 through 252).

Snedecor, G.W. and Cochran, W.G., 1967, Statistical Methods, 6th Edition, The Iowa State University Press, Ames, Iowa (see pages 130 through 131).

APPENDIX XII

(Reserved)

APPENDIX XIII

(Reserved)

APPENDIX XIV

Groundwater Monitoring Constituents

Common name ²	CAS RN ³	Chemical abstracts service index name ⁴	Sug- gested meth- ods ⁵	PQL (ug/L) ⁶
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.....	8240	100
Acetophenone.....	98-26-2	Ethanone, 1-phenyl.....	8270	10
Acetonitrile; Methyl cyanide.....	75-05-8	Acetonitrile.....	8015	100
2-Acetylaminofluorene; 2-AAF.....	53-96-3	Acetamide, N-9H-fluoren-2-yl.....	8270	10
Acrolein.....	107-02-8	2-Propenal.....	8030 8240	5 5
Acrylonitrile.....	107-13-1	2-Propenenitrile.....	8030 8240	5 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)-	8080 8270	0.05 10
Allyl chloride.....	107-05-1	1-Propene, 3-chloro.....	8010 8240	5 100
4-Aminobiphenyl.....	92-67-1	[1,1'-Biphenyl]-4-amine.....	8270	10
Aniline.....	62-53-3	Benzeneamine.....	8270	10
Anthracene.....	120-12-7	Anthracene.....	8100 8270	200 10
Antimony.....	(Total)	Antimony.....	6010 7040 7041	300 2,000 30
Aramite.....	140-57-8	Sulfurous acid, 2-chloroethyl (dimethylethyl)phenyl]-1-methylethyl ester	8270	10
Arsenic.....	(Total)	Arsenic.....	6010 7060 7061	500 10 20
Barium.....	(Total)	Barium.....	6010 7080	20 1,000
Benzene.....	71-43-2	Benzene.....	8020 8240	2 5
Benzo[a]anthracene; Benzanthracene.....	56-55-3	Benzo[a]anthracene.....	8100 8270	200 10
Benzo[b]fluoranthene.....	205-99-2	Benzo[b]acephenanthylene.....	8100 8270	200 10
Benzo[k]fluoranthene.....	207-06-9	Benzo[k]fluoranthene.....	8100 8270	200 10
Benzo[ghi]perylene.....	191-24-2	Benzo[ghi]perylene.....	8100 8270	200 10
Benzo[a]pyrene.....	50-32-8	Benzo[a]pyrene.....	8100 8270	200 10
Benzyl alcohol.....	100-51-6	Benzenemethanol.....	8270	20
Beryllium.....	(Total)	Beryllium.....	6010 7090 7091	3 50 2
alpha-BHC.....	319-84-6	Cyclohexane, 1,2,3,4,5,6-hexachloro-(1α,2α,3β,4α,5β,6β)-	8080 8250	0.05 10
beta-BHC.....	319-85-7	Cyclohexane, 1,2,3,4,5,6-hexachloro-(1α,2β,3α,4β,5α,6β)-	8080 8250	0.05 40
delta-BHC.....	319-86-8	Cyclohexane, 1,2,3,4,5,6-hexachloro-(1α,2α,3α,4β,5α,6β)-	8080 8250	0.1 30
gamma-BHC; Lindane.....	58-09-9	Cyclohexane, 1,2,3,4,5,6-hexachloro-(1α,2α,3β,4α,5α,6β)-	8080 8250	0.05 10
Bis(2-chloroethoxy)methane.....	111-91-1	Ethane, 1,1'-(methylenedioxy)bis[2-chloro-	8270	10
Bis(2-chloroethyl)ether.....	111-44-4	Ethane, 1,1'-oxybis[2-chloro-	8270	10
Bis(2-chloro-1-methyl)ethyl ether; 2,2-Di- chlorodisopropyl ether.....	108-60-1	Propane, 2,2'-oxybis[1-chloro-	8010 8270	100 10
Bis(2-ethylhexyl) phthalate.....	117-81-7	1,2-Benzenedicarboxylic acid, bis[2-ethylhexyl]ester.....	6060 8270	20 10
Bromodichloromethane.....	75-27-4	Methane, bromodichloro.....	8310	1
Bromoform; Tribromomethane.....	75-25-2	Methane, tribromo.....	8240 8010 8240	5 2 5

APPENDIX XIV continued
Groundwater Monitoring Constituents

Common name*	CAS RN*	Chemical abstracts service index name*	Sug- gested meth- ods*	PQL (µg/L)†
4-Bromophenyl phenyl ether.....	101-55-3	Benzene, 1-bromo-4-phenoxy.....	8270	10
Butyl benzyl phthalate; Benzyl butyl phthalate	85-68-7	1,2-Benzenedicarboxylic acid, butyl phenylmethyl ester.....	8060 8270	5 10
Cadmium.....	(Total)	Cadmium.....	8010 7130 7131	40 50 1
Carbon disulfide.....	75-15-0	Carbon disulfide.....	8240	5
Carbon tetrachloride.....	56-23-5	Methane, tetrachloro.....	8010 8240	1 5
Chlordane.....	57-74-9	4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro.....	8090	0.1
p-Chloroaniline.....	106-47-8	Benzeneamine, 4-chloro.....	8270	20
Chlorobenzene.....	106-90-7	Benzene, chloro.....	8010 8020 8240	2 2 5
Chlorobenzilate.....	510-15-6	Benzenecarboxylic acid, 4-chloro-α-(4-chlorophenyl)-α-hydroxy, ethyl ester	8270	10
p-Chloro-m-cresol.....	56-50-7	Phenol, 4-chloro-3-methyl.....	8040 8270	5 20
Chloroethane, Ethyl chloride.....	75-00-3	Ethane, chloro.....	8010 8240	5 10
Chloroform.....	67-66-3	Methane, trichloro.....	8010 8240	0.5 5
2-Chloronaphthalene.....	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.....	8270	10
Chloroprene.....	126-99-8	1,3-Butadiene, 2-chloro.....	8010 8240	50 5
Chromium.....	(Total)	Chromium.....	8010 7190 7191	70 500 10
Chrysene.....	218-01-9	Chrysene.....	8100 8270	200 10
Cobalt.....	(Total)	Cobalt.....	8010 7200 7201	70 500 10
Copper.....	(Total)	Copper.....	8010 7210	60 200
m-Cresol.....	106-39-4	Phenol, 3-methyl.....	8270	10
o-Cresol.....	95-48-7	Phenol, 2-methyl.....	8270	10
p-Cresol.....	106-44-5	Phenol, 4-methyl.....	8270	10
Cyanide.....	57-12-5	Cyanide.....	8010	40
2,4-D; 2,4-Dichlorophenoxyacetic acid.....	94-75-7	Acetic acid, (2,4-dichlorophenoxy).....	8150	10
4,4'-DDD.....	72-54-8	Benzene 1,1'-(2,2-dichloroethylidene)bis[4-chloro-.....	8030 8270	0.1 10
4,4'-DDE.....	72-55-9	Benzene 1,1'-(dichloroethylidene)bis[4-chloro-.....	8030 8270	0.05 10
4,4'-DDT.....	50-29-3	Benzene 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro-.....	8030 8270	0.1 10
Dallate.....	2303-16-4	Carbamothioic acid, bis(1-methylethyl)- S- (2,3-dichloro-2-propenyl) ester	8270	10
Dibenz[a,h]anthracene.....	53-70-3	Dibenz[a,h]anthracene.....	8100 8270	200 10
Dibenzofuran.....	132-64-9	Dibenzofuran.....	8270	10
Dibromochloromethane; Chlorodibromomethane	124-48-1	Methane, dibromochloro.....	8010 8240	1 5
1,2-Dibromo-3-chloropropane; DBCP.....	96-12-8	Propane, 1,2-dibromo-3-chloro.....	8010 8210 8270	100 5 10
1,2-Dibromoethane, Ethylene dibromide.....	106-93-4	Ethane, 1,2-dibromo.....	8010 8240	10 5
Di-n-butyl phthalate.....	84-74-2	1,2-Benzenedicarboxylic acid, di-n-butyl ester.....	8090 8270	5 10
o-Dichlorobenzene.....	95-50-1	Benzene, 1,2-dichloro.....	8010 8020 8120 8270	2 5 10 10

APPENDIX XIV continued
Groundwater Monitoring Constituents

Common name *	CAS RN *	Chemical abstracts service index name *	Sug- gested meth- ods *	PQL (µg/L) *
m-Dichlorobenzene	541-73-1	Benzene, 1,3-dichloro	8010 8020 8120 8270	5 5 10 10
p-Dichlorobenzene	106-46-7	Benzene, 1,4-dichloro	8010 8020 8120 8270	2 5 15 10
3,3'-Dichlorobenzidine	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-dichloro, (E)	8240	5
Dichlorodifluoromethane	75-71-8	Methane, dichlorodifluoro	8010 8240	10 5
1,1-Dichloroethane	75-34-3	Ethane, 1,1-dichloro	8010 8240	1 5
1,2-Dichloroethane; Ethylene dichloride	107-06-2	Ethane, 1,2-dichloro	8010 8240	0.5 5
1,1-Dichloroethylene; Vinylidene chloride	75-35-4	Ethene, 1,1-dichloro	8010 8240	1 5
trans-1,2-Dichloroethylene	156-80-5	Ethene, 1,2-dichloro, (E)	8010 8240	1 5
2,4-Dichlorophenol	120-83-2	Phenol, 2,4-dichloro	8040 8270	5 10
2,6-Dichlorophenol	87-65-0	Phenol, 2,6-dichloro	8270	10
1,2-Dichloropropane	78-87-5	Propane, 1,2-dichloro	8010 8240	0.5 5
cis-1,3-Dichloropropene	10061-01-5	1-Propene, 1,3-dichloro, (Z)	8010 8240	20 5
trans-1,3-Dichloropropene	10061-02-6	1-Propene, 1,3-dichloro, (E)	8010 8240	5 5
Dieldrin	60-57-1	2,7,3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,5,6a,7,7a-octahydro-, (1aα,2B,2aα,3β,5β,6aα,7β,7aα)	8080 8270	0.05 10
Diethyl phthalate	84-66-2	1,2-Benzenedicarboxylic acid, diethyl ester	8080 8270	5 10
O,O-Diethyl O-2-pyrazinyl phosphorothioate; Thionazin	297-97-2	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester	8270	10
Dimethoate	60-51-5	Phosphorothioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester	8270	10
p-(Dimethylamino)azobenzene	60-11-7	Benzenamine, N,N-dimethyl-4-(phenylazo)	8270	10
7,12-Dimethylbenz[a]anthracene	57-97-6	Benz[a]anthracene, 7,12-dimethyl	8270	10
3,3'-Dimethylbenzidine	119-83-7	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl	8270	10
alpha, alpha-Dimethylphenethylamine	122-09-8	Benzenethanamine, alpha-dimethyl	8270	10
2,4-Dimethylphenol	105-87-9	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	10
4,6-Dinitro-o-cresol	534-52-1	Phenol, 2-methyl-4,6-dinitro	8040 8270	150 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; DNSP; 2-sec-Butyl-4,6-dinitrophenol	88-85-7	Phenol, 2-(1-methylpropyl)-4,6-dinitro	8150 8270	1 10
Di-n-octyl phthalate	117-84-0	1,2-Benzenedicarboxylic acid, dioctyl ester	8060 8270	30 10
1,4-Dioxane	123-91-1	1,4-Dioxane	8015	150
Diphenylamine	122-39-4	Benzenamine, N-phenyl	8270	10
Disulfoton	298-04-4	Phosphorothioic acid, O,O-diethyl S-[2-(ethylthio)-S-(2-ethyl)ester]	8140 8270	2 10
Endosulfan I	958-98-8	6,9-Methano-2,4,3-benzodioxathiepin, 5,7,8,9,10,10-hexachloro-1,5,6a,6,9a-hexahydro-, 3-oxide, (3a,5a,β,6a,9a,10a)	8060 8250	0.1 10

APPENDIX XIV continued
Groundwater Monitoring Constituents

Common name ^a	CAS RN ^b	Chemical abstracts service index name ^c	Sug- gested meth- ods ^d	PCL (µg/L) ^e
Endosulfan II	30213-65-9	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide, (3a,5a,6,9,9,9a)	8080	0.05
Endosulfan sulfate	1031-07-8	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3,3-dioxide	8080 8270	0.5 10
Endrin	72-20-8	2,7,8-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1a,2,2a,3,6,6a,6a,7,7a)	9080 8250	0.1 10
Endrin aldehyde	7421-93-4	1,2,4-Methenocyclopenta[cd]pentalene-5-carboxaldehyde, 2,2a,3,3,4,7-hexachlorodecahydro-, (1a,2,2a,3,4,6,4a,5,5a,6a,6b,7R)	8090 8270	0.2 10
Ethylbenzene	100-41-4	Benzene, ethyl-	8020 8240	2 5
Ethyl methacrylate	97-63-2	2-Propenoic acid, 2-methyl-, ethyl ester	8015 8240 8270	10 5 10
Ethyl methanesulfonate	82-50-0	Methanesulfonic acid, ethyl ester	8270	10
Famphur	52-85-7	Phosphorothioic acid, O-[4-[(dimethylamino)sulfonyl]phenyl]-O-dimethyl ester	8270	10
Fluoranthene	208-44-0	Fluoranthene	8100 8270	200 10
Fluorene	86-73-7	9H-Fluorene	8100 8270	200 10
Heptachlor	78-44-8	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-2a,4,7,7a-tetrahydro-	8080 8270	0.05 10
Heptachlor epoxide	1024-57-3	2,5-Methano-2H-indeno[1,2-b]oxirene, 2,3,4,5,6,7,7-heptachloro-1a,1b,5,5a,6,6a,6a-hexahydro-, (1a,1b,2a,5a,5a,6,6a)	8080 8270	1 10
Hexachlorobenzene	118-74-1	Benzene, hexachloro-	8120 8270	0.5 10
Hexachlorobutadiene	87-68-3	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	8120 8270	5 10
Hexachlorocyclopentadiene	77-47-4	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-	8120 8270	5 10
Hexachloroethane	67-72-1	Ethane, hexachloro-	8120 8270	0.5 10
Hexachlorophene	70-30-4	Phenol, 2,2'-methylenebis[3,4,6-trichloro-	8270	10
Hexachloropropene	1988-71-7	1-Propene, 1,1,2,3,3,3-hexachloro-	8270	10
2-Hexanone	591-78-6	2-Hexanone	8240	50
Indeno[1,2,3-cd]pyrene	193-39-5	Indeno[1,2,3-cd]pyrene	8100 8270	200 10
Isobutyl alcohol	78-83-1	1-Propanol, 2-methyl-	8015	50
Isodrin	485-73-5	1,4,5,8-Dimethanonaphthalene, 1,2,2,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-(1a,4a,4a,5,8,8a,8a,8a)	8270	10
Isophorone	78-59-1	2-Cyclohexen-1-one, 3,5,5-trimethyl-	8090 8270	60 10
Isosafrole	120-58-1	1,3-Benzodioxole, 5-(1-propenyl)-	8270	10
Kepone	143-50-0	1,3,4-Methano-2H-cyclobuta[cd]pentalen-2-one, 1,1a,3,3a,4,5,5a,5b,6-decachlorooctahydro-	8270	10
Lead	(Total)	Lead	8010 7420 7421	40 1,000 10
Mercury	(Total)	Mercury	7470	2
Methacrylamide	125-98-7	2-Propenamide, 2-methyl-	8015 8240	5 5
Methapyrene	91-80-5	1,2-Ethanediamine, N,N-dimethyl-N-(2-pyridinyl)-N-(2-thienyl)methyl-	8270	10
Methoxychlor	72-43-5	Benzene, 1,1'-(2,2,2-trichloroethylenediyl)bis[4-methoxy-	8080 8270	2 10
Methyl bromide, Bromomethane	74-83-9	Methane, bromo-	8010 8240	30 10
Methyl chloride, Chloromethane	74-87-3	Methane, chloro-	8010 8240	1 10
3-Methylcholanthrene	56-49-5	Benz[1]aceanthrylene, 1,2-dihydro-3-methyl-	8270	10
Methylene bromide, Dibromomethane	74-95-3	Methane, dibromo-	8010 8240	15 5
Methylene chloride, Dichloromethane	75-09-2	Methane, dichloro-	8010 8240	5 5

APPENDIX XIV continued
Groundwater Monitoring Constituents

Common name *	CAS RN *	Chemical abstracts service index name *	Sug- gested meth- ods *	POL (µg/L) *
Methyl ethyl ketone; MEK.....	78-93-3	2-Butanone.....	8015	10
Methyl iodide; Iodomethane.....	74-88-4	Methane, iodo.....	8240	100
Methyl methacrylate.....	80-62-6	2-Propenoic acid, 2-methyl-, methyl ester.....	8010	40
Methyl methanesulfonate.....	66-27-3	Methanesulfonic acid, methyl ester.....	8240	5
2-Methylnaphthalene.....	91-57-6	Naphthalene, 2-methyl.....	8015	2
Methyl parathion; Parathion methyl.....	298-00-0	Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester.....	8240	5
4-Methyl-2-pentanone; Methyl isobutyl ketone.....	108-10-1	2-Pentanone, 4-methyl.....	8270	10
Naphthalene.....	91-20-3	Naphthalene.....	8015	5
1,4-Naphthoquinone.....	100-15-4	1,4-Naphthalenedione.....	8240	50
1-Naphthylamine.....	104-32-7	1-Naphthalenamine.....	8100	200
2-Naphthylamine.....	91-59-8	2-Naphthalenamine.....	8270	10
Nickel.....	(Total)	Nickel.....	8270	10
o-Nitroaniline.....	88-74-4	Benzenamine, 2-nitro.....	8010	50
m-Nitroaniline.....	99-09-2	Benzenamine, 3-nitro.....	8270	50
p-Nitroaniline.....	100-01-6	Benzenamine, 4-nitro.....	8270	50
Nitrobenzene.....	98-95-3	Benzene, nitro.....	8090	40
o-Nitrophenol.....	88-75-5	Phenol, 2-nitro.....	8270	10
p-Nitrophenol.....	100-02-7	Phenol, 4-nitro.....	8040	5
4-Nitroquinoline 1-oxide.....	56-57-5	Quinoline, 4-nitro-, 1-oxide.....	8270	10
N-Nitrosodimethylamine.....	924-16-3	1-Butanamine, N-butyl-N-nitroso.....	8270	10
N-Nitrosodimethylamine.....	55-18-5	Ethanamine, N-ethyl-N-nitroso.....	8270	10
N-Nitrosodimethylamine.....	62-75-9	Methanamine, N-methyl-N-nitroso.....	8270	10
N-Nitrosodiphenylamine.....	96-30-6	Benzenamine, N-nitroso-N-phenyl.....	8270	10
N-Nitrosodipropylamine; Di-n-propylnitrosamine.....	621-64-7	1-Propanamine, N-nitroso-N-propyl.....	8270	10
N-Nitrosomethylethylamine.....	10595-95-6	Ethanamine, N-methyl-N-nitroso.....	8270	10
N-Nitrosomorpholine.....	89-89-2	Morpholine, 4-nitroso.....	8270	10
N-Nitrosopiperidine.....	100-75-4	Piperidine, 1-nitroso.....	8270	10
N-Nitrosopyrrolidine.....	830-55-2	Pyrrolidine, 1-nitroso.....	8270	10
5-Nitro-o-toluidine.....	99-55-8	Benzenamine, 2-methyl-5-nitro.....	8270	10
Parathion.....	56-38-2	Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester.....	8270	10
Polychlorinated biphenyls; PCBs.....	See Note 7	1,1'-Biphenyl, chloro derivatives.....	8080	50
Polychlorinated dibenzo-p-dioxins; PCDDs.....	See Note 8	Dibenzo[b,e][1,4]dioxin, chloro derivatives.....	8250	100
Polychlorinated dibenzofurans; PCDFs.....	See Note 9	Dibenzofuran, chloro derivatives.....	8280	0.01
Pentachlorobenzene.....	608-93-5	Benzene, pentachloro.....	8270	10
Pentachloroethane.....	76-01-7	Ethane, pentachloro.....	8240	5
Pentachloronitrobenzene.....	82-68-8	Benzene, pentachloronitro.....	8270	10
Pentachlorophenol.....	87-86-5	Phenol, pentachloro.....	8040	5
Phenacetin.....	62-44-2	Acetamide, N-(4-ethoxyphenyl).....	8270	50
Phenanthrene.....	85-01-8	Phenanthrene.....	8100	200
Phenol.....	108-95-2	Phenol.....	8270	10
p-Phenylenediamine.....	106-90-3	1,4-Benzenediamine.....	8040	1
Phorate.....	298-02-2	Phosphorothioic acid, O,O-diethyl S-[(ethylthio)methyl] ester.....	8270	10
2-Picoline.....	109-06-8	Pyridine, 2-methyl.....	8240	5
Propanamide.....	23950-58-5	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propylmethyl).....	8270	10
Propionitrile; Ethyl cyanide.....	107-12-0	Propionitrile.....	8015	60
Pyrene.....	129-00-0	Pyrene.....	8240	5
Pyridine.....	110-86-1	Pyridine.....	8100	200
			8270	10