APPENDIX II

DEPARTMENT OF NATURAL RESOURCES

REGULATIONS

STATE OF WEST VIRGINIA
DEPARTMENT OF NATURAL RESOURCES
CHARLESTON 25305

ARCH A. MOORE, JR.
Governor

RONALD R. POTESTA
Director

MICHAEL A. FOTOS
Deputy Director

May 29, 1986

The Honorable Ken Hechler
Secretary of State
Capitol Complex, Suite 157-K
Charleston, West Virginia 25305

Re: Correction to the Department of Natural Resources Hazardous Waste Regulation, Chapter 20-5E, Series 15

Dear Mr. Hechler:

The Department of Natural Resources recently final filed a set of its hazardous waste management regulations with your office. These regulations were effective April 15, 1986. Since the filing of the regulations, various members of the Department and the public have pointed out certain minor technical corrections which are needed. Several changes correct inadvertent omission of language which was contained in the Department's legislative rules promulgated last year. Other changes are minor typographical errors.

Consequently, I am asking that you substitute the attached pages into the Department's final filed regulations. I offer the following explanations for the changes.

Page	Section	Change	Comment
32	3.1.4.g	Delete numeral "6"	This numeral was deleted by approved rulemaking of 10/10/86
37	3.1.6.b.1.iii.B	Insert "or inner liner if the container" between the words "container" and "is greater"	As promulgated last year; no changes proposed or approved between 1985 and 1986 final filing.

Page	Section	Change	Comment
77	Appendix III	Insert language in first and second paragraph	As promulgated last year; no changes proposed or approved between 1985 and 1986 final filing.
91-91A	6.1.1 and 6.1.2	Insert both sections	As promulgated last year; no changes proposed or approved between 1985 and 1986 final filing.
100 & 100A	Appendix I and Attachment	Insert 2nd para.	As promulgated last year; no changes proposed or approved between 1985 and 1986 final filing.
		Insert copy of Uniform National Manifest	The text of the Appendix states that a copy of the Manifest is attached, yet it was omitted from our 4/15/86 version.
106	8.2.4.c	Delete numeral 6 in citation	Improper numbering
119	8.5.4.b	Delete word "measure"	This change approved on 10/10/85
135	8.9.2.f.4.iv B.10	Insert section number 4 in the citation	As promulgated last year; inadvertently omitted in Department's approved regulations of 10/3/85
148	8.10.6.d.2	Correct spelling of word "event" by adding a "t"	Incorrect spelling
151	8.11.2.b	Insert comma between the two phrases "25-year" and "24-hour storm"	Correct punctuation

Page	Section	Change	Comment
155-155A	8.11.3.c&d 8.11.4.a&b	Insert sections Insert sections	As promulgated last year; no changes proposed or approved between 1985 and 1986 filing
178	8.13.8.b.1.iv	Insert "as representative or more representative in between words "are" and "than"	As promulgated last year; no changes proposed or approved between 1985 and 1986 filing
216	11.5.2.d.3	Delete 2 and 1 in citation; change designation of vi to v	Improper numbering
216	11.5.2.d.4	Insert 11.5.1.e after word "paragraph"	Insert omitted paragraph citation.
222	11.5.3	Clean-up of run-on words, change tense, add comma	
247	11.30.b	Insert hyphen between "post" and "demonstration"	
252-252A	Section 14	Change formatting	

Please substitute these changes at your earliest convenience. We have included an attachment explaining which pages need to be substituted.

Page Substitutions

Substitute New Page(s)		Original Page(s)
31 - 32	for	31 - 32
37 - 38	for	37 - 38
77 - 78	for	77 - 78
91 - 91A & 92	for	91 - 92
99 - 100	for	99 - 100
100A	for	--
105 - 106	for	105 - 106
135 - 136	for	135 - 136
147 - 148	for	147 - 148
151 - 152	for	151 - 152
155 - 155A & 156	for	155 - 156
177 - 178	for	177 - 178
216 - 217	for	216 - 217
222 - 223	for	222 - 223
246 - 247	for	246 - 247
252 - 252A & 253	for	252 - 253

If you have any questions, please contact Ron Shipley, Special Assistant to the Director, Director's Office of Regulatory Affairs at extension 2761.

Sincerely,

Ronald R. Potesta
Director

RRP/rsb

Attachment

cc: Ron Shipley
David W. Robinson
Timothy T. Laraway

STATE OF WEST VIRGINIA
DEPARTMENT OF NATURAL RESOURCES
CHARLESTON 25305

ARCH A. MOORE, JR.
Governor

RONALD R. POTESTA
Director

MICHAEL A. FOTOS
Deputy Director

April 15, 1986

The Honorable Ken Hechler
Secretary of State
Capitol Complex, Suite 157-K
Charleston, West Virginia 25305

RE: Final Filing of Legislative Rule's Hazardous Waste Management Regulations, Series 15

Dear Mr. Hechler:

Enclosed for your final filing is a complete set of the Department's legislative rules. These rules contain the most recent legislatively authorized amendments filed in your office on March 24, 1986, which were made effective on April 15, 1986.

At the time of filing of the amendments, Mr. Hartman requested that we file a revised version of the entire regulation by April 15, 1986. This filing fullfills our committment to do so.

If you need any assistance, please contact Mr. Ron Shipley, Director's Office of Regulatory Affairs, 348-2761.

Sincerely,

Ronald R. Potesta
Director

RRP/rsb

Enclosure

Corrected per 5/29 changes

WEST VIRGINIA ADMINISTRATIVE REGULATIONS

DEPARTMENT OF NATURAL RESOURCES

1986

SERIES 15

HAZARDOUS WASTE MANAGEMENT REGULATIONS

PREAMBLE

Introduction

In recognition of the express statutory provisions contained in Section 20-5E et seq., regarding duplication and consultation, and for the purpose of achieving maximum effectiveness while imposing the least burden of duplicative requirements on those persons subject to these regulations, the Director has attempted in these regulations to create a workable hazardous waste management program. The complexity of the regulations and the number of rulemaking agencies involved made this a difficult task, and there is likely to remain a number of areas which will require continued cooperation, coordination, and consultation among the agencies. Towards this effort, the Director of the Department of Natural Resources expects to employ the use of Memorandums of Agreement which will outline the specific areas of responsibilities between the various agencies, particularly with regard to the permits to be issued by the Chief of the Division of Water Resources and the Director of the Air Pollution Control Commission.

Summary of Specific Sections

Section 2 of these regulations is promulgated by the Director of the Department of Natural Resources and contains the definitions of the words and phrases used in these regulations.

Section 3 of these regulations is promulgated by the Director of the Department of Natural Resources and provides the criteria for identifying a hazardous waste and a list of hazardous wastes that have been identified by the Director.

Section 4 of these regulations is promulgated by the Director of the Department of Natural Resources and contains the notification requirements applicable to those persons engaged in hazardous waste activities, and is promulgated pursuant to authority contained in Section 20-5E-6(a)(12). The purpose of Section 4 is to provide a means for the State of West Virginia to obtain information from all persons who engage in hazardous waste activities.

Section 5 of these regulations, is promulgated by the Director and established standards applicable to transporters of hazardous waste by air and/or water by adopting and incorporating by reference 40 CFR Part 263 and are promulgated under authority of Section 20-5E-6(a)(12).

Section 6 of these regulations is promulgated by the Director of the

Department of Natural Resources and contains requirements for generators of hazardous waste which include recordkeeping, reporting, and originating a manifest for off-site shipments.

Section 7 (Reserved)

Section 8 is promulgated by the Director and the Water Resources Board and establishes the standards for owners and operators of hazardous waste treatment, storage, and disposal facilities.

Section 9, in its proposed form, contained standards for facility owners and operators to comply with during interim status. These standards have been deleted in the final regulations inasmuch as Chapter 20, Article 5E, Section 10 governs the hazardous waste activities of facilities during interim status. Section 9 has been reserved for future regulations to be promulgated by the Director.

Section 10 established interim standards for land disposal facilities. Section 10 standards have been deleted because they will be superceded upon final promulgation of the final Section 8 standards.

Section 11 of these regulations is promulgated by the Director under the authority of Chapter 20, Article 5E, Section 6(a)(4) and requires the Director to promulgate rules and regulations respecting compliance with permits for treatment, storage, or disposal under Chapter 20, Article 5E, Section 8. Additionally, the Director is required by Chapter 20, Article 5E, Section 6(a)(5) to promulgate rules and regulations specifying the terms and conditions under which the Chief shall issue, modify, suspend, revoke, or deny permits.

Section 12 is promulgated by the Director under the authority of Chapter 20, Article 5E, Section 6(a)(1), (a)(4), and (a)(12). This section establishes the location standards for all hazardous waste management facilities.

Section 13 establishes financial requirements for existing and new facilities. The Director adopted and incorporated by reference 40 CFR Part 264, Subpart H, as published in the Code of Federal Regulations on July 1, 1982 with modifications.

Section 14 (Reserved)

Section 15 is promulgated by the Director establishes the requirements on deed and lease disclosures, and approvals for land disturbance.

Section 16 is promulgated by the Director and provides a mechanism for persons desiring to notify the Water Resources Board or the Director of changes in the federal Solid Waste Disposal Act, or the regulations promulgated thereunder.

WEST VIRGINIA ADMINISTRATIVE REGULATIONS
DEPARTMENT OF NATURAL RESOURCES
CHAPTER 20-5E
1985
SERIES XV

Title: Hazardous Waste Management Regulations

Section 1. General

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. These regulations are promulgated under the authority of the West Virginia Code Chapter 20, Article 5E, Sections 4, 5, 6, and 7.

1.3 Effective Date. These regulations will become effective on April 15, 1986.

1.4 Filing Date. These regulations were filed in the Office of the Secretary of State on April 15, 1986.

1.5 Certification. These regulations are certified authentic by the Director of the Department of Natural Resources.

Section 2. Definitions

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

"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;

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

"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;

"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;

"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;

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

"Authorized representative" means the person responsible for the overall operation of a facility or an operational unit (i.e. - part of a facility), e.g. - the plant manager, superintendent or person of equivalent responsibility

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

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

(b) 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; and

(c) 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

(d) 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 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.);

"Calendar Year" means January 1 through December 31;

"Cell" means a discrete volume of a hazardous waste landfill which uses a liner to provide isolation of wastes from adjacent cells or wastes;

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

"Chief" means the chief of the division of water resources of the Department of Natural Resources;

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

"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;

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

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

"Container" means any portable device in which a material is stored, transported, treated, disposed of or otherwise handled;

"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;

"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 Department of Transportation hazardous waste material;

"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.;

"Designated facility (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 CFR Parts 271 and 124, 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 3.1.5 or Section 9.6 of these regulations, and that has been designated on the manifest to receive a specific hazardous waste shipment;

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

"Director" means the director of the Department of Natural Resources;

"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;

"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;

"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;

"Division" means the Division of Water Resources of the Department of Natural Resources;

"Domestic sewage" means untreated sanitary wastes that pass through a sewer system;

"DOT" means the United States Department of Transportation;

"Draft permit" means a document prepared under Section 11.21 indicating the Chief's tentative decision to issue, deny, modify, revoke and reissue, revoke, or reissue a permit;

"Elementary neutralization unit" means a device which (i) 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 only for this reason; and, (ii) meets the definition of a tank, container, or transport vehicle in this section;

"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;

"EPA" means the United States Environmental Protection Agency;

"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;

"EPA identification number" means the number assigned by EPA to each hazardous waste generator, hazardous waste transporter or hazardous waste facility;

"Equivalent method" means any testing or analytical method approved by the EPA Administrator under 40 CFR Section 260.20, and 260.21;

"Existing hazardous waste management facility or existing 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) the owner or oeprator has obtained all necessary Federal, State and local approvals or permits to begin physical construction; and either (i) a continuous physical, on-site construction program has begun, or (ii) 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;

"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;

"Facility". See "hazardous waste management facility;"

"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;

"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;

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

"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;

"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;

"Foreign source" means a source outside the geographical boundaries of the continental United States;

"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;

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

"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;

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

"Hazardous constituent" or "constituent" are constituents identified in Appendix VIII of Section 3 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 1 of Section 3.3.5 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;

"Hazardous Waste" means a hazardous waste as defined in Section 3.1.2 except as 3.1b provides otherwise;

"Hazardous waste activity" means the handling of hazardous waste as in the generation, transportation, treatment, storage, or disposal of any

hazardous waste;

"Hazardous waste generation" means the act or process of producing hazardous waste materials;

"Hazardous waste management" means the systematic control of the collection, source separation, storage, transportation, processing, treatment, recovery and disposal of hazardous wastes;

"Hazardous waste management facility (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;

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

"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.

"Incompatible waste" means a hazardous waste which is unsuitable for: (a) placement in a particular device or facility because it may cause corrosion or decay of containment materials; or (b) 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;

"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;

"In operation" means facilities that are treating, storing or disposing of hazardous waste;

"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:

(1) Cement kilns;

(2) Lime kilns;

(3) Aggregate kilns;

(4) Phosphate kilns;

(5) Coke ovens;

(6) Blast furnaces;

(7) Smelting, melting and refining furnaces (including pyrometallurgical devices such as cupolas, reverberator furnaces,sintering machine, roasters, and foundry furnaces);

(8) Titanium dioxide chloride process oxidation reactors;

(9) Methane reforming furnaces;

(10) Pulping liquor recovery furnaces;

(11) Combustion devices used in the recovery of sulfur values from spent sulfuric acid;

(12) Such other devices as the Administrator may, after notice and comment, add to this list on the basis of one or more of the following factors:

(i) The design and use of the device primarily to accomplish recovery of material products;

(ii) The use of the device to burn or reduce raw materials to make a material product;

(iii) 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;

(iv) The use of the device to burn or reduce secondary materials as ingredients in an industrial process to make a material product;

(v) The use of the device in common industrial practice to produce a material product; and

(vi) Other factors, as appropriate.

"Injection well" means a well or bore hole into which fluids are injected;

"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;

"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, 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;

"International shipment" means the transportation of hazardous waste, into or out of the jurisdiction of the United States;

"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;

"Landfill cell" See "cell".

"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;

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

"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;

"Major facility" means a disposal or treatment facility which disposes or treats an amount of hazarodus waste exceeding or equal to 1,000 tons during a calendar year, and any storage facility having a storage capacity for 1,000 tons of hazardous waste or more;

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

"Manifest document number" means the serial number assigned to the manifest by the generator for recordkeeping and reporting purposes;

"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;

"Monitoring" means all procedures used to inspect and quantify the chemical or physical characteristics of the air, State waters or soils;

"Movement" means transportation of hazardous waste to a facility in an individual transportation vehicle;

"New hazardous waste management facility" or "New facility" means a facility which began operation, or for which construction commenced after July 10, 1981. (See also, "existing hazardous waste management facility");

"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;

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

"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. Non-contiguous 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;

"Operator" means the person responsible for the overall operation of a hazardous waste management facility;

"Owner" means the person who owns a hazardous waste management facility or part of a hazardous waste management facility;

"Packaging" means the assembly of one or more containers and any other components necessary to assure compliance with the minimum packaging requirements under 49 CFR 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;

"Partial closure" means the closure of a discrete port of a facility in accordance with the applicable closure requirements of these regulations;

"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;

"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 EPA Administrator pursuant to applicable Federal regulations, or a facility

having "interim status";

"Permitted hazardous waste management facility (or permitted 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";

"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;

"Personnel or facility personnel" means all persons who work at, or oversee the operations of a hzardous waste management facility, and whose actions or failure to act may result in noncompliance with the requirements of these regulations;

"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;

"Pile" means any non-containerized accumulation of solid, non-flowing hazardous waste that is used for treatment or storage;

"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;

"Publicly owned treatment works (POTW)" means any device or system used in the treatment (including recycling and reclamation) of municipal sewage or industrial wastes of a liquid nature which is owned by a State or municipality (as defined by Section 502(4) of the CWA). This definition includes sewers, pipes, or other conveyances only if they convey wastewater to a POTW providing treatment;

"RCRA" means the Subtitle C, the Resource Conservation and Recovery Act, as amended of the Federal Solid Waste Disposal Act, as amended.

"Representative sample" means a sample of a universe or whole which can be expected to exhibit the average properties of the universe or whole;

"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;

"Revocation," when the term is used in Section 11 in the context of a permit action, means an action which renders a permit permanently null and void;

"Run-off" means any rainwater, leachate, or other liquid that drains over land from any part of a facility;

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

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

"SDWA" means the Safe Drinking Water Act (Public Law 95-523, as amended by Public Law 95-1900);

"SIC" means standard industrial classification;

"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;

"State act" means the Hazardous Waste Management Act, W. Va. Code §20-5E-1, et seq.

"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, water-courses and wetlands;

"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;

"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; "storm" for the purposes specified in the design requirements of Sections 8.9.2, 8.10.2, and 8.11.2 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;

"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;

"Suspension," when used in Section 11 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;

"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;

"Termination," when the term is used in Section 11 in the context of a permit action, means the same as the term "revocation";

"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;

"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;

"Transportation" means the movement of hazardous waste by air, rail, highway or water;

"Transporter" means a person engaged in the off-site transportation of hazardous waste by air, rail, highway or water;

"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.) is a separate transport vehicle;

"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 non-hazardous, 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 non-hazardous;

"Treatment zone" means a soil area of the unsaturated zone of a land treatment unit within which hazardous constituents are degraded, transformed or immobilized;

"Triple rinsed" means containers which have been flushed three (3) times, each time using a volume of dilutant diluent at least equal to ten percent (10%) of the container's capacity;

"Underground injection" means the sub-surface 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");

"Unsaturated zone" or "zone of aeration" means the zone between topographic surface and the water table;

"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;

"Vessel" means every description of water craft used or capable of being used as a means of transportation on the water;

"Waste" means waste as defined in section 3.1.1;

"Wastewater treatment unit" means a device which: (i) is part of a wastewater treatment facility which is subject to regulation under the CWA; (ii) receives and treats or stores an influent wastewater which is a hazardous waste as defined in this section, or generates and accumulates, or treats or stores a wastewater treatment sludge that is defined as a hazardous waste; and (iii) meets the definition of a tank as defined in this section;

"Water (bulk shipment)" means the bulk transportation of hazardous waste which is loaded or carried on board a vessel without containers or labels;

"Water table" means the upper surface of the zone of saturation in groundwaters in which the hydrostatic pressure is equal to atmospheric pressure;

"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;

Section 3. Identification and Listing of Hazardous Waste

3.1 Purpose and Scope

3.1.a This section identifies those wastes which are subject to regulation as hazardous wastes.

3.1.b The definition of waste contained in this section 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 non-hazardous scrap,paper, textiles or rubber) that are not otherwise hazardous wastes and that are recycled.

3.1.b.1 This section 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 this section, or is not a hazardous waste identified or listed in this section, is still a waste and a hazardous waste for purposes of these sections if:

3.1.b.2 In the case of Sections 20-5E-12 and 20-5E-13 of the State Act, the Director has reason to believe the material may be a waste within the meaning of Section 20-5E-3(12) of the State Act and a hazardous waste within the meaning of Section 20-5E-3(6) of the State Act; or

3.1.b.3 In the case of Section 20-5E-17, the statutory elements are established.

3.1.c For the purposes of Sections 3.1.1 and 3.1.5:

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

3.1.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 slag 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.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.c.5 A material is "used or reused" if it is either;

3.1.c.5.A. Employed as an ingredient (including use as an

intermediate) in an industrial process to make a product, (for example, 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.c.5.B. Employed in a particular function or application as an effective substitute for a commercial product (for example, spent pickle liquor used as phosphorus precipitant and sludgeconditioner in wastewater treatment);

3.1.c.6 "Scrap metal" is bits and pieces of metal parts (e.g.,) bars, turnings, rods, sheets, wire or metal pieces that may be combined together with bolts or soldering (e.g., radiators, scrap automobiles, railroad box cars), which when worn or superfluous can be recycled;

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

3.1.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 (commencing on January 1) - the amount of material that is recycled, or transferred to a different site for recycling, equals at least 75 percent by weight or volume of the amount of that material accumulated at the beginning of the period. In calculating the percentage of turnover, the 75 percent requirement is to be applied to each material of the same type (e.g., slags from a single smelting process) that is recycled in the same way (i.e., 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 3.1.3(c) 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, however.

3.1.1 Definitions of Waste

3.1.1.a.1 A waste is any discarded material that is not excluded by Section 3.1.3.a or that is not excluded by variance granted under Section 16.3.

3.1.1.a.2 A discarded material is any material which is:

3.1.1.a.2.i Abandoned, as explained in paragraph b of this subsection; or

3.1.1.a.2.ii Recycled, as explained in paragraph c of this subsection;

or

3.1.1.a.2.iii Considered inherently waste-like, as explained in paragraph d of this section.

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

3.1.1.b.1 Disposed of; or

3.1.1.b.2 Burned or incinerated; or

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

3.1.1.c Materials are waste if they are recycled - or accumulated, stored or treated before recycling - as specified in paragraphs c.1 through c.4 of this section.

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

3.1.1.c.1.i Materials noted with a "*" in column 1 of Table 1 are wastes when they are:

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

3.1.1.c.1.i.B. Contained in products that are applied to the land (in which case the product itself remains a waste).

3.1.1.c.1.i.C. However, commercial chemical products listed in Section 3.4.4 are not wastes if they are applied to the land and that is their ordinary manner of use.

3.1.1.c.2 Burning for energy recovery.

3.1.1.c.2.i Materials noted with a "*" in column 2 of Table 1 are wastes when they are:

3.1.1.c.2.i.A. Burned to recovery energy;

3.1.1.c.2.i.B. Used to produce a fuel or are otherwise contained in fuels (in which case the fuel itself remains a waste).

3.1.1.c.2.ii However, commercial chemical products listed in Section 3.4.4 are not wastes if they are themselves fuels.

3.1.1.c.3 Reclaimed. Materials noted with a "*" in column 3 of Table 1 are wastes when reclaimed.

3.1.1.c.4 Accumulated speculatively. Materials noted with a "*" in

column 4 of Table 1 are wastes when accumulated speculatively.

Table 1

	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)	*	*	*	*
Sludges exhibiting a characteristic of hazardous waste	*	*		*
By-products (listed in Section (3.4.2 and 3.4.3)	*	*	*	*
By-products exhibiting a characteristic of hazardous waste	*	*		*
Commercial chemical products listed in Section (3.4.4)	*	*		
Scrap metal	*	*	*	*

NOTE: The terms "spent materials", "sludges", "by-products" and "scrap metal" are defined in Section 3.1.c.

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

3.1.1.d.1 (Reserved)

3.1.1.d.2 The Director will use the following criteria to add wastes to that list:

3.1.1.d.2.i.A. The materials are ordinarily disposed, burned or incinerated; or

3.1.1.d.2.i.B. The materials contain toxic constituents listed in Appendix VIII of this Section and these constituents are not ordinarily

found in raw materials or products for which the materials substitute (or are found in raw materials or products in smaller concentrations) and are not used or reused during the recycling process; and

3.1.1.d.2.ii The material may pose a substantial hazard to human health and the environment when recycled.

3.1.1.e Materials that are not waste when recycled.

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

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

3.1.1.e.1.ii Used or reused as effective substitutes for commercial products;

3.1.1.e.1.iii 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.

3.1.1.e.2 The following materials are wastes, even if the recycling involves use, reuse or return to the original process (described in paragraphs e.1.i through iii of this subsection):

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

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

3.1.1.e.2.iii Materials accumulated speculatively; or

3.1.1.e.2.iv (Reserved)

3.1.1.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.

3.1.2 Definition of Hazardous Waste

3.1.2.a A waste as defined in Section 3.1.1 is a hazardous waste if:

3.1.2.a.1 It is not excluded from regulation as a hazardous waste under Section 3.1.3(b); and

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

3.1.2.a.2.i It is listed in Section 3.4 and has not been excluded from the list in Section 3.4 pursuant to Section 16.

3.1.2.a.2.ii It is a mixture of waste and one or more hazardous wastes listed in Section 3.4 and has not been excluded under Section 16; or

3.1.2.a.2.iii It exhibits any of the characteristics of hazardous waste identified in Section 3.3.

3.1.2.b A waste which is not excluded from regulation under paragraph (a)(1) of this section becomes a hazardous waste when any of the following events occur:

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

3.1.2.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 is first added to the waste;

3.1.2.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.

3.1.2.c Unless and until it meets the criteria of paragraph (d):

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

3.1.2.c.2.i Except as otherwise provided in paragraph 3.1.2.c.2.ii of this section, any waste generated from the treatment, storage, or disposal of a hazardous waste, including any sludge, spill residue, ash, emmissions control dust, or leachate (but not including precipitation run-off) 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.)

3.1.2.c.2.ii 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) Waste pickle liquor sludge generated by lime stabilization of spent pickle liquor from the iron and steel industry (SIC Codes 331 and 332); (B) wastes from burning any of the materials exempted from regulation by Section 3.1.5.a.3.

3.1.2.d Any waste described in paragraph (c) is not a hazardous waste if it meets the following criteria:

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

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

3.1.3 Exclusions

3.1.3.a Materials which are not wastes.

The following materials are not wastes for the purposes of this section:

3.1.3.a.1.i Domestic sewage; and

3.1.3.a.1.ii 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.

3.1.3.a.2 Industrial wastewater discharges that are point source discharges subject to regulation under Section 402 of the Clean Water Act, as amended. (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.)

3.1.3.a.3 Irrigation return flows.

3.1.3.a.4 Source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2011, et seq.

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

3.1.3.a.6 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.c.8 of these regulations.

3.1.3.a.7 Spent sulfuric acid used to produce virgin sulfuric acid, unless it is accumulated speculatively as defined in Section 3.1.c.8 of these regulations.

3.1.3.b Wastes which are not hazardous wastes. The following wastes are not hazardous wastes:

3.1.3.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).

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

3.1.3.b.2.i The growing and harvesting of agricultural crops.

3.1.3.b.2.ii The raising of animals, including animal manures.

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

3.1.3.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.

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

3.1.3.b.6.i Wastes which fail the test for the characteristic of EP toxicity because chromium is present or are listed in 3.4 due to the presence of chromium which do not fail the test for the characteristic of EP toxocity 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:

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

3.1.3.b.6.i.B. 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

3.1.3.b.6.i.C. The waste is typically and frequently managed in non-oxidizing environments.

3.1.3.b.6.ii Specific wastes which meet the standard in paragraphs (b)(6)(i), (A), (B), and (C), (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:

3.1.3.b.6.ii.A. 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.

3.1.3.b.6.ii.B. 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.ii.C. Buffing dust generated by the following subcategories 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.

3.1.3.b.6.ii.D. 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.

3.1.3.b.6.ii.E. 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.

3.1.3.b.6.ii.F. 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.

3.1.3.b.6.ii.G. Waste scrap leather from the leather tanning industry, the shoe manufacturing industry, and other leather product manufacturing industries.

3.1.3.b.6.ii.H. Wastewater treatment sludges from the production of TiO2 pigment using chromium-bearing ores by the chloride process.

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

3.1.3.b.8 Cement kiln dust waste.

3.1.3.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.

3.1.3.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, 40 CFR Part 265, or Section 11 of these regulations 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.

3.1.3.d Samples.

3.1.3.d.1 Except as provided in paragraph (d)(2) of this section, 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:

3.1.3.d.1.i The sample is being transported to a laboratory for the purpose of testing; or

3.1.3.d.1.ii The sample is being transported back to the sample collector after testing; or

3.1.3.d.1.iii The sample is being stored by the sample collector before transport to a laboratory for testing; or

3.1.3.d.1.iv The sample is being stored in a laboratory before testing; or

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

3.1.3.d.1.vi 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).

3.1.3.d.2 In order to qualify for the exemption in paragraph (d)(1)(i) and (ii) of this section, a sample collector shipping samples to a

laboratory and a laboratory returning samples to a sample collector must:

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

3.1.3.d.2.ii 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:

3.1.3.d.2.ii.A. Assure that the following information accompanies the sample:

3.1.3.d.2.ii.A.1 The sample collector's name, mailing address, and telephone number;

3.1.3.d.2.ii.A.2 The laboratory's name, mailing address, and telephone number;

3.1.3.d.2.ii.A.3 The quantity of the sample;

3.1.3.d.2.ii.A.4 The date of shipment; and

3.1.3.d.2.ii.A.5 A description of the sample.

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

3.1.3.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 paragraph (d)(1) of this section.

3.1.4 Special Requirements for Hazardous Waste Generated by Small Quantity Generators

3.1.4.a A generator is a small quantity generator in a calendar month if he generates less than 1000 kilograms of hazardous waste in that month.

3.1.4.b Except for those wastes identified in paragraphs (e) and (f) of this section, a small quantity generator's hazardous wastes are not subject to regulation under Sections 6, 8, and 11 of these regulations and 40 CFR Part 265, provided the generator complies with the requirements of paragraph (g) and, if applicable (j) of this section.

3.1.4.c Hazardous waste that is recycled and that is excluded from regulation under Sections 3.1.5(a)(2)(iii) and (v), (a)(3), or 9.4 is not included in the quantity determinations of this section and is not subject to any requirements of this section. Hazardous waste that is

subject to the requirements of Sections 3.1.5(b) and (c) and 9.3, 9.4, and 9.6 is included in the quantity determination of this section and is subject to the requirements of this section.

3.1.4d In determining the quantity of hazardous waste he generates, a generator need not include:

3.1.4.d.1 His hazardous waste when it is removed from on-site storage; or

3.1.4.d.2 Hazardous waste produced by on-site treatment of his hazardous waste.

3.1.4e If a small quantity generator generates acutely hazardous waste in a calendar month in quantities greater than set forth below, all quantities of that acutely hazardous waste are fully subject to these regulations:

3.1.4.e.1 A total of one kilogram of commercial chemical products and manufacturing chemical intermediates having the generic names listed in 3.4.4(e), and off-specification commercial chemical products and manufacturing chemical intermediates which, if they met specifications, would have the generic names listed in 3.4.4(e);

3.1.4.e.2 A total of 100 kilograms of 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 products or manufacturing chemical intermediates having the generic names listed in 3.4.4(e), or any residue or contaminated soil, water or other debris resulting from the cleanup of a spill, into or on any land or water, of any off-specification commercial chemical products or manufacturing chemical intermediates which, if they met specifications, would have the generic names listed in 3.4.4(e).

3.1.4f A small quantity generator may accumulate hazardous waste on-site. If he accumulates at any time more than a total of 1000 kilograms of his hazardous waste, or his acutely hazardous wastes in quantities greater than those set forth in paragraphs (e)(1) or (e)(2) of this section all of those accumulated wastes for which the accumulation limit was exceeded are fully subject to these regulations. The time period of Section 6.3.5 for accumulation of wastes on-site begins for a small quantity generator when the accumulated wastes exceed the applicable exclusion level.

3.1.4g In order for hazardous waste generated by a small quantity generator to be excluded from full regulation under this section, the generator must:

3.1.4.g.1 Comply with Sections 4 and 6.1.1 of these regulations;

3.1.4.g.2 If he stores his hazardous waste on-site, store it in compliance with the requirements of paragraph (f) of this section;

3.1.4.g.3 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; and (Comment: This recordkeeping requirement is only applicable to manufacturing facilities. Non-manufacturing facilities such as schools, service stations, etc. are not required to comply with this subsection.)

3.1.4.g.4 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 is:

3.1.4.g.4.i Permitted under 40 CFR Part 270 of the federal code;

3.1.4.g.4.ii In interim status under 40 CFR Parts 270 and 265 and 20-5E-10 of the West Virginia Code;

3.1.4.g.4.iii Permitted by this State under Section 11.00 of these regulations;

3.1.4.g.4.iv Permitted by this State to manage industrial wastes under the Water Pollution Control Act; (Comment: After March 31, 1986 a small quantity generator will not be allowed to send its hazardous waste to this type of facility.)

3.1.4.g.4.v Authorized to manage hazardous waste by a state with a hazardous waste program approved under 40 CFR Part 271;

3.1.4.g.4.vi A facility which:

3.1.4.g.4.vi.A. Beneficially uses or re-uses, or legitimately recycles or reclaims his waste; or

3.1.4.g.4.vi.B. Treats his waste prior to beneficial use or re-use, or legitimate recycling or reclamation.

3.1.4.h Hazardous waste subject to the reduced requirements of this section may be mixed with non-hazardous waste and remain subject to these reduced requirements even though the resultant mixture exceeds the quantity limitations identified in this section, unless the mixture meets any of the characteristics of hazardous wastes identified in Section 3.3.

3.1.4.i If a small quantity generator mixes a waste with a hazardous waste that exceeds a quantity exclusion level of this section, the mixture is subject to full regulation.

3.1.4.j A small quantity generator that generates more than 100, but less than 1000 kilograms of hazardous waste or who generates acutely hazardous waste in an amount greater than specified in Section 3.1.4.e in any calendar month shall be subject to the following requirements, in addition to those requirements enumerated in paragraphs (a) through (i) of this section:

3.1.4.j.1 The manifest requirements of Section 6.2, except that such small quantity generators are only required to complete the following items on the generator segment of the Uniform Hazardous Waste Manifest prior to shipping hazardous waste off-site for treatment, storage, disposal or recycling:

3.1.4.j.1.i Generator name, address, and signature (items 3 and 16 on the Uniform Hazardous Waste Manifest form.)

3.1.4.j.1.ii The name and address of the facility designated to receive the hazardous waste (item 9 on the Uniform Hazardous Waste Manifest form).

3.1.4.j.1.iii The DOT description of the waste, including the proper shipping name, hazard classification, and the "UN" or "NA" identification number (item 11 on the Uniform Hazardous Waste Manifest form).

3.1.4.j.1.iv The number and type of containers of hazardous wastes (item 12 on the Uniform Hazardous Waste Manifest form). (COMMENT: Each container must be properly marked, labeled, and meet all DOT specifications), and

3.1.4.j.1.v The total quantity of hazardous waste to be transported off-site (items 13 and 14 on the Uniform Hazardous Waste Manifest form);

3.1.4.j.2 The pre-transport DOT packaging, labeling, marking and placarding requirements described in Section 6.3 of these regulations:

3.1.4.j.3 The recordkeeping requirements of Section 6.4.1.a., (c), and (d) and 6.4.4; and

3.1.4.j.4 The special conditions of Section 6.5.

3.1.5 Requirements for Recyclable Materials

3.1.5.a.1 Hazardous wastes that are recycled are subject to the requirements for generators, transporters, and storage facilities of paragraphs (b) and (c) of this section, except for the materials listed in paragraphs (a)(2) and (a)(3) of this section. Hazardous wastes that are recycled will be known as "recyclable materials."

3.1.5.a.2 The following recyclable materials are not subject to the requirements of this section but are regulated under Sections 9.3 through 9.7 and all applicable provisions of Section 11 of these regulations:

3.1.5.a.2.i Recyclable materials used in a manner constituting disposal (Section 9.3):

3.1.5.a.2.ii Hazardous wastes burned for energy recovery in boilers and industrial furnaces.

3.1.5.a.2.iii (Reserved);

3.1.5.a.2.iv Recycled materials from which precious metals are reclaimed (Section 9.6);

3.1.5.a.2.v Spent lead-acid batteries that are reclaimed (Section 9.7).

3.1.5.a.3 The following recyclable materials are not subject to regulation under §§4 through 8 and are not subject to the notification requirements of W.Va. Code §20-5E-10.

3.1.5.a.3.i Reclaimed industrial ethyl alcohol;

3.1.5.a.3.ii Used batteries (or used battery cells) returned to a battery manufacturer for regeneration;

3.1.5.a.3.iii 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; or

3.1.5.a.3.iv Scrap metal.

3.1.5.b 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 paragraph 3.1.5.a of this section.

3.1.5.c.1 Owners or operators of facilities that store recyclable materials are regulated under all applicable provisions of Sections 4, 8.1 through 8.10, 8.13, and 11 of these regulations, except as provided in paragraph 3.1.5.a of this section (the recycling process itself is exempt from regulations).

3.1.5.c.2 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 paragraph 3.1.5.a of this section:

3.1.5.c.2.i Notification requirements of Section 4;

3.1.5.c.2.ii Sections 8.5.2 and 8.5.3 (concerning use of the manifest and manifest discrepancies).

3.1.5.d Additional Regulation of Certain Hazardous Waste Recycling Activities on a case-by-case basis.

3.1.5.d.1 The director may decide on a case-by-case basis that persons accumulating or storing the recyclable materials described in 3.1.5.a.2.iv should be regulated under 3.1.5.b and 3.1.5.c. 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:

3.1.5.d.1.a The types of materials accumulated or stored and the amounts accumulated or stored;

3.1.5.d.1.b The method of accumulation or storage;

3.1.5.d.1.c The length of time the materials have been accumulated or stored before being reclaimed;

3.1.5.d.1.d Whether any contaminants are being released into the environment, or are likely to be so released; and

3.1.5.d.1.e Other relevant factors.

The procedures for this decision are set forth in 3.1.5.d.2.

3.1.5.d.2 Procedures for case-by-case regulation of hazardous waste recycling activities.

3.1.5.d.2.i The director will use the following procedures when determining whether to regulate hazardous waste recycling activities described in Section 3.1.5.a.2.iv under the provisions of 3.1.5.b and 3.1.5.c, rather than under the provisions of 9.6.

3.1.5.d.2.i.A 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 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 is required. The order becomes effective 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.

3.1.5.d.2.i.B 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 60 days and no more than six months of notice, as specifiedin 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 11.25 of the regulations and in any subsequent hearing.

3.1.6 Residue of Hazardous Waste in Empty Containers

3.1.6.a.1 Any hazardous waste remaining in either (i) an empty container or (ii) an inner liner removed from an empty container, as defined in paragraph (b) of this section is not subject to these regulations.

3.1.6.a.2 Any hazardous waste in either (i) a container that is not empty or (ii) an inner liner removed from a container that is not empty, as defined in paragraph (b) of this section, is subject to these regulations.

3.1.6.b.1 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 3.4.4(c) of this section is empty if:

3.1.6.b.1.i All wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container, e.g., puring, pumping, and aspirating, and

3.1.6.b.1.ii No more than 2.5 centimeters (one inch) of residue remain on the bottom of the container or inner liner, or

3.1.6.b.1.iii.A 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 110 gallons in size, or

3.1.6.b.1.iii.B No more than 0.3 percent by weight of the total capacity of the container remains in the container or inner liner if the container is greater than 110

gallons in size;

3.1.6.b.2 A container that has held a hazardous waste that is a compressed gas is empty when the pressure in the container approaches atmospheric.

3.1.6.b.3 A container or an inner liner removed from a container that has held a hazardous waste identified in 3.4.4(c) of this section is empty if:

3.1.6.5.3.A.i The container or inner liner has been triple rinsed using a solvent capable of removing the commercial chemical product or manufacturing chemical intermediate;

3.1.6.b.3.A.ii 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

3.1.6.b.3.A.iii 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.i 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.ii 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.i 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.ii 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 3.3.

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 50 milligrams per kilogram, an inhalation LC 50 toxicity (rat) of less than 2 milligrams per liter, or a dermal LD 50 toxicity (rabbit) of less than 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, 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.i The nature of the toxicity presented by the constituent.

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

3.2.2.a.3.iii 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 paragraph (a)(3)(vii) of this section.

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

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

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

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

3.2.2.a.3.ix 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.x 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.xi Such other factors as may be appropriate.

Substances will be listed on Appendix VIII, only if they have been shown in scientific studies to have toxic, carcinogenic, mutagenic or teratogenic effects on humans or other life forms. (Wastes listed in accordance with these criteria will be designated Toxic wastes.)

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 20-5E-3(6) of the State Act.

3.2.2.c The Director will use the criteria for listing, specified in this section, to establish the exclusion limits referred to in 3.1.4c.

3.3 Characteristics of Hazardous Waste

3.3.1 General

3.3.1.a A waste as defined in 3.1.1 which is not excluded from regulation as a hazardous waste under 3.1.3(b) is a hazardous waste if it exhibits any of the characteristics identified in this section.

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

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

3.3.2 Characteristic of Ignitability

3.3.2a 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 24 percent 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. (See Section 2 and 40 CFR Section 260.11 for test method information)

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 49 CFR Section 173.300 and as determined by the test method described in that regulation or an equivalent test method (see Section 2).

3.3.2.a.4 It is an oxidizer as defined in 40 CFR Section 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 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 the "Test Methods for the Evaluation of Solid Waste, Physical/chemical Methods," or an equivalent test method approved by the Administrator under the procedures set forth in 40 CFR Sections 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 C (130 F) as determined by the test method specified in NACE (National Association of Corrision Engineers) Standard TM-01-69 as standardized in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods," or an equivalent test method (see Section 2).

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 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 betwen 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;

3.3.4.a.8 It is a forbidden explosive as defined in 49 CFR Section 173.51, or a Class A explosive as defined in 49 CFR Section 173.53 or a Class B explosive as defined in 49 CFR Section 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 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 or equivalent methods approved by the Administrator under the procedures set forth in 40 CFR Sections 260.20 and 260.21, the extract from a representative sample of the waste contains any of the contaminants listed in Table I 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 this section.

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 I which corresponds to the toxic contaminant causing it to be hazardous.

TABLE I. - 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 (total)	5.0
D008	Lead	5.0
D009	Mercury	0.2
D010	Selenium	1.0
D011	Silver	5.0
D012	Endrim (1,2,3,4,10,10-hexachloro-1 7-epoxy-1,4,4a,5,6,7,8,8a-octa-hydro-1 4-endo, endo-5, 8-dimethano napthhalene)	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 ($C_{10}H_{10}C18$, Technical chlorinated champhene, 67-69 percent 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

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 this section unless it has been excluded from this list under Section 16.

3.4.1.b The Director will indicate his basis for listing the classes or types of wastes listed in this section 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)
Toxic Waste . . . . . (T)

Appendix VII 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.

3.4.1.c Each hazardous waste listed in this section 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 recordkeeping and reporting requirements under Section 6, Section 8 and Section 11 of these regulations.

3.4.1.d The following hazardous wastes listed in Section 3.4.2 or 3.4.3 are subject to the exclusion limits for acutely hazardous wastes established in Section 3.1.4: (Reserved)

3.4.2 Hazardous Waste from Non-specific sources.

Hazardous Waste No.	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; and sludges from the recovery of these solvents in degreasing operations.	(T)
F002	The following spent halogenated solvents: tetra-chloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, orthodichlorobenzene, and trichlorofluoromethane; and the still bottoms from the recovery of these solvents.	(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; and the still bottoms from the recovery of these solvents.	(I)
F004	The following spent non-halogenated solvents:	

cresols and cresylic acid, and nitrobenzene; and the still bottoms from the recovery of these solvents. (T)

F005 . . . . . .The following spent non-halogenated solvents: toluene, methyl ethyl ketone, carbon disulfide, isobutanol, and pyridine; and the still bottoms from the recovery of these solvents. (I,T)

F006 . . . . . .Wastewater treatment sludges from elextroplating operations except from 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)

F007 . . . . . .Spent cyanide plating bathsolutions from electro-plating operations (R,T)

F008 . . . . . .Plating bath sludges residues from the bottom of plating baths from electroplating operations where cyanides are used in the process (R,T)

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 3.4.3.) (T)

F026 . . . . . (Reserved)

F027 . . . . . (Reserved)

F028 . . . . . (Reserved)

3.4.3 Hazardous Waste from Specific Sources.

Hazardous Waste No.	Hazardous Waste	Hazard Code
Wood Preservation:		
K001	Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol	(T)
Inorganic Pigments:		
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)

Organic Chemicals:

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)

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 pro-

	duction of phthalic anhydride from ortho-xylene	(T)
K094	.Distillation bottoms from the production of phthalic anhydride from ortho-xylene	(T)
K025	.Distillation bottoms from production of nitrobenzene by the nitration of benzene	(T)
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 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 prepurified brine is not used	(T)

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)

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)

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 Steele:

K061 . . . . . .Emission control dust/sludge from the primary production of steel in electric furnaces (T)

K062 . . . . . .Spent pickle liquor from steel finishing operations (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 organo-arsenic compounds (T)

K101 . . . . . .Distillation tar residues from the distillation of aniline-based compounds in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds (T)

K102 . . . . . .Residue from the use of activated carbon for decolorization in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds (T)

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)

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 3.1.1.a.2 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 land in lieu of their intended use, or when they are

contained in products that are applied to land in lieu of their intended use.

3.4.4.a Any commercial chemical product, or manufacturing chemical intermediate having the generic name listed in paragraphs (e) or (f) of this section.

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 paragraphs (e) or (f) of this section.

3.4.4.c Any residue remaining in a container or an inner liner removed from a container that has held any commercial chemical product or manufacturing chemical intermediate having the generic name listed in paragraph (e) of this section, unless the container is empty as defined in 3.01.06(b)(3) of this chapter. 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 cleanup 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 paragraph (e) or (f) of this section, or any residue or contaminated soil, water or other debris resulting from the cleanup 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 paragraph (e) or (f) of this section.

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 paragraphs (e) or (f). Where a manufacturing process waste is deemed to be a hazardous waste because it contains a substance listed in paragraphs (e) or (f), such waste will be listed in either 3.4.2 or 3.4.3 or will be identified as a hazardous waste by the characteristics

set forth in 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 paragraphs (a) through (d) of this section, are identified as acute hazardous wastes (H) and are subject to be the small quantity exclusion defined in 3.1.4(a).

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.

These wastes and their corresponding Hazardous Waste Numbers are:

Hazardous Waste No.	Substance
P023	Acetaldehyde, chloro-
P002	Acetamide, N-(aminothioxomethyl)-
P057	Acetamide, 2-fluoro-
P058	Acetic acid, fluro-, sodium salt
P066	Acetimidic acid, N-((methylcarbamoyl)oxy) thio-, methyl ester
P001	3-(alpha-acetonylbenzyl)-4-hydroxycoumarin and salts, when present at concentrations greater than 0.3%
P002	1-Acetyl-2-thiourea
P003	Acrolein
P070	Aldicarb
P004	Aldrin
P005	Allyl alcohol
P006	Aluminum phosphide
P007	5-(Aminomethyl)-3-isoxazolol
P008	4-Aminopyridine
P009	Ammonium picrate (R)
P119	Ammonium vanadate
P010	Arsenic acid
P012	Arsenic (iii) oxide
P011	Arsenic (V) oxide
P011	Arsenic pentoxide
P012	Arsenic trioxide
P038	Arsine, diethyl-
P054	Aziridine
P013	Barium cyanide
P024	Benzenamine, 4-chloro-
P077	Benzenamine, 4-nitro-
P028	Benzene, (chloromethyl)-

P042 . . . . . 1,2-Benzenediol, 4-(1-hydroxy-2-(methylamino)ethyl)-
P014 . . . . . Benzenethiol
P028 . . . . . Benzyl chloride
P015 . . . . . Beryllium dust
P016 . . . . . Bis (chloromethyl) ether
P017 . . . . . Bromoacetone
P018 . . . . . Brucine
P021 . . . . . Calcium cyanide
P123 . . . . . Camphene, octachloro-
P103 . . . . . Carbamimidoselenoic acid
P022 . . . . . Carbon bisulfide
P022 . . . . . Carbon disulfide
P095 . . . . . Carbonyl chloride
P033 . . . . . Chlorine cyanide
P023 . . . . . Chloroacetaldehyde
P024 . . . . . p-Chloroaniline
P026 . . . . . 1-(o-Chlorophenyl) thiourea
P027 . . . . . 3-Chloropropionitrile
P029 . . . . . Copper cyanides
P030 . . . . . Cyanides (soluble cyanide salts), not elsewhere specified
P031 . . . . . Cyanogen
P033 . . . . . Cyanogen chloride
P036 . . . . . Dischloropenylarsine
P037 . . . . . Dieldrin
P038 . . . . . Diethylarsine
P039 . . . . . O,O-Diethyl S-(2-(ethylthio)ethyl) phosphorodithioate
P041 . . . . . Diethyl-p-nitrophenyl phosphate
P040 . . . . . O-)-Diethyl O-pyrazinyl phosphorothioate
P043 . . . . . Diisopropyl fluorophosphate
P044 . . . . . Diemthoate
P045 . . . . . 3,3-Dimethyl-1-(methylthio)-2-butanone, O-((methylamino)carbonyl))oxime
P071 . . . . . O,O-Dimethyl O-p-nitropheynl phosphorothioate
P082 . . . . . Dimethylnitrosamine
P046 . . . . . alpha, alpha-Dimethylpenethylamine
P047 . . . . . 4,6-Dinitro-o-cresol and salts
P034 . . . . . 4,6-dinitro-o-cyclohexylphenol
P048 . . . . . 2,4-dinitrophenol
P020 . . . . . Dinoseb
P085 . . . . . Diphosphoramide, octamethyl-
P039 . . . . . Disulfoton
P049 . . . . . 2,4-Dithiobiuret
P109 . . . . . Dithiopyrophosphoric acid, tetraethyl ester
P050 . . . . . Endosulfan
P088 . . . . . Endothall

P051 . . . . . Endrin
P042 . . . . . Epinephrine
P046 . . . . . Ethanamine, 1,1-dimethyl-1-phenyl
P084 . . . . . Ethenamine, N-methyl-N-nitroso-
P101 . . . . . Ethyl cyanide
P054 . . . . . Ethylenimine
P097 . . . . . Famphur
P056 . . . . . Fluorine
P057 . . . . . Fluoroacetamide
P058 . . . . . Fluoroacetic acid, sodium salt
P065 . . . . . Fulminic acid, mercury (ii) salt (R,T)
P059 . . . . . Heptachlor
P051 . . . . . 1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-endo, endo-1,4:5,8-dimethanonaphthalene
P037 . . . . . 1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-endo-exo-1,4:5,8-dimethanonaphthalene
P060 . . . . . 1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-endo, endo-dimethanon-apthalene
P004 . . . . . 1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-endo,exo-dimethanon-apthalene
P060 . . . . . Hexachlorohexahydro-exo,exo-dimethanon-a;thalene
P062 . . . . . Hexaethyl tetraphosphate
P116 . . . . . Hydrazinecarbothioamide
P068 . . . . . Hydrazine, methyl-
P063 . . . . . Hydrocyanic acid
P063 . . . . . Hydrogen cyanide
P096 . . . . . Hydrogen phosphide
P064 . . . . . Isocyanic acid, methyl ester
P007 . . . . . 3(2H)-Isoxazolone, 5-(aminomethyl)-
P092 . . . . . Mercury, (acetato-O)phenyl
P065 . . . . . Mercury fulminate (R,T)
P016 . . . . . Methane, oxybis(chloro-
P112 . . . . . Methane, tetranitro- (R)
P118 . . . . . Methanethiol, trichloro-
P059 . . . . . 4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-
P066 . . . . . Methomyl
P067 . . . . . 2-Methylaziridine
P068 . . . . . Methyl hydrazine
P064 . . . . . Methyl isocyanate
P069 . . . . . 2-Methyllactonitrile
P071 . . . . . Methyl parathion
P072 . . . . . alpha-Naphthylthiourea
P073 . . . . . Nickel carbonyl
P074 . . . . . Nickel(ii) cyanide

P075 . . . . . Nicotine and salts
P076 . . . . . Nitric oxide
P077 . . . . . p-Nitroaniline
P078 . . . . . Nitrogen dioxide
P076 . . . . . Nitrogen(ii) oxide
P078 . . . . . Nitrogen(IV) oxide
P081 . . . . . Nitroglycerine (R)
P082 . . . . . N-Nitrosodimethylamine
P084 . . . . . N-nitrosomethylvinylamine
P050 . . . . . 5-Norbornene-2,3-dimethanol, 1,4,5,6,7,7-hexachloro, cyclic sulfite
P085 . . . . . Octamethylprophosphoramide
P087 . . . . . Osmium oxide
P087 . . . . . Oxmium tetroxide
P088 . . . . . 7-Oxabicyclo(2.2.1)heptane-2,3-dicarboxylic acid
P089 . . . . . Parathion
P034 . . . . . Phenol, 2-cyclohexyl-4,6-dinitro-
P048 . . . . . Phenol, 2,4-dinitro-
P047 . . . . . Phenol, 2,4-dinitro-6-methyl-
P020 . . . . . Phenol, 2,4-dinitro-6-(1-methylpropyl)-
P009 . . . . . Phenol, 2,4,6-dinitro-, ammonium salt (R)
P036 . . . . . Phenyl dichloroarsine
P092 . . . . . Phenylmercuric acetate
P093 . . . . . N-Phenylthiourea
P094 . . . . . Phorate
P095 . . . . . Phosgene
P096 . . . . . Phosphine
P041 . . . . . Phosphoric acid, diethyl p-nitrophenyl ester
P044 . . . . . Phosphorodithioic acid, 0,0-dmiethyl S-(2-(methylamino)-2-oxoethyl)ester
P043 . . . . . Phosphorofluoric acid, bis(1-methylethyl)-ester
P094 . . . . . Phosphorothioic acid, 0,0-diethyl S-(ethylthio)methyl ester
P089 . . . . . Phosphorothioci acid, 0,0-diethyl 0-)p-nitrophenyl)ester
P040 . . . . . Phosphorothioic acid, 0,0-diethyl 0-pyrazinyl ester
P097 . . . . . Phosphorothioic acid, 0,0-dmiethyl 0-(p-((dimethylamino)-sulfonyl) phenyl)ester
P110 . . . . . Plumbane, tetraethyl-
P098 . . . . . Potassium cyanide
P099 . . . . . Potassium silver cyanide
P070 . . . . . Propanal, 2-methyl-2-(methylthio)-, 0-((methylamino)carbonyl)oxime
P101 . . . . . Propanenitrile
P027 . . . . . Propanenitrile, 3-chloro-
P069 . . . . . Propanenitrile, 2-hydroxy-2-methyl-

P081 . . . . . 1,2,3-Propanetriol, trinitrate-(R)
P017 . . . . . 1-Propanone, 1-bromo-
P102 . . . . . Propargyl alcohol
P003 . . . . . 2-Propenal
P005 . . . . . 2-Propyn-1-ol
P067 . . . . . 1,2-Propylenimine
P102 . . . . . 2-Propyn-1-ol
P008 . . . . . 4-Pyridinamine
P075 . . . . . Pyridine, (S)-3-(1-methyl-2-pyrrolidinyl)-, and salts
P111 . . . . . Pyrophosphoric acid, tetraethyl ester
P103 . . . . . Selenourea
P104 . . . . . Silver cyanide
P105 . . . . . Sodium azide
P106 . . . . . Sodium cyanide
P107 . . . . . Strontium sulfide
P108 . . . . . Strychnidin-10-one, and salts
P018 . . . . . Strychnidin-10-one, 2,3-dimethoxy-
P108 . . . . . Strychnine and salts
P115 . . . . . Sulfuric acid, thallium(i) salt
P109 . . . . . Tetraethyldithiopyrophosphate
P110 . . . . . Tetraethyl lead
P111 . . . . . Tetraethylpyrophosphate
P112 . . . . . Tetranitromethane (R)
P062 . . . . . Tetraphosphoric acid, hexaethyl ester
P113 . . . . . Thallic oxide
P113 . . . . . Thallium (iii) oxide
P114 . . . . . Thallium (i) selenite
P115 . . . . . Thallium (i) sulfate
P045 . . . . . Thiofanox
P049 . . . . . Thioimidodicarbonic diamide
P014 . . . . . Thiophenol
P116 . . . . . Thiosemicarbazide
P026 . . . . . Thiourea, (2-chlorophenyl)-
P072 . . . . . Thiourea, 1-naphthalenyl-
P093 . . . . . Thiourea, phenyl-
P123 . . . . . Toxaphene
P118 . . . . . Trichloromethanethiol
P119 . . . . . Vanadic acid, ammonium salt
P120 . . . . . Vanadium penetoxide
P120 . . . . . Vanadium(V) oxide

P001 . . . . . Warfarin (when present at concentrations greater than 0.3%)
P121 . . . . . Zinc cyanide
P122 . . . . . Zinc phosphide (R,T)
P122 . . . . . Zinc phosphide when present at concentrations greater than 10%

3.4.4.f The commercial chemical products, manufacturing chemical

intermediates, or off-specification commercial chemical products referred to in paragraphs (a) through (d) of this section, are identified as toxic wastes (T) unless otherwise designated and are subject to the small quantity exclusion defined in Section 3.1.4 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.)

These wastes and their corresponding EPA Hazardous Waste Numbers are:

Hazardous Waste No.	Substance
U001	Acetaldehyde (i)
U034	Acetaldehyde, trichloro-
U187	Acetamide, N-(4-ethoxyphenyl)-
U005	Acetamide, N-9-H-fluoren-2-yl-
U112	Acetic acid, ethyl ester (i)
U144	Acetic acid, lead salt
U214	Acetic acid, thallium(i) salt
U002	Acetone (i)
U003	Acetonitrile (I,T)
U248	3-(alpha-acetonylbenzyl)-4 hydroxycoumarin and salts, when present at concentrations of 0.3% or less
U004	Acetophenone
U005	2-Acetylaminofluorene
U006	Acetyl chloride (C,R,T)
U007	Acrylamide
U008	Acrylic acid (i)
U009	Acrylonitrile
U150	Alanine, 3-(p-bis(2-chloroethyl)amino) phenyl-, L-
U011	Amitrole
U012	Aniline (I,T)
U014	Auramine
U015	Azaserine
U010	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-,
U157	Benz(i)aceanthrylene, 1,2-dihydro-3-methyl-
U016	Benz(c)acridine
U016	3,4-Benzacridine
U017	Benzal chloride

U018 . . . . . Benz(a)anthracene
U018 . . . . . 1,2-Benzathracene, 7,12-dimethyl-
U094 . . . . . 1,2-Benzanthracene, 7,12-dimethyl-
U012 . . . . . Benzenamine (I,T)
U014 . . . . . Benzenamine, 4,4'-carbonimidoylbis(N,N-dimethyl-
U049 . . . . . Benzenamine, 4-chloro-2-methyl
U093 . . . . . Benzenamine, N,N'-dimethyl-4-phenylazo-
U158 . . . . . Benzenamine, 4,4'-methylenebis(2-chloro-
U222 . . . . . Benzenamine, 2-methyl-, hydrochloride
U181 . . . . . Bensenamine, 2-methyl-5-nitro
U019 . . . . . Benzene (I,T)
U038 . . . . . Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy, ethyl ester
U030 . . . . . Benzene, 1-bromo-4-phenoxy-
U037 . . . . . Benzene, chloro-
U190 . . . . . 1,2-Benzenedicarboxylic acid anhydride
U028 . . . . . 1,2-Benzenedicarboxylic acid, (bis(2-ethyl-hexyl)) ester
U069 . . . . . 1,2-Benzenedicarboxylic acid, dibutyl ester
U088 . . . . . 1,2-Benzenedicarboxylic acid, diethyl ester
U102 . . . . . 1,2-Benzenedicarboxylic acid, dimethyl ester
U107 . . . . . 1,2-Benzenedicarboxylic acid, di-n-octyl ester
U070 . . . . . Benzene, 1,2-dichloro-
U071 . . . . . Benzene, 1,3-dichloro-
U072 . . . . . Benzene, 1,4-dichloro-
U017 . . . . . Benzene, (dichloromethyl)-
U223 . . . . . Benzene, 1,3-disocyanatomethyl- (R,T)
U239 . . . . . Benzene, dimethyl-(I,T)
U201 . . . . . 1,3-Benesenediol
U127 . . . . . Benzene, hexachloro-
U056 . . . . . Benzene, hexahydro- (I)
U188 . . . . . Benzene, hydroxy-
U220 . . . . . Benzene, methyl-
U105 . . . . . Benzene, 1-methyl-1-2-4, dinitro-
U106 . . . . . Benzene, 1-methyl-2,6-dinitro-
U203 . . . . . Benzene, 1,2-methylenedioxy-4-allyl-
U141 . . . . . Benzene, 1,2-methylenedioxy-4-prophenyl-
U090 . . . . . Benzene, 1,2-methylenedioxy-4-propyl-
U055 . . . . . Benzene, (1-methylethyl)- (I)
U169 . . . . . Benzene, nitro- (I,T)
U183 . . . . . Benzene, pentachloro-
U185 . . . . . Benzene, pentachloro-nitro-
U020 . . . . . Benzenesulfonic acid chloride (C,R)
U020 . . . . . Benzenesulfonyl chloride (C,R)
U207 . . . . . Benzene, 1,2,4,5-tetrachloro-
U023 . . . . . Benzene, (trichloromethyl)-(C,R,T)
U234 . . . . . Benzene, 1,3,5-trinitro- (R,T)

U021 . . . . . Benzidine
U202 . . . . . 1,2-Benzisothiazolin-3-one, 1,1-dioxide
U120 . . . . . Benzo(j,k)fluorene
U022 . . . . . Benzo(a)pyrene
U022 . . . . . 3,4-Benzo-pyrene
U197 . . . . . p-Benzoquinone
U023 . . . . . Benzotrichloride (C,R,T)
U050 . . . . . 1,2-Benzphenanthrene
U085 . . . . . 2,2'-Bioxirane (I,T)
U021 . . . . . (1,1'=Biphenyl)-4,4'-diamine
U073 . . . . . (1,1'-Biphenyl)-4,4'-diamine, 3,3'-dichloro-
U091 . . . . . (1,1'-Biphenyl)-4,4'-diamine, 3,3'-dimethoxy-
U095 . . . . . (1,1'-Biphenyl)-4,4'-diamine, 3,3'-dimethyl-
U024 . . . . . Bis(2-chloroethoxy) methane
U027 . . . . . Bis(2-chloroisopropyl) ether
U244 . . . . . Bis(dimethylthiocarbamoyl) disulfide
U028 . . . . . Bis(2-ethylexyl) phthalate
U246 . . . . . Bromine cyanide
U225 . . . . . Bromoform
U030 . . . . . 4-Bromophenyl phenyl ether
U128 . . . . . 1,3-Butadiene, 1,1,2,3,4,4-hexachloro-
U172 . . . . . 1-Butanamine, N-butyl-N-nitroso-
U035 . . . . . Butanoic acid, 4-(Bis(2-chloroethyl)amino) benzene-
U031 . . . . . 1-Butanol (I)
U159 . . . . . 2-Butanone (I,T)
U160 . . . . . 2-Butanone peroxide (R,T)
U053 . . . . . 2-Butenal
U074 . . . . . 2-Butene, 1,4-dichloro- (I,T)
U031 . . . . . n-Butyl alcohol (I)
U136 . . . . . Cacodylic acid
U032 . . . . . Calcium chromate
U238 . . . . . Carbamic acid, ethyl ester
U178 . . . . . Carbamic acid, methylnitroso-, ethyl ester
U176 . . . . . Carbamide, N-ethyl-N-nitroso-
U177 . . . . . Carbamide, N-methyl-N-nitroso-
U219 . . . . . Carbamide, thio-
U097 . . . . . Carbamoyl chloride, dimethyl-
U215 . . . . . Carbonic acid, dithallium (I) salt
U156 . . . . . Carbonochloride acid, methyl ester (I,T)
U033 . . . . . Carbon oxyfluoride (R,T)
U211 . . . . . Carbon tetrachloride
U033 . . . . . Carbon oxyfluoride (R,T)
U034 . . . . . Chloral
U035 . . . . . Chlorambucil
U036 . . . . . chlordane, technical
U026 . . . . . Chlornaphazine

U037 . . . . . Chlorobenzene
U039 . . . . . 4-Chloro-m-cresol
U041 . . . . . 1-Chloro-2,3-epoxypropane
U042 . . . . . 2-Chloroethyl vinyl ether
U044 . . . . . Chloroform
U046 . . . . . Chloromethyl methyl ether
U047 . . . . . beta-Chloronaphthalene
U048 . . . . . o-Chlorophenol
U049 . . . . . 4-Chloro-o-toluidine, hydrochloride
U032 . . . . . Chromic acid, calcium salt
U050 . . . . . Chrysene
U051 . . . . . Creosote
U052 . . . . . Cresols
U052 . . . . . Cresylic acid
U053 . . . . . Crotonaldehyde
U055 . . . . . Cumene (I)
U246 . . . . . Cyanogen bromide
U197 . . . . . 1,4-Cyclohexadienedione
U056 . . . . . Cyclohexane(I)
U057 . . . . . Cyclohexanone (I)
U130 . . . . . 1,30Cyclopentadiene, 1,2,3,4,5,5-hexa-chloro-
U058 . . . . . Cyclophosphamide
U240 . . . . . 2,44-D, salts and esters
U059 . . . . . Daunomycin
U060 . . . . . DDD
U061 . . . . . DDT
U142 . . . . . Decachlorooctahydro-1,3,4-metheno-2H-cyclobutal(c,d)-pentalen-2-one
U062 . . . . . Diallate
U133 . . . . . Diamine (R,T)
U221 . . . . . Diaminotoluene
U063 . . . . . Dibenz(a,h)anthracene
U063 . . . . . 1,2:5,6-Dibenzanthracene
U064 . . . . . 1,2,7,8-Dibenzopyrene
U064 . . . . . Dibenz(a,i)pyrene
U066 . . . . . 1,2-Dibromo-3-chloropropane
U069 . . . . . Dibutyl phthalate
U062 . . . . . S-(2,3-Dichloroallyl) diisopropylthiocarbamate
U070 . . . . . o-Dichlorobenzene
U071 . . . . . m-Dichlorobenzene
U072 . . . . . p-Dichlorobenzene
U073 . . . . . 3,3'-Dichlorobenzidine
U074 . . . . . 1,4-Dichloro-2-butene (I,T)
U075 . . . . . Dichlorodifluoromethane
U192 . . . . . 3,5-Dichloro-N-(1,1-dimethyl-1-propynyl) benzamide
U060 . . . . . dichloro diphenyl dichloroethane
U061 . . . . . Dichloro diphenyl trichloroethane

U078 . . . . . 1,1-Dichloroethylene
U079 . . . . . 1,2-Dichloroethylene
U025 . . . . . Dichloroethyl ether
U081 . . . . . 2,4-Dichlorophenol
U082 . . . . . 2,6-Dichlorophenol
U240 . . . . . 2,4-Dichlorophenoxyacetic acid, salts and esters
U083 . . . . . 1,2-Dichloropropane
U084 . . . . . 1,3-Dichloropropane
U085 . . . . . 1,2:3,4-Diepoxybutane (I,T)
U108 . . . . . 1,4-Diethylene dioxide
U086 . . . . . N,N=Diethylhydrazine
U087 . . . . . O,O-Diethyl-S-methyl-dithiophosphate
U088 . . . . . Diethyl phthalate
U089 . . . . . Diethylstilbestrol
U148 . . . . . 1,2-Dihydro-3,6-pyradizinedione
U090 . . . . . Dihydrosafrole
U091 . . . . . 3,3'-Dimethoxybenzidine
U092 . . . . . Dimethylamine (I)
U093 . . . . . Dimethylaminoazobenzene
U094 . . . . . 7,12-Dimethylbenz(a)anthracene
U095 . . . . . 3,3'-Dimethylbenzidine
U096 . . . . . alpha, alpha-Dimethylbenzyhydroperoxide (R)
U097 . . . . . Dimethylcarbamoyl chloride
U098 . . . . . 1,1-Dimethylhydrazine
U099 . . . . . 1,2-Dimethylhydrazine
U101 . . . . . 2,4-Dimethylphenol
U102 . . . . . Dimethyl phthalate
U103 . . . . . Dimethyl sulfate
U105 . . . . . 2,4-Dinitrotoluene
U106 . . . . . 2,6-Dinitrotoluene
U107 . . . . . Di-n-octyl phthalate
U108 . . . . . 1,4-Dioxane
U109 . . . . . 1,2-Diphenylhydrazine
U110 . . . . . Dipropylamine (I)
U111 . . . . . Di-N-propylnitrosamine
U001 . . . . . Ethanal (I)
U174 . . . . . Ethanamine, N-ethyl-N-nitroso-
U067 . . . . . Ethane, 1,2-dibromo-
U076 . . . . . Ethane, 1,1-dichloro-
U077 . . . . . Ethane, 1,2-dichloro-
U114 . . . . . 1,2-Ethanediylbiscarbamodithioic acid
U131 . . . . . Ethane, 1,1,1,2,2,2-hexachloro-
U024 . . . . . Ethane, 1,1'-(methylenebix(oxy)) bis(2-chloro-
U003 . . . . . Ethanenitrile (I,T)
U117 . . . . . Ethane, 1,1'-oxybis- (I)
U025 . . . . . Ethane, 1,1'-oxybis (2-chloro-
U184 . . . . . Ethane, pentachloro-

U208 . . . . . Ethane, 1,1,1,2-tetrachloro-
U209 . . . . . Ethane, 1,1,2,2-tetrachloro-
U218 . . . . . Ethanethioamide
U227 . . . . . Ethane, 1,1,2-trichloro-
U247 . . . . . Ethane, 1,1,1,-trichloro-2,2-bis(p-methoxyphenyl)
U043 . . . . . Ethene, chloro-
U042 . . . . . Ethene, 1-chloroethoxy-
U078 . . . . . Ethene, 1,1-dichloro-
U079 . . . . . Ethene, trans-1,2-dichloro-
U210 . . . . . Ethene, 1,1,2,2-tetrachloro-
U173 . . . . . Ethanol, 2,2'-(nitrosoimino)bis-
U004 . . . . . Ethanone, 1-phenyl-
U006 . . . . . Ethanoyl chloride (C,R,T)
U112 . . . . . Ethyl acetate (I)
U113 . . . . . Ethyl acrylate (I)
U238 . . . . . Ethyl carbamate (urethan)
U038 . . . . . Ethyl 4,4'-dichlorobenzilate
U114 . . . . . Ethylenebis(dithiocarbamic acid)
U067 . . . . . Etylene dibromide
U077 . . . . . Ethylene dichloride
U115 . . . . . Ethylene oxide (I,T)
U116 . . . . . Ethylene thiourea
U117 . . . . . Ethyl ether (I)
U076 . . . . . Ethylidene dichloride
U118 . . . . . Ethylmethacrylate
U119 . . . . . Ethyl methanesulfonate
U139 . . . . . Ferric dextran
U120 . . . . . Fluoranthene
U122 . . . . . Formaldehyde
U123 . . . . . Formic acid (C,T)
U124 . . . . . Furan (I)
U125 . . . . . 2-Furancarboxaldehyde (I)
U147 . . . . . 2,5-Furandione
U213 . . . . . Furn, tetrahydro- (I)
U125 . . . . . Furfural (I)
U124 . . . . . Furfuran (I)
U206 . . . . . D-Glucopyranose, 2-deoxy-2(3-methyl-3-nitrosoureido)-
U126 . . . . . Glycidylaldehyde
U163 . . . . . Guanidine, N-nitroso-N-methyl-N'nitro-
U127 . . . . . Hexachlorobenzene
U128 . . . . . Hexachlorobutadiene
U129 . . . . . Hexachlorocyclohexane (gamma isomer)
U130 . . . . . Hexachlorocyclopentadiene
U131 . . . . . Hexachloroethane
U132 . . . . . Hexachlorophene
U243 . . . . . Hexachloropropene
U133 . . . . . Hydrazine (R,T)
U086 . . . . . Hydrazine, 1,2-diethyl-

U098 . . . . . Hydrazine, 1,1-dimethyl-
U099 . . . . . Hydrazine, 1,2-dimethyl-
U109 . . . . . Hydrazine, 1,2-diphenyl-
U134 . . . . . Hydrofluoric acid (C,T)
U134 . . . . . Hydrogen flouride (C,T)
U135 . . . . . Hydrogen sulfide
U096 . . . . . Hydroperoxide, 1-methyl-1-phenylethyl-(R)
U136 . . . . . Hydroxydimethylarsine oxide
U116 . . . . . 2-Imidazolidinethione
U137 . . . . . Indeno(1,2,3-cd)pyrene
U139 . . . . . Iron dextran
U140 . . . . . Isobutyl alcohol (I,T)
U141 . . . . . Isosafrole
U142 . . . . . Kepone
U143 . . . . . Lasiocarpine
U144 . . . . . Lead acetate
U145 . . . . . Lead phosphate
U146 . . . . . Lead subacetate
U129 . . . . . Lindane
U147 . . . . . Maleic anhydride
U148 . . . . . Maleic hydrazide
U149 . . . . . Malononitrile
U150 . . . . . Melphalan
U151 . . . . . Mercury
U152 . . . . . Methacrylonitrile (I,T)
U092 . . . . . Methanamine, N-methyl-(I)
U029 . . . . . Methane, bromo-
U045 . . . . . Methane, chloro- (I,T)
U046 . . . . . Methane, chloromethoxy-
U068 . . . . . Methane, dibromo-
U080 . . . . . Methane, dichloro-
U075 . . . . . Methane, dichlorodifluoro-
U138 . . . . . Methane, iodo-
U119 . . . . . Methane, sulfonic acid, ethyl ester
U211 . . . . . Methane, tetrachloro-
U121 . . . . . Methane, trichlorofluoro-
U153 . . . . . Methanethiol (I,T)
U225 . . . . . Methane, tribromo-
U044 . . . . . Methane, trichloro-
U121 . . . . . Methane, trichlorofluoro-
U123 . . . . . Methanoic acid (C,T)
U036 . . . . . 4,7-Methancindan, 1,2,4,5,6,7,8,8-octa-
chloro-3a,4,7,7a-tetrahydro-
U154 . . . . . Methanol (I)
U155 . . . . . Methapyriline
U247 . . . . . Methoxychlor
U154 . . . . . Methyl alcohol (I)
U029 . . . . . Methyl bromide
U186 . . . . . 1-Methylbutadiene (I)
U045 . . . . . Methyl chloride (I,T)

U156 . . . . . Methyl chlorocarbonate (I,T)
U226 . . . . . Methylchloroform
U157 . . . . . 3-Methylcholanthrene
U158 . . . . . 4,4'-Methylenebis(2-chloroaniline)
U132 . . . . . 2,2'-Methylenebis (3,4,6-trichlorophenol)
U068 . . . . . Methylene bromide
U080 . . . . . Methylene chloride
U122 . . . . . Methylene oxide
U159 . . . . . Methyl ethyl ketone (I,T)
U160 . . . . . Methyl ethyl ketone peroxide (R,T)
U138 . . . . . Methyl iodide
U161 . . . . . Methyl isobutyl ketone (I)
U138 . . . . . Methyl iodide
U161 . . . . . Methyl isobutyl ketone (I)
U162 . . . . . Methyl methacrylate (I,T)
U163 . . . . . N-Methyl-N'-nitro-N-nitrosoguanidine
U161 . . . . . 4-Methyl-2-pentanone (I)
U164 . . . . . Methylthiouracil
U010 . . . . . Mitomycin C
U059 . . . . . 5,12-Naphthacenedione, (8S-cis)-8-acetyl-10-((3-amino-2,36-trideoxy-alpha-L-lyxo-hexopyranosyl)oxyl)-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-
U165 . . . . . Naphthalene
U047 . . . . . Naphthalene, 2-chloro-
U166 . . . . . 1,4-Naphthalenedione
U236 . . . . . 2,7-Naphthalenedisulfonic acid, 3,3'-(3,3'-dimethyl-(1,1'-biphenyl)-4,4'diyl))-bis-(azo)bis(5-amino-4-hydroxy)-,tetrasodium salt
U166 . . . . . 1,4,Naphthaquinone
U167 . . . . . 1-Naphthylamine
U168 . . . . . 2-Naphthylamine
U167 . . . . . alpha-Naphthylamine
U168 . . . . . beta-Naphthylamine
U026 . . . . . 2-Naphthylamine, N,N'-bis(2-chloro-methyl)-
U169 . . . . . Nitrobenzene (I,T)
U170 . . . . . p-Nitrophenol
U171 . . . . . 2-Nitropropane (I)
U172 . . . . . N-Nitrosodi-n-butylamine
U173 . . . . . N-Nitrosodiethanolamine
U174 . . . . . N-Nitrosodiethylamine
U111 . . . . . N-Nitroso=-N-propylamine
U176 . . . . . N-Nitroso-N-ethylurea
U177 . . . . . N-Nitroso-N-mthylurethane
U179 . . . . . N-Nitrosopiperidine
U180 . . . . . N-Nitrosopyrrolidine
U181 . . . . . 5-Nitro-o-toluidine
U193 . . . . . 1,2-Oxathiolane, 2,2-dioxide

U058 . . . . . 2H-1,3-2-Oxazaphosphorine, 2-(bis(2-chloro- ethyl)amino)tetrahydro-, oxide 2-
U115 . . . . . Oxirane (I,T)
U041 . . . . . Oxirane, 2-(chloromethyl)-
U182 . . . . . Paraldehyde
U183 . . . . . Pentachlorobenzene
U184 . . . . . Pentachlorethane
U185 . . . . . Pentachloronitrobenzene
U242 . . . . . Pentachlorophenol
U186 . . . . . 1,3-P!entadiene (I)
U187 . . . . . Phenacetin
U188 . . . . . Phenol
U048 . . . . . Phenol, 2-chloro-
U039 . . . . . Phenol, 4-chloro-3-methyl-
U081 . . . . . Phenol, 2,4-dichloro-
U082 . . . . . Phenol, 2,6-dichloro-
U101 . . . . . Phenol, 2,4-dimethyl-
U170 . . . . . Phenol, 4-nitro-
U242 . . . . . Phenol, pentachloro-
U212 . . . . . Phenol, 2,3,4,6-tetrachloro-
U230 . . . . . Phenol, 2,4,5-trichloro-
U231 . . . . . Phenol, 2,4,6-trichloro-
U137 . . . . . 1,10-(1,2-phenylene)pyrene
U145 . . . . . Phosphoric acid, lead salt
U087 . . . . . Phosphorodithioic acid,)-)-diethyl-,S-methylester
U189 . . . . . Phosphorous sulfide (R)
U190 . . . . . Phthalic anhydride
U191 . . . . . 2-Picoline
U192 . . . . . Pronamide
U194 . . . . . 1-Propanamine (I,T)
U110 . . . . . 1-Propanamine, N-propyl-(I)
U066 . . . . . Propane, 1,2-dibromo-3-chloro-
U149 . . . . . Propanedinitrile
U171 . . . . . Propane, 2-nitro- (I)
U027 . . . . . Propane, 2,2'oxybis (2-chloro-
U193 . . . . . 1,3-Propane sultone
U235 . . . . . 1-Propanol, 2,3-dibromo-, phosphate (3:1)
U126 . . . . . 1-Propanol, 2,3-epoxy-
U140 . . . . . 1-Propanol, 2-methyl- (I,T)
U002 . . . . . 2-Propanone (I)
U007 . . . . . 2-Propenamide
U084 . . . . . Propene, 2,3-dichloro-
U243 . . . . . 1-Propene, 1,1,2,3,3,3-hexachloro-
U009 . . . . . 2-Propenenitrile
U152 . . . . . 2-Propenenitrile, 2-methyl- (I,T)
U008 . . . . . 2-Propenoic acid (I)
U113 . . . . . 2-Propenoic acid, ethyl ester (I)
U118 . . . . . 2-Propenoic acid, 2-methyl-, ethyl ester
U162 . . . . . 2-Propenoic acid, 2-methyl-, methyl ester

	(I,T)
U233	Propionic acid, 2-(2,4,5-trichloro phenoxy)-
U194	n-Propylamine (I,T)
U083	Propylene dichloride
U196	Pyridine
U155	Pyridine, 2-((2-dimethylamino)-2-thenyla-mino)-
U179	Pyridine, hexahydro-N-nitroso-
U191	Pyridine, 2-methyl-
U164	4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-
U180	Pyrrole, tetrahydro-N-nitroso-
U200	Reserpine
U201	Resorcinol
U202	Saccharin and salts
U203	Safrole
U204	Selenious acid
U204	Selenium dioxide
U205	Selenium disulfide (R,T)
U015	L-Serine, diazoacetate (ester)
U233	Silvex
U089	4,4'-Stilbenediol, alpha,alpha'-diethyl-
U206	Streptozotocin
U135	Sulfur hydride
U103	Sulfuric acid, dimethyl ester
U189	Sulfur phosphide (R)
U205	Sulfur selenide (R,T)
U232	2,4,5-T
U207	1,2,4,5-Tetrachlorobenzene
U208	1,1,1,2-Tetrachloroethane
U209	1,1,2,2-Tetrachloroethane
U210	Tetrachloroethylene
U212	2,3,4,6-Tetrachlorophenol
U213	Tetrahydrofuran (I)
U214	Thallium (I) acetate
U215	Thallium (I) carbonate
U216	Thallium (I) chloride
U217	Thallium (I) nitrate
U218	Thioacetamide
U153	Thiomethanol (I,T)
U219	Thiourea
U244	Thiram
U220	Toluene
U221	Toluenediamine
U223	Toluene diisocyanate (R,T)
U222	O-Toluidine hydrochloride
U011	1H-1,2,4-Triazol-3-amine
U226	1,1-Trichloroethane
U227	1,1,2-Trichloroethane

U228 . . . . . Trichloroethene
U228 . . . . . Trichloroethylene
U121 . . . . . Trichloromonofluoromethane
U230 . . . . . 2,4,5-Trichlorophenol
U231 . . . . . 2,4,6-Trichlorophenol
U232 . . . . . 2,4,5-Trichlorophenoxyacetic acid
U234 . . . . . sym-Trinitrobenzene (R,T)
U182 . . . . . 1,3,5-Trioxane, 2,4,5-trimethyl-
U235 . . . . . Tris(2,3-dibromopropyl) phosphate
U236 . . . . . Trypan blue
U237 . . . . . Uracil, 5(bis(2-chloromethyl)amino)-
U237 . . . . . Uracil mustard
U043 . . . . . Vinyl chloride

U248 . . . . . Warfarin, when present at concentrations of 0.3% or less
U200 . . . . . Yohimban-16-carboxylic acid, 11,17-dimethoxy-18-((3,4,5-trimethoxybenzoyl)oxy)-, methyl ester,
U249 . . . . . Zinc phosphide, when present at concentrations of 10%

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 Agency to be representative of the waste.

Extremely viscous liquid - ASTM Standard D140-70 Crushed or powered material ASTM standard D346-75 Soil- or rock-like material - ASTM standard D420-69 Soil-like material ASTM standard D1452-65.

Fly Ash-like material--ASTM Standard D2234-76 (ASTM Standards are available from ASTM, 1916 Race St., Philadelphia, PA 19103.)

Containerized liquid wastes--"COLIWASA" described in "Test methods for the evaluation of solid waste, physical/chemical methods," U.S. Environmental Protection Agency, Office of Solid Waste, Washington, D.C. 20460. (Copies may be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (202) 783-3238).

Liquid waste in pits, ponds, lagoons, and similar reservoirs.--"Pond Sampler" described in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods."[1s]

This manual also contains additional information on application of these protocols.

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 or any other methods capable of yielding a representative sample within the meaning of Part 260. (For detailed guidance on conducting the various aspects of the EP see, "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods," SW-846, U.S. Environmental Protection Agency Office of Solid Waste, Washington, D.C. 20460.2s)

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1 These methods are also described in "Samplers and Sampling Procedures for Hazardous Waste Streams", EPA 600/2-80-018, January 1980.

2 Copies may be obtained from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (202) 783-3238.

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[3] obtained using this method totals less than 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.

3. The solid material obtained from the 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, 3.1 cm or passes through a 9.5 mm (0.375 inch) standard sieve, the operator should proceed to Step 4. 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 (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 should be weighed and placed in an extractor with 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 extration 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 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 0.2. However, in no event shall the aggregate amount of acid added to the solution exceed 4 ml of acid per gram of solid. The mixture should be agitated for 24 hours and maintained at 20-40C (68-104F) 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:

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3 The percent solids is determined by druing the filter pad at 80 degrees C until it reaches the constant weight and then calculating the percent solids using the following equation:

$$\frac{\text{(Weight of pad + solid) - (tare weight of pad)}}{\text{Initial weight of sample}} \times 100 = \% \text{ solids}$$

Page number 71 was omitted.

No material is missing.

(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 0.2. The pH of the solution should be adjusted at 15, 30 and 60 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 6 hours.

(d) If at the end of the 24-hour extraction period the ph ofthe solution is not below 5.2 and the maximum amount of acid (4 ml per gram of solids) has not been added, the pH should be adjusted 5.0 0.2 and the extraction continued for an additional four hours, during which the pH should be adjusted at one hour intervals.

6. At the end of the 24-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 Deionized water to be added

W = weight in grams of solid charged to extractor

A = ml 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."

8. The liquids resulting from steps 2 and 7 should becombined. This combined liquid (or the waste itself if it has less than 1/2 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 I of 3.4.2 using the Analytical Procedures designated below.

Separation Procedure

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 so) 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 pressure differential, vacuum filters employing a 0.45 micrometers filter media can be used. (For further guidance on filtration equipment or procedures see "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods.")

Procedure[4]

(i) 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 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.

(ii) The waste should be poured into the filtration unit.

(iii) 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 10-15 psig. Filtration should be continued until liquid flow ceases.

(iv) The pressure should be increased stepwise in 10 psi 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.

(v) The filter unit should be depressurized, the solidmaterial 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.

(vi) The liquid phase should be stored at 4-c for subsequent use in Step 8.

B. Structural Integrity Procedure

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.

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[4] This procedure is intended to result in separation of the "free" liquid portion of the waste from any solid matter having a particle size 0.45um. 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 0.45um 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.

Procedure

1. The sample holder should be filled with the material to be tested. If the sample of waste is a large monolithlock, 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 case 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 30 days prior to further testing.

2. 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 times.

3. The material should be removed from the sample holder, weighed, and transferred to the extraction apparatus for extraction.

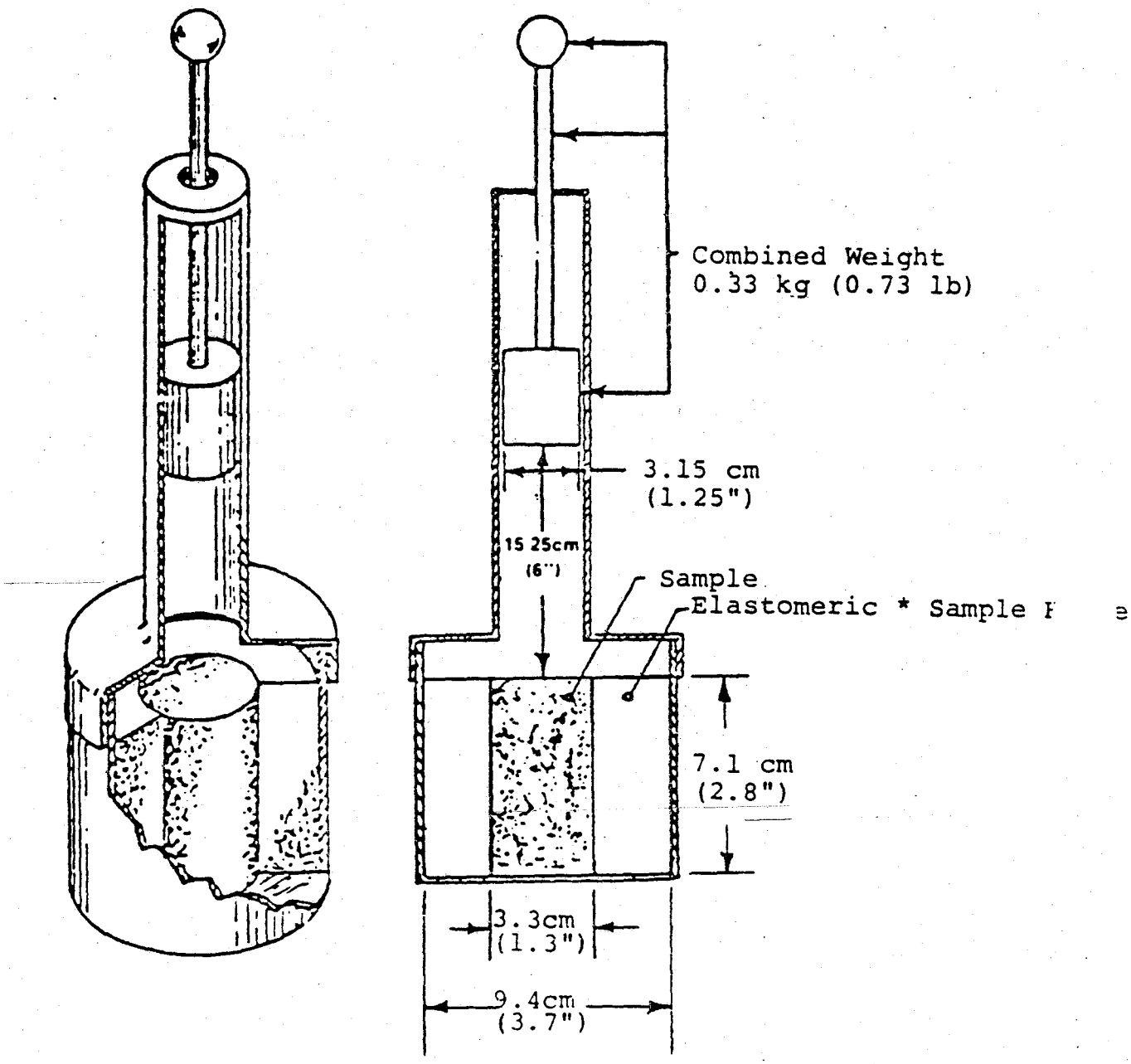
Analytical Procedures for
Analyzing Extract Contaminants

The test methods for analyzing the extract are as follows:

(1) 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): "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods," SW-846, U.S. Environmental Protection Agency, Office of Solid Waste, Washington, D.C. 20460.

(2) Reserved

For all analyses, the methods of standard addition shall be used for quantification of species concentration.



*Elastomeric sample holder fabricated of material firm enough to support the sample.

FIGURE 1
COMPACTION TESTER

APPENDIX III - Chemical Analysis Test Methods

Tables 1, 2 and 3 specify the appropriate analytical procedures, described in EPA's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," (first and second edition) which shall be used to determine whether a sample contains a given appendix VII or VIII toxic constituent.

Table 1 identifies each Appendix VII or VIII organic constituent along with the approved measurement method. Table 2 identifies the corresponding methods for inorganic species. Table 3 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 1 - Analysis Methods for Organic Chemicals Contained in SW-846

Compound	First edition method(s)	Second edition method(s)
Acetonitrile	8.03, 8.24	8030, 8240
Acrolein	8.03, 8.24	8030, 8240
Acrylamide	8.01, 8.24	8015, 8240
Acrylonitrile	8.03, 8.24	8030, 8240
Benzene	8.02, 8.24	8020, 8024
Benz(a)anthracene	8.10, 8.25	8100, 8250, 8310
Benzo(a)pyrene	8.10, 8.25	8100, 8250, 8310
Benzotrichloride	8.12, 8.25	8120, 8250
Benzyl chloride	8.01, 8.12, 8.24, 8.25	8120, 8250
Benzo(b)fluoranthene	8.10, 8.25	8100, 8250, 8310
Bis(2-chloroethoxy)methane	8.01, 8.24	8010, 8240
Bis(2-chloroethyl)ether	8.01, 8.24	8010, 8240
Bis(2-chloroisopropyl)ether	8.01, 8.24	8010, 8240
Carbon disulfide	8.01, 8.24	8015, 8240
Carbon tetrachloride	8.01, 8.24	8010, 8240
Chlordane	8.06, 8.25	8080, 8250
Chlorinated dibenzodioxins	8.08, 8.25	8080, 8250
Chlorinated biphenyls	8.08, 8.25	8080, 8250
Chloroacetaldehyde	8.01, 8.24	8010, 8240
Chlorobenzene	8.01, 8.02, 8.24	8020, 8240
Chloroform	8.01, 8.24	8010, 8240
Chloromethane	8.01, 8.24	8010, 8240
2-Chlorophenol	8.04, 8.25	8040, 8250
Chrysene	8.10, 8.25	8100, 8250, 8310
Creosote	8.10, 8.25	8100, 8250
Cresol(s)	8.04, 8.25	8040, 8250
Cresylic Acid(s)	8.04, 8.25	8040, 8250
Dichlorobenzene(s)	8.01, 8.02, 8.12, 8.25	8010, 8120, 8250
Dichloroethane(s)	8.01, 8.24	8010, 8240
Dichloromethane	8.01, 8.24	8010, 8240
Dichlorophenoxyacetic acid	8.40, 8.25	8150, 8250
Dichloropropanol	8.12, 8.25	8120, 8250
2,4-Dimethylphenol	8.04, 8.25	8040, 8250
Dinitrobenzene	8.09, 8.25	8090, 8250
4,6-Dinitro-o-cresol	8.04, 8.25	8040, 8250
2,4-Dinitrotoluene	8.09, 8.25	8090, 8250
Endrin	8.06, 8.25	8080, 8250
Ethyl ether	8.01, 8.02, 8.24	8015, 8240

Compound	First edition method(s)	Second edition method(s)
Formaldehyde	8.01, 8.24	8015, 8240
Formic acid	8.08, 8.25	8250
Heptachlor	8.06, 8.25	8080, 8250
Hexachlorobenzene	8.12, 8.25	8120, 8250
Hexachlorobutadiene	8.12, 8.25	8120, 8250
Hexachloroethane	8.12, 8.25	8010, 8240
Hexachlorocyclopentadiene	8.12, 8.25	8120, 8250
Lindane	8.06, 8.25	8080, 8250
Maleic anhydride	8.08, 8.25	8250
Methanol	8.01, 8.24	8010, 8240
Methomyl	8.32	8250
Methyl ethyl ketone	8.01, 8.02, 8.24	8015, 8240
Methyl isobutyl ketone	8.01, 8.02, 8.24	8015, 8240
Napthalene	8.10, 8.25	8100, 8250
Napthoquinone	8.06, 8.09, 8.25	8090, 8250
Nitrobenzene	8.09, 8.25	8090, 8250
4-Nitrophenol	8.04, 8.25	8040, 8240
Paraldehyde (trimer of acetaldehyde)	8.01, 8.24	8015, 8240
Pentachlorophenol	8.04, 8.25	8040, 8250
Phenol	8.04, 8.25	8040, 8250
Phorate	8.22	8140
Phosphorodithioic acid esters	8.06, 8.09, 8.22	8140
Phthalic anhydride	8.06, 8.09, 8.25	8090, 8250
2-Picoline	8.06, 8.09, 8.25	8090, 8250
Pyridine	8.06, 8.09, 8.25	8090, 8250
Tetrachlorobenzene(s)	8.12, 8.25	8120, 8250
Tetrachloroethane(s)	8.01, 8.24	8010, 8240
Tetrachloroethene	8.01, 8.24	8010, 8240
Tetrachlorophenol	8.04, 8.24	8040, 8250
Toluene	8.02, 8.24	8020, 8024
Toluenediamine	8.25	8250
Toluene diisocyanate(s)	8.08, 8.25	8250
Toxaphene	8.08, 8.25	8080, 8250
Trichloroethane	8.01, 8.24	8010, 8240
Trichloroethene(s)	8.01, 8.24	8010, 8240
Trichlorofluoromethane	8.01, 8.24	8010, 8240
Trichlorophenol(s)	8.04, 8.25	8040, 8250
2,4,5-Trichlorophenoxy propionic acid	8.40, 8.25	8150, 8250

APPENDIX III

TABLE 1 Continued,

Compound	First edition method(s)	Second edition method(s)
Trichloropropane	8.01, 8.24	8010, 8240
Vinyl chloride	8.01, 8.24	8010, 8240
Vinylidene chloride	8.01, 8.24	8010, 8240
Xylene	8.02, 8.24	8020, 8240

[1] Analyte for phenanthrene and carbazole; if these are present in a ratio between 1.4:1 and 5:1 creosote should be considered present.

TABLE 2- 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, 8.547	7195, 7196, 7197
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
Cyanides	8.55	9010
Total Organic Halogen	8.66	9020
Sulfides	8.67	9030

APPENDIX III - Continued

TABLE 3—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
Setaflash 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	8.0		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 Worktup Techniques			4.0	
Inorganic Techniques	8.49		4.1	
Acid Digestion for Flame AAS			4.1	3010
Acid Digestion for Furnace AAS			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	8.456	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

APPENDIX III - Continued

Table 3 - Continued

Title	First edition		Second edition	
	Section No.	Method No.	Section No.	Method No.
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	7080
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
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	8.56	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
High Performance Liquid Chromatographic Methods (HPLC)	8.0		8.3	
Polynuclear Aromatic Hydrocarbons	8.0	8.10	8.3	8310
Miscellaneous Analytical Methods	9.0		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	

[1]See specific metal.

APPENDIX IV - [Reserved for Radioactive Waste Test Methods]

APPENDIX V - [Reserved]

APPENDIX VI - [Reserved for Etiologic Agents]

APPENDIX VII - Basis for Listing Hazardous Waste

EPA hazardous waste No.	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 chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, ortho-dichlorobenzene, trichlorofluoromethane
F003	N.A.
F004	Cresols and cresylic acid, nitrobenzene
F005	Toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine
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)
F024	Chloromethane dichloromethane trichloromethane, carbon tetrachloride, chloroethylene 1,1-dichloroethane, 1,2-dichloroethane trans-1-2-dichloroethylene, 1,1-dichloroethylene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethylene, 1,1,1,2-tetra-chloroethane, 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, chlorbenzene, dichlorobenzenes 1,2,4-trichlorobenzene, tetrachlorobenzene, pentachlorobenzene, hexachlorobenzene, toluene, naphthalene
K001	Pentachlorophenol phenol 2-chlorophenol, p-chloro-m-cresol 2,4-dimethylphenyl, 2,4-dinitrophenol trichlorophenols tetrachlorophenols, 2,4-dinitrophenol creosote, 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

EPA hazardous waste No	Hazardous constituents for which listed
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
K021	Antimony carbon tetrachloride, chloroform
K022	Phenol tar bottoms (polycyclic aromatic hydrocarbons)
K023	Phthalic anhydride maleic anhydride
K024	Phthalic anhydride 1,4-naphthoquinone
K025	Dinitrobenzene 2,4-dinitrotoluene
K026	Paraldehyde 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, 1,1,2,2-tetrachloroethane, trichloroethylene, tetrachloroethylene dichloride.
K031	Arsenic
K032	Hexachlorocyclopentadiene chlordane
K033	Hexachlorocyclopentadiene chlordane
K034	Hexachlorocyclopentadiene chlordane
K035	Creosote coal tar naphthalene, fluoranthene benz(a)anthracene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(a)anthracene, dibenz(a)anthracene, acenaphthalene.
K036	Toluene phosphorodithioic and phosphorothioic acid esters
K037	Toluene phosphorodithioic and phosphorothioic acid esters
K038	Phorate phosphorodithioic and phosphorothioic acid esters
K039	Phosphorodithioic and phosphorothioic acid esters
K040	Phorate phosphorodithioic and phosphorothioic acid esters
K041	Toxaphene
K042	Heptachlor ortho-dichlorobenzene
K043	2,6-dichlorophenol 2,4,6-trichlorophenol
K044	Wastewater
K045	Spent
K046	Lead
K047	Pharmaceutical
K048	Petroleum refining lead
K049	Petroleum refining lead
K050	Petroleum refining
K051	Petroleum refining lead
K052	Petroleum refining
K060	Coking phenolic compounds, ammonia
K061	Steel finishing lead, cadmium
K062	Steel finishing lead
K069	Secondary lead lead, cadmium
K071	Brine purification
K073	Chlorinated hydrocarbons, hexachloroethane, tetrachloroethylene, dichloroethane 1,1,2,2-tetrachloroethane
K083	Aniline diphenylamine, nitrobenzene, phenylenediamine
K084	Wood preserving
K085	Benzene chlorinated benzenes, trichlorobenzenes, tetrachlorobenzenes, pentachlorobenzene, hexachlorobenzene, vinyl chloride.
K086	Solvent chromium
K087	Decanting lead
K093	Phthalic anhydride maleic anhydride.
K094	Phthalic anhydride 1,1,1,2 tetrachloroethane,
K095	1,1,1-trichloroethane, 1,1,2-

APPENDIX VII - Continued

EPA hazardous waste No.	Hazardous constituents for which listed
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.

F024... Chloromethane, dichloromethane, trichloromethane, carbon tetrachloride, chloroethylene, 1,1-dichloroethane, 1,2-dichloroethane, trans-1,2-dichloroethylene, 1,1-dichloroethylene, 1,1,1-trichloroethylene, 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, dichlorobenzenes, 1,2,4-trichlorobenzene, tetrachlorobenzene, pentachlorobenzene, hexachlorobenzene, toluene, naphthalene

N.A.—Waste is hazardous because it fails the test for the characteristic of ignitability, corrosivity, or reactivity.

APPENDIX VIII - Hazardous Constituents

Acetonitrile (Ethanenitrile)
Acetophenone (Ethanone, 1-phenyl)
3-(alpha-Acetonylbenzyl)-4-hydroxycoumarin and salts (Warfarin)
2-Acetylaminofluorene (Acetamide, N-(9H-fluoren-2-yl)-)
Acetyl chloride (Ethanoyl chloride)
1-Acetyl-2-thiourea (Acetamide, N-(aminothioxomethyl)-)
Acrolein (2-Propenal)
Acrylamide (2-Propenamide)
Acrylonitrile (2-Propenenitrile)
Aflatoxins
Aldrin (1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a,8b-hexahydro-endo,exo-1,4:5,8-Dimethanonaphthalene)
Allyl alcohol (2-Propen-1-ol)
Aluminum phosphide
4-Aminobiphenyl ([1,1'-Biphenyl]-4-amine)
6-Amino-1,1a,2,8,8a,8b-hexahydro-8-(hydroxymethyl)-8a-methoxy-5-methylcarbamate azirino(2',3':3,4)pyrrolo(1,2-a)indole-4,7-dione, (ester) (Mitomycin C)
(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-8amethoxy-5-methy-)
5-(Aminomethyl)-3-isoxazolol (3(2H)-Isoxazolone, 5-(aminomethyl)-)
4-Aminopyridine (4-Pyridinamine)
Amitrole (1H-1,2,4-Triazol-3-amine)
Aniline (Benzenamine)
Antimony and compounds, N.O.S.*
Aramite (Sulfurous acid, 2-chloroethyl-, 2-[4-(1,1-dimethylethyl)phenoxy]-1-methylethyl ester)
Arsenic and compounds, N.O.S.*
Arsenic acid (Orthoarsenic acid)
Arsenic pentoxide (Arsenic (V) oxide)
Arsenic trioxide (Arsenic (III) oxide)
Auramine (Benzenamine, 4,4'-carbonimidoylbis(N,N-Dimethyl-, monohydrochloride)
Azaserine (L-Serine, diazoacetate (ester))
Barium and compounds, N.O.S.*
Barium cyanide
Benz[c]acridine (3,4-Benzacridine)
Benz[a]anthracene (1,2-Benzanthracene)
Benzene (Cyclohexatriene)

*The abbreviation N.O.S. (not otherwise specified) signifies those members of the general class not specifically listed by name in this appendix.

APPENDIX VIII - Hazardous Constituents, Continued

Benzenearsonic acid (Arsonic acid, phenyl-)
Benzene, dichloromethyl- (Benzal chloride)
Benzenethiol (Thiophenol)
Benzidine ([1,1'-Biphenyl]-4,4'-diamine)
Benzo[b]fluoranthene (2,3-Benzofluoranthene)
Benzo[j]fluoranthene (7,8-Benzofluoranthene)
Benzo[a]pyrene (3,4-Benzopyrene)
p-Benzoquinone (1,4-Cyclohexadienedione)
Benzotrichloride (Benzene, trichloromethyl)
Benzyl chloride (Benzene, (chloromethyl)-)
Beryllium and compounds, N.O.S.*
Bis(2-chloroethoxy)methane (Ethane, 1,1'-[methylenebis(oxy)]bis[2-chloro-])
Bis(2-chloroethyl) ether (Ethane, 1,1'-oxybis[2-chloro-])
N,N-Bis(2-chloroethyl)-2-naphthylamine (Chlornaphazine)
Bis(2-chloroisopropyl) ether (Propane, 2,2'-oxybis[2-chloro-])
Bis(chloromethyl) ether (Methane, oxybis[chloro-])
Bis(2-ethylhexyl) phthalate (1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester)
Bromoacetone (2-Propanone, 1-bromo-)
Bromomethane (Methyl bromide)
4-Bromophenyl phenyl ether (Benzene, 1-bromo-4-phenoxy-)
Brucine (Strychnidin-10-one, 2,3-dimethoxy-)
2-Butanone peroxide (Methyl ethyl ketone, peroxide)
Butyl benzyl phthalate (1,2-Benzenedicarboxylic acid, butyl phenylmethyl ester)
2-sec-Butyl-4,6-dinitrophenol (DNBP) (Phenol, 2,4-dinitro-6-(1-methylpropyl)-)
Cadmium and compounds, N.O.S.*
Calcium chromate (Chromic acid, calcium salt)
Calcium cyanide
Carbon disulfide (Carbon bisulfide)
Carbon oxyfluoride (Carbonyl fluoride)
Chloral (Acetaldehyde, trichloro-)
Chlorambucil (Butanoic acid, 4-[bis(2-chloroethyl)amino]benzene-)
Chlordane (alpha and gamma isomers) (4,7-Methanoindan, 1,2,4,5,6,7,8,8-octachloro-3,4,7,7a-tetrahydro-) (alpha and gamma isomers)
Chlorinated benzenes, N.O.S.*
Chlorinated ethane, N.O.S.*
Chlorinated fluorocarbons, N.O.S.*
Chlorinated naphthalene, N.O.S.*
Chlorinated phenol, N.O.S.*
Chloroacetaldehyde (Acetaldehyde, chloro-)
Chloroalkyl ethers, N.O.S.*
p-Chloroaniline (Benzenamine, 4-chloro-)
Chlorobenzene (Benzene, chloro-)
Chlorobenzilate (Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy-, ethyl ester)
2-Chloro-1, 3-butadiene (chloroprene)
p-Chloro-m-cresol (Phenol, 4-chloro-3-methyl)
1-Chloro-2,3-epoxypropane (Oxirane, 2-(chloromethyl)-)
2-Chloroethyl vinyl ether (Ethene, (2-chloroethoxy)-)
Chloroform (Methane, trichloro-)
Chloromethane (Methyl chloride)
Chloromethyl methyl ether (Methane, chloromethoxy-)
2-Chloronaphthalene (Naphthalene, beta-chloro-)
2-Chlorophenol (Phenol, o-chloro-)
1-(o-Chlorophenyl)thiourea (Thiourea, (2-chlorophenyl)-)
3-Chloropropene (allyl chloride)
3-Chloropropionitrile (Propanenitrile, 3-chloro-)
Chromium and compounds, N.O.S.*
Chrysene (1,2-Benzphenanthrene)
Citrus Red No. 2 (2-Naphthol, 1-[(2,5-dimethoxyphenyl)azo]-)
Coal tars
Copper dimethyldithiocarbamate
Creosote (Creosote, wood)
Cresols (Cresylic acid) (Phenol, methyl-)
Crotonaldehyde (2-Butenal)
Cyanides (soluble salts and complexes), N.O.S.*
Cyanogen (Ethanedinitrile)
Cyanogen bromide (Bromine cyanide)
Cyanogen chloride (Chlorine cyanide)
Cycasin (beta-D-Glucopyranoside, (methyl-ONN-azoxy)methyl-)
2-Cyclohexyl-4,6-dinitrophenol (Phenol, 2-cyclohexyl-4,6-dinitro-)
Cyclophosphamide (2H-1,3,2,-Oxazaphosphorine [bis(2-chloroethyl)amino]-tetrahydro-, 2-oxide)
Daunomycin (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-)
DDD (Dichlorodiphenyldichloroethane) (Ethane, 1,1-dichloro-2,2-bis(p-chlorophenyl)-)
DDE (Ethylene, 1,1-dichloro-2,2-bis(4-chlorophenyl)-)
DDT (Dichlorodiphenyltrichloroethane) (Ethane, 1,1,1-trichloro-2,2-bis(p-chlorophenyl)-)
Diallate (S-(2,3-dichloroallyl) diisopropylthiocarbamate)
Dibenz[a,j]acridine (1,2,5,6-Dibenzacridine)
Dibenz[a,h]acridine (1,2,7,8-Dibenzacridine)
Dibenz[a,h]anthracene (1,2,5,6-Dibenzanthracene)
7H-Dibenzo[c,g]carbazole (3,4,5,6-Dibenzcarbazole)
Dibenzo[a,e]pyrene (1,2,4,5-Dibenzpyrene)
Dibenz[a,h]pyrene (1,2,5,6-Dibenzpyrene)
Dibenz[a,i]pyrene (1,2,7,8-Dibenzpyrene)
1,2-Dibromo-3-chloropropane (Propane, 1,2-dibromo-3-chloro-)
1,2-Dibromoethane (Ethylene dibromide)
Dibromomethane (Methylene bromide)
Di-n-butyl phthalate (1,2-Benzenedicarboxylic acid, dibutyl ester)
o-Dichlorobenzene (Benzene, 1,2-dichloro-)
m-Dichlorobenzene (Benzene, 1,3-dichloro-)
p-Dichlorobenzene (Benzene, 1,4-dichloro-)
Dichlorobenzidine, N.O.S.* (Benzene, dichloro-)
3,3'-Dichlorobenzidine ([1,1'-Biphenyl]-4,4'-diamine, 3,3'-dichloro-)

APPENDIX VIII - Hazardous Constituents, Continued

1,4-Dichloro-2-butene (2-Butene, 1,4-dichloro-)
Dichlorodifluoromethane (Methane, dichlorodifluoro-)
1,1-Dichloroethane (Ethylidene dichloride)
1,2-Dichloroethane (Ethylene dichloride)
trans-1,2-Dichloroethene (1,2-Dichloroethylene)
Dichloroethylene, N.O.S.* (Ethene, dichloro-, N.O.S.*)
1,1-Dichloroethylene (Ethene, 1,1-dichloro-)
Dichloromethane (Methylene chloride)
2,4-Dichlorophenol (Phenol, 2,4-dichloro-)
2,6-Dichlorophenol (Phenol, 2,6-dichloro-)
2,4-Dichlorophenoxyacetic acid (2,4-D), salts and esters (Acetic acid, 2,4-dichlorophenoxy-, salts and esters)
Dichlorophenylarsine (Phenyl dichloroarsine)
Dichloropropane, N.O.S.* (Propane, dichloro-, N.O.S.*)
1,2-Dichloropropane (Propylene dichloride)
Dichloropropanol, N.O.S.* (Propanol, dichloro-, N.O.S.*)
Dichloropropene, N.O.S.* (Propene, dichloro-, N.O.S.*)
1,3-Dichloropropene (1-Propene, 1,3-dichloro-)
Dieldrin (1,2,3,4,10,10-hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octa-hydro-endo,exo-1,4:5,8-Dimethanonaphthalene)
1,2:3,4-Diepoxybutane (2,2'-Bioxirane)
Diethylarsine (Arsine, diethyl-)
N,N-Diethylhydrazine (Hydrazine, 1,2-diethyl)
O,O-Diethyl S-methyl ester of phosphorodithioic acid (Phosphorodithioic acid, O,O-diethyl S-methyl ester
O,O-Diethylphosphoric acid, O-p-nitrophenyl ester (Phosphoric acid, diethyl p-nitrophenyl ester)
Diethyl phthalate (1,2-Benzenedicarboxylic acid, diethyl ester)
O,O-Diethyl O-2-pyrazinyl phosphorothioate (Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester
Diethylstilbesterol (4,4'-Stilbenediol, alpha,alpha-diethyl, bis(dihydrogen phosphate, (E)-)
Dihydrosafrole (Benzene, 1,2-methylenedioxy-4-propyl-)
3,4-Dihydroxy-alpha-(methylamino)methyl benzyl alcohol (1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino)ethyl]-)
Diisopropylfluorophosphate (DFP) (Phosphorofluoridic acid, bis(1-methylethyl) ester)
Dimethoate (Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester
3,3'-Dimethoxybenzidine ([1,1'-Biphenyl]-4,4'diamine, 3-3'-dimethoxy-)
p-Dimethylaminoazobenzene (Benzenamine, N,N-dimethyl-4-(phenylazo)-)
7,12-Dimethylbenz(a)anthracene (1,2-Benzanthracene, 7,12-dimethyl-)
3,3'-Dimethylbenzidine ([1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-)
Dimethylcarbamoyl chloride (Carbamoyl chloride, dimethyl-)
1,1-Dimethylhydrazine (Hydrazine, 1,1-dimethyl-)
1,2-Dimethylhydrazine (Hydrazine, 1,2-dimethyl-)
3,3-Dimethyl-1-(methylthio)-2-butanone, O-[(methylamino) carbonyl]oxime (Thiofanox)
alpha,alpha-Dimethylphenethylamine (Ethanamine, 1,1-dimethyl-2-phenyl-)
2,4-Dimethylphenol (Phenol, 2,4-dimethyl-)
Dimethyl phthalate (1,2-Benzenedicarboxylic acid, dimethyl ester)
Dimethyl sulfate (Sulfuric acid, dimethyl ester)
Dinitrobenzene, N.O.S.* (Benzene, dinitro-, N.O.S.*)
4,6-Dinitro-o-cresol and salts (Phenol, 2,4-dinitro-6-methyl-, and salts)
2,4-Dinitrophenol (Phenol, 2,4-dinitro-)
2,4-Dinitrotoluene (Benzene, 1-methyl-2,4-dinitro-)
2,6-Dinitrotoluene (Benzene, 1-methyl-2,6-dinitro-)
Di-n-octyl phthalate (1,2-Benzenedicarboxylic acid, dioctyl ester)
1,4-Dioxane (1,4-Diethylene oxide)
Diphenylamine (Benzenamine, N-phenyl-)
1,2-Diphenylhydrazine (Hydrazine, 1,2-diphenyl-)
Di-n-propylnitrosamine (N-Nitroso-di-n-propylamine)
Disulfoton (O,O-diethyl S-[2-(ethylthio)ethyl] phosphorodithioate)
2,4-Dithiobiuret (Thioimidodicarbonic diamide)
Endosulfan (5-Norbornene, 2,3-dimethanol, 1,4,5,6,7,7-hexachloro-, cyclic sulfite)
Endrin and metabolites (1,2,3,4,10,10-hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-endo,endo-1,4:5,8-dimethanonaphthalene, and metabolites)
Ethyl carbamate (Urethan) (Carbamic acid, ethyl ester)
Ethyl cyanide (propanenitrile)
Ethylenebisdithiocarbamic acid, salts and esters (1,2-Ethanediylbiscarbamodithioic acid, salts and esters
Ethyleneimine (Aziridine)
Ethylene oxide (Oxirane)
Ethylenethiourea (2-Imidazolidinethione)
Ethyl methacrylate (2-Propenoic acid, 2-methyl-, ethyl ester)
Ethyl methanesulfonate (Methanesulfonic acid, ethyl ester)
Fluoranthene (Benzo[j,k]fluorene)
Fluorine
2-Fluoroacetamide (Acetamide, 2-fluoro-)
Fluoroacetic acid, sodium salt (Acetic acid, fluoro-, sodium salt)
Formaldehyde (Methylene oxide)
Formic acid (Methanoic acid)
Glycidylaldehyde (1-Propanol-2,3-epoxy)
Halomethane, N.O.S.*
Heptachlor (4,7-Methano-1H-indene, 1,4,5,6,7,8,-heptachloro-3a,4,7,7a-tetrahydro-)

APPENDIX VIII - Hazardous Constituents, Continued

Heptachlor epoxide (alpha, beta, and gamma isomers) (4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-2,3-epoxy-3a,4,7,7-tetrahydro-, alpha, beta, and gamma isomers)
Hexachlorobenzene (Benzene, hexachloro-)
Hexachlorobutadiene (1,3-Butadiene, 1,1,2,3,4,4-hexachloro-)
Hexachlorocyclohexane (all isomers) (Lindane and isomers)
Hexachlorocyclopentadiene (1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-)
Hexachloroethane (Ethane, 1,1,1,2,2,2-hexachloro-)
1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-endo,endo-dimethanonaphthalene (Hexachlorohexahydro-endo,endo-dimethanonaphthalene)
Hexachlorophene (2,2'-Methylenebis(3,4,6-trichlorophenol))
Hexachloropropene (1-Propene, 1,1,2,3,3,3-hexachloro-)
Hexaethyl tetraphosphate (Tetraphosphoric acid, hexaethyl ester)
Hydrazine (Diamine)
Hydrocyanic acid (Hydrogen cyanide)
Hydrofluoric acid (Hydrogen fluoride)
Hydrogen sulfide (Sulfur hydride)
Hydroxydimethylarsine oxide (Cacodylic acid)
Indeno(1,2,3-cd)pyrene (1,10-(1,2-phenylene)pyrene)
Iodomethane (Methyl iodide)
Iron dextran (Ferric dextran)
Isocyanic acid, methyl ester (Methyl isocyanate)
Isobutyl alcohol (1-Propanol, 2-methyl-)
Isosafrole (Benzene, 1,2-methylenedioxy-4-allyl-)
Kepone (Decachlorooctahydro-1,3,4-Methano-2H-cyclobuta[cd]pentalen-2-one)
Lasiocarpine (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)
Lead and compounds, N.O.S.*
Lead acetate (Acetic acid, lead salt)
Lead phosphate (Phosphoric acid, lead salt)
Lead subacetate (Lead, bis(acetato-O)tetrahydroxytri-)
Maleic anhydride (2,5-Furandione)
Maleic hydrazide (1,2-Dihydro-3,6-pyridazinedione)
Malononitrile (Propanedinitrile)
Melphalan (Alanine, 3-[p-bis(2-chloroethyl)amino]phenyl-, L-)
Mercury fulminate (Fulminic acid, mercury salt)
Mercury and compounds, N.O.S.*
Methacrylonitrile (2-Propenenitrile, 2-methyl-)
Methanethiol (Thiomethanol)
Methapyrilene (Pyridine, 2-[(2-dimethylamino)ethyl]-2-thenylamino-)
Metholmyl (Acetimidic acid, N-[(methylcarbamoyl)oxy]thio-, methyl ester)
Methoxychlor (Ethane, 1,1,1-trichloro-2,2'-bis(p-methoxyphenyl)-)
2-Methylaziridine (1,2-Propylenimine)
3-Methylcholanthrene (Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-)
Methyl chlorocarbonate (Carbonochloridic acid, methyl ester)
4,4'-Methylenebis(2-chloroaniline) (Benzenamine, 4,4'-methylenebis-(2-chloro-)
Methyl ethyl ketone (MEK) (2-Butanone)
Methyl hydrazine (Hydrazine, methyl-)
2-Methyllactonitrile (Propanenitrile, 2-hydroxy-2-methyl-)
Methyl methacrylate (2-Propenoic acid, 2-methyl-, methyl ester)
Methyl methanesulfonate (Methanesulfonic acid, methyl ester)
2-Methyl-2-(methylthio)propionaldehyde-o-(methylcarbonyl) oxime (Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino)carbonyl]oxime)
N-Methyl-N'-nitro-N-nitrosoguanidine (Guanidine, N-methyl-N-nitroso-N'-nitro-)
Methyl parathion (O,O-dimethyl O-(4-nitrophenyl) phosphorothioate)
Methylthiouracil (4-1H-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-)
Mustard gas (Sulfide, bis(2-chloroethyl)-)
Naphthalene
1,4-Naphthoquinone (1,4-Naphthalenedione)
1-Naphthylamine (alpha-Naphthylamine)
2-Naphthylamine (Beta-Naphthylamine)
1-Naphthyl-2-thiourea (Thiourea, 1-naphthalenyl-)
Nickel and compounds, N.O.S.*
Nickel carbonyl (Nickel tetracarbonyl)
Nickel cyanide (Nickel (II) cyanide)
Nicotine and salts (Pyridine, (S)-3-(1-methyl-2-pyrrolidinyl)-, and salts)
Nitric oxide (Nitrogen (II) oxide)
p-Nitroaniline (Benzenamine, 4-nitro-)
Nitrobenzene (Benzene, nitro-)
Nitrogen dioxide (Nitrogen (IV) oxide)
Nitrogen mustard and hydrochloride salt (Ethanamine, 2-chloro-, N-(2-chloroethyl)-N-methyl-, and hydrochloride salt)
Nitrogen mustard N-Oxide and hydrochloride salt (Ethanamine, 2-chloro-, N-(2-chloroethyl)-N-methyl-, and hydrochloride salt)
Nitroglycerine (1,2,3-Propanetriol, trinitrate)
4-Nitrophenol (Phenol, 4-nitro-)
4-Nitroquinoline-1-oxide (Quinoline, 4-nitro-, 1-oxide)
Nitrosamines, N.O.S.*
N-Nitrosodi-n-butylamine (1-Butanamine, N-butyl-N-nitroso-)
N-Nitrosodiethanolamine (Ethanol, 2,2'-(nitrosoimino)bis-)
N-Nitrosodiethylamine (Ethanamine, N-ethyl-N-nitroso-)
N-Nitrosodimethylamine (Dimethylnitrosamine)
N-Nitrosomethylurea (Carbamide, N-ethyl-N-nitroso-)
N-Nitrosomethylvinylamine (Ethanamine, N-methyl-N-nitroso-)
N-Nitrosomorpholine (Carbamide, N-

APPENDIX VIII - Hazardous Constituents, Continued

N-Nitroso-N-methylurethane (Carbamic acid, methylnitroso-, ethyl ester)
N-Nitrosomethylvinylamine (Ethenamine, N-methyl-N-nitroso-)
N-Nitrosomorpholine (Morpholine, N-nitroso-)
N-Nitrosonornicotine (Nornicotine, N-nitroso-)
N-Nitrosopiperidine (Pyridine, hexahydro-, N-nitroso-)
Nitrosopyrrolidine (Pyrrole, tetrahydro-, N-nitroso-)
N-Nitrososarcosine (Sarcosine, N-nitroso-)
5-Nitro-o-toluidine (Benzenamine, 2-methyl-5-nitro-)
Octamethylpyrophosphoramide (Diphosphoramide, octamethyl-)
Osmium tetroxide (Osmium (VIII) oxide)
7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid (Endothal)
Paraldehyde (1,3,5-Trioxane, 2,4,6-trimethyl-)
Parathion (Phosphorothioic acid, O,O-diethyl O-(p-nitrophenyl) ester
Pentachlorobenzene (Benzene, pentachloro-)
Pentachloroethane (Ethane, pentachloro-)
Pentachloronitrobenzene (PCNB) (Benzene, pentachloronitro-)
Pentachlorophenol (Phenol, pentachloro-)
Phenacetin (Acetamide, N-(4-ethoxyphenyl)-)
Phenol (Benzene, hydroxy-)
Phenylenediamine (Benzenediamine)
Phenylmercury acetate (Mercury, acetatophenyl-)
N-Phenylthiourea (Thiourea, phenyl-)
Phosgene (Carbonyl chloride)
Phosphine (Hydrogen phosphide)
Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl] ester (Phorate)
Phosphorothioic acid, O,O-dimethyl O-(p-((dimethylamino)sulfonyl)phenyl] ester (Famphur)
Phthalic acid esters, N.O.S.* (Benzene, 1,2-dicarboxylic acid, esters, N.O.S.*)
Phthalic anhydride (1,2-Benzenedicarboxylic acid anhydride)
2-Picoline (Pyridine, 2-methyl-)
Polychlorinated biphenyl, N.O.S.*
Potassium cyanide
Potassium silver cyanide (Argentate(1-), dicyano-, potassium)
Pronamide (3,5-Dichloro-N-(1,1-dimethyl-2-propynyl)benzamide)
1,3-Propane sultone (1,2-Oxathiolane, 2,2-dioxide)
n-Propylamine (1-Propanamine)
Propylthiouracil (Undecamethylenediamine, N,N'-bis(2-chlorobenzyl)-, dihydrochloride)
2-Propyn-1-ol (Propargyl alcohol)
Pyridine
Reserpine (Yohimban-16-carboxylic acid, 11,17-dimethoxy-18-((3,4,5-trimethoxybenzoyl)oxy)-, methyl ester)
Resorcinol (1,3-Benzenediol)
Saccharin and salts (1,2-Benzoisothiazolin-3-one, 1,1-dioxide, and salts)
Safrole (Benzene, 1,2-methylenedicxy-4-allyl-)
Selenious acid (Selenium dioxide)
Selenium and compounds, N.O.S.*
Selenium sulfide (Sulfur selenide)
Selenourea (Carbamimidoselenoic acid)
Silver and compounds, N.O.S.*
Silver cyanide
Sodium cyanide
Streptozotocin (D-Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido)-)
Strontium sulfide
Strychnine and salts (Strychnidin-10-one, and salts)
1,2,4,5-Tetrachlorobenzene (Benzene, 1,2,4,5-tetrachloro-)
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) (Dibenzo-p-dioxin, 2,3,7,8-tetrachloro-)
Tetrachloroethane, N.O.S.* (Ethane, tetrachloro-, N.O.S.*)
1,1,1,2-Tetrachloroethane (Ethane, 1,1,1,2-tetrachloro-)
1,1,2,2-Tetrachloroethane (Ethane, 1,1,2,2-tetrachloro-)
Tetrachloroethylene (Ethene, 1,1,2,2-tetrachloro-)
Tetrachloromethane (Carbon tetrachloride)
2,3,4,6-Tetrachlorophenol (Phenol, 2,3,4,6-tetrachloro-)
Tetraethyldithiopyrophosphate (Dithiopyrophosphoric acid, tetraethyl-ester)
Tetraethyllead (Plumbane, tetraethyl-)
Tetraethylpyrophosphate (Pyrophosphoric acid, tetraethyl ester)
Tetranitromethane (Methane, tetranitro-)
Thallium and compounds, N.O.S.*
Thallic oxide (Thallium (III) oxide)
Thallium (I) acetate (Acetic acid, thallium (I) salt)
Thallium (I) carbonate (Carbonic acid, dithallium (I) salt)
Thallium (I) chloride
Thallium (I) nitrate (Nitric acid, thallium (I) salt)
Thallium (I) oxide
Thallium (I) sulfate (Sulfuric acid, thallium (I) salt)
Thioacetamide (Ethanethioamide)
Thiosemicarbazide (Hydrazinecarbothioamide)
Thiourea (Carbamide thio-)
Thiuram (Bis(dimethylthiocarbamoyl) disulfide)
Toluene (Benzene, methyl-)
Toluenediamine (Benzenediamine, methyl-)
o-Toluidine hydrochloride (Benzenamine, 2-methyl-, hydrochloride)
Tolylene diisocyanate (Benzene, 1,3-diisocyanatomethyl-)
Toxaphene (Camphene, octachloro-)
Tribromomethane (Bromoform)
1,2,4-Trichlorobenzene (Benzene, 1,2,4-trichloro-)
1,1,1-Trichloroethane (Methyl chloroform)
1,1,2-Trichloroethane (Ethane, 1,1,2-trichloro-)
Trichloroethylene (Trichloroethylene)
Trichloromethanethiol (Methanethiol, trichloro-)
Trichloromonofluoromethane (Methane, trichlorofluoro-)
2,4,5-Trichlorophenol (Phenol, 2,4,5-trich-

APPENDIX VIII - Hazardous Constituents, Continued

2,4,6-Trichlorophenol (Phenol, 2,4,6-trichloro-)
2,4,5-Trichlorophenoxyacetic acid (2,4,5-T) (Acetic acid, 2,4,5-trichlorophenoxy-)
2,4,5-Trichlorophenoxypropionic acid (2,4,5-TP) (Silvex) (Propionoic acid, 2-(2,4,5-trichlorophenoxy)-)
Trichloropropane, N.O.S.* (Propane, trichloro-, N.O.S.*)
1,2,3-Trichloropropane (Propane, 1,2,3-trichloro-)
O,O,O-Triethyl phosphorothioate (Phosphorothioic acid, O,O,O-triethyl ester)
sym-Trinitrobenzene (Benzene, 1,3,5-trinitro-)
Tris(1-azridinyl) phosphine sulfide (Phosphine sulfide, tris(1-aziridinyl-)
Tris(2,3-dibromopropyl) phosphate (1-Propanol, 2,3-dibromo-, phosphate)
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)
Uracil mustard (Uracil 5-[bis(2-chloroethyl)amino]-)
Vanadic acid, ammonium salt (ammonium vanadate)
Vanadium pentoxide (Vanadium (V) oxide)
Vinyl chloride (Ethene, chloro-)
Zinc cyanide
Zinc phosphide

Section 4. Notification of Hazardous Waste Activity Regulations

4.1 General

4.1.a 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.b Any person as described in paragraph (a) that has notified the EPA or is subject to the requirements to notify EPA as specified in Volume 45, No. 39 of the Federal Register, dated February 26, 1980, pages 12746 through 12754 is subject to the provisions of this section.

4.1.c The purpose of this section 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 paragraph (b) of these regulations and to assure that all persons who did not notify EPA as described in paragraph (b) of these regulations or all who initiated hazardous waste activities subsequent to the requirements of EPA as referenced above in paragraph (b), shall notify the Chief of their hazardous waste activities.

4.2 Notification

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

4.2.b Any person involved in hazardous waste activities that did not comply with the notification requirements of EPA, as referenced above in Section 4.1, 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.c Any person exempted from the federal notification requirements but subject to West Virginia notification requirements as specified in 3.1.4 and 3.1.5 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.d One (1) notification form is required for each generator.

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

4.2.g New generators and those initiating activities subsequent to EPA notification period referenced in paragraph 4.1.(b) the 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.

Section 5. Standards Applicable to Transporters of Hazardous Waste by Air and/or Water

The Director hereby adopts and incorporates by reference 40 CFR Part 263, as published in the Code of Federal Regulations on the effective date of these regulations insofar as such regulations relate to the transportation of hazardous waste by air and water.

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

Section 6. Standards Applicable to Generators of Hazardous Waste

6.1 Purpose, Scope and Applicability

6.1.a This section establishes standards and regulations for generators of hazardous wastes.

6.1.a.1 Generators that generate more than 1000 kilograms of hazardous waste, 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 3.1.4.e are subject to all sections of these regulations, except as otherwise provided in Section 6 of these regulations.

6.1.a.2 Small quantity generators that generate between 100 and 1000 kilograms of hazardous waste, identified or listed in Section 3 of these regulations, in any calendar month are subject to the requirements of Section 6 listed in Section 3.1.4(j) of these regulations.

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

6.1.c Any person who imports hazardous waste into West Virginia shall comply with the standards applicable to generators established in this section.

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

6.1.e A person who generates a hazardous waste, as defined in Section 3 is subject to the compliance requirements and penalties prescribed in Sections 14, 15 and 16 of the Hazardous Waste Management Act if he does not comply with the requirements of this section.

6.1.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 this section.

6.1.1 Hazardous Waste Determination

A person who generates a waste, as defined in Section 3.1.1, shall determine if that waste is a hazardous waste using the following method:

6.1.1.a He shall first determine if the waste is excluded from regulation under Section 3.1.3.

6.1.1.b He shall then determine if the waste is listed as hazardous waste in Section 3.4. (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.)

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

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

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

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

6.1.2 EPA Identification Numbers.

6.1.2.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.

6.1.2.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.

6.1.2.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 I of this section.

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 1, 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:

"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 is 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, and

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.

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 this section 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 this Section to:

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

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

6.2.4.d.iii 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 transportion off-site, a generator shall package the waste in accordance with the applicable Department of Transportion (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 Department of Transportation (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 transportion off-site, a generator shall mark each package of hazardous waste in accordance with the applicable Department of Transportion regulation on hazardous materials under 49 C.F.R. Part 172;

6.3.3.b Before transporting hazardous waste or offering hazardous waste for transportion off-site, a generator shall mark each container of 110 gallons or less used in such transportion with the following words and information displayed in accordance with the requirements of 49 C.F.R. 172.304: "HAZARDOUS WASTE" - Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency.

Generator's name and address_____.

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 Department of Transportation regulations for hazardous materials under 49 C.F.R. Part 172, Subpart F.

6.3.5 Accumulation Time

6.3.5.a 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 either in containers which meet the standards of Section 6.3.1 and are managed in accordance with 40 CFR Part 265 Subpart I , or in tanks, and the generator complies with Subpart J of 40 C.F.R. Part 265 except 265.193;

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;

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 in 40 C.F.R. Part 265 and with 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 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 Director if hazardous wastes must remain on-site for longer than 90 days due to unforeseen, temporary, and uncontrollable circumstances. An extension of up to 30 days maybe granted at the discretion of the Director on a case-by-case basis. Before the end of ninety (90) days, or any extension period granted by the Director (not to exceed thirty days), the generator must either transport all such hazardous waste off-siteto 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 11.00 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 55 gallons of hazardous waste or one quart of acutely hazardous waste listed in Section 3.4.4(e) 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 paragraph (a) of this section, provided he:

6.3.5.c.1.i Complies with 40 CFR Sections 265.171, 265.172, and 265.173(a) of the federal regulations; and

6.3.5.c.1.ii 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 3.4.4.e of these regulations in excess of the amounts listed in paragraph (c)(1) of this section at or near any point of generation must, with respect to that amount of excess waste, comply within three (3) days with paragraph (a) of this section or other applicable provisions of these regulations. During the three day period the generator must continue to comply with paragraphs (c)(1)(i)-(ii) of this section. 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 Recordkeeping and Reporting

6.4.1 Recordkeeping

6.4.1.a A generator shall keep a copy of each manifest signed in

accordance with 6.2.4(a) 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 6.1.1 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 this section 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:

(1) The EPA identification number, name, and address of the generator;

(2) The calendar year covered by the report;

(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.

(4) The name and EPA identification number of each transporter used during the reporting year.

(5) A description, EPA hazardous waste number (from 40 CFR Part 261, Subpart C or D), 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) A description of the efforts undertaken during the year to reduce the volume and toxicity of waste generated.

(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.

(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 8.00 and 11.00 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 35 days of the date the waste was accepted by the initial transporter, shall contact the transporter and/or the owner or operator of the designated facility 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.

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. Section 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.

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 CFR Part 262 and this section.

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

6.5.1.b.1 Notify the chief and the EPA 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 Department of Transportation 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, Division of Water Resources.

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 for the manifest, except that:

6.5.1.b.4.ii 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.ii 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 45 days from the date it was accepted by the initial transporter; or

6.5.1.c.2 Within 90 days from the date the waste was accepted by the initial transporter, the generator has not received written 6.5.1.c.2 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 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 this section or other standards in Section 8, 11 or 12, or 40 C.F.R. Part 265, for those wastes, provided he triple rinses each emptied pesticide container in accordance with Section 3.1.6 (b)(3) and disposes of the pesticide residues on his own farm in a manner consistent with the disposal instructions on the pesticide label.

APPENDIX I

The Director hereby adopts and incorporates by reference 40 CFR Part 262, Appendix - Uniform Hazardous Waste Manifest and instructions, as published in the Federal Register on July 15, 1985 (attached).

Wherever the term Administrator or Regional Administrator is used, the term shall have the meaning of the Director of the 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

Please print or type. *(Form designed for use on elite (12-pitch) typewriter.)*

Form Approved. OMB No. 2000-0404. Expires 7-31-86

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. | Manifest Document No. | 2. Page 1 of | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address

4. Generator's Phone ( )

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name | 6. US EPA ID Number

C. State Transporter's ID

D. Transporter's Phone

7. Transporter 2 Company Name | 8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address | 10. US EPA ID Number

G. State Facility's ID

H. Facility's Phone

11. US DOT Description *(Including Proper Shipping Name, Hazard Class, and ID Number)*	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	Waste No.
a.					
b.					
c.					
d.					

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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.

GENERATOR

Printed/Typed Name | Signature | Month Day Year

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

TRANSPORTER

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name | Signature | Month Day Year

FACILITY

EPA Form 8700-22 (Rev. 4-85) Previous edition is obsolete.

BILLING CODE 6560-50-C

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Section 7. (Reserved)

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

8.1.2 The standards in this section apply to owners and operators of all facilities which treat, store, or dispose of hazardous waste except as Section 8.1.5 provides otherwise. In addition to the standards in this section, the regulations of the Air Pollution Control Commission, Series 25 - "To Prevent and Control Air Pollution from Hazardous Waste Treatment, Storage or Disposal Facilities apply to management facilities which may emit hazardous waste or the constituents thereof to the atmosphere including incineration facilities except as 8.1.5 provides otherwise. For purposes of this section the following persons are considered tobe incinerating hazardous waste:

8.1.2.a Owners or operators of hazardous waste incinerators (as defined in Section 2.00 of these regulations; and

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

8.1.3 The requirements of this section 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 this section under the Underground Injection Control Program establish pursuant to the Water Pollution Control Act, W. Va. Code §20-5A, et seq.

8.1.4 The requirements of this section 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.

8.1.5 The requirements of this section do not apply to:

8.1.5a The owner or operator of a facility managing recyclable materials described in Section 3.1.5a.2 and 3.1.5a.3 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).

8.1.5b Generator accumulating waste on site in compliance with Section 6.03.05 provided the requirements of Sections 3.1.4 and 3.1.5 are complied with.

8.1.5c A farmer disposing of waste pesticides from his own use in compliance with Section 6.[illegible].

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

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

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

8.1.5g Except as provided in paragraph (g)(2) of this Section, a person engaged in treatment or containment activities during immediate response to any of the following situations:

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

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

8.1.5.g.iii 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 Section must comply with all applicable requirements of Section 8.3 and 8.4.

8.1.5.g.3 Any person who is covered by paragraph g.1 of this subsection and who continues or initiates hazardous waste treatment or containment activities after the immediate response is over is subject to all applicable requirements of Chapter 20, Article 5E for these activities.

8.1.5h 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 Section 8.2.8 (b), 8.7.2 and 8.7.3 are complied with.

8.1.6 Relation to Interim Status Standards

A facility owner or operator shall comply with the requirements of Chapter 20-5E-10 of the Hazardous Waste Management Act and the corresponding Federal requirements of 40 CFR Section 270 Subpart G and 40 CFR Part 265 in lieu of the regulations of this section 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 Chapter 20-5E-17 of the West

Virginia Code.

8.2 General Facility Standards

8.2.1 Applicability

The regulations in this section apply to owners and operators of all hazardous waste facilities, except as provided in Section 8.1.

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

8.2.3a 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.

8.2.3b 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.

8.2.3c 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.

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

8.2.4 General Waste Analysis

8.2.4a.1 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. At a minimum, this analysis must contain all the information which must be known to treat, store, or dispose of the waste in accordance with the requirements of this section or with the conditions of a permit issued under Section 11.00 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.)

8.2.4a.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 (a)(1) of this section. 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 (a)(1) of this section. 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 this section.

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.i 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.ii For off-site facilities, when the results of the inspection required in (a)(5) of this section 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.

8.2.4b The owner or operator must develop and follow a written waste analysis plan which describes the procedures which will comply with (a) of this section. 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 (a) of this section).

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.i One of the sampling methods described in Appendix I of Section 3 of these regulations.

8.2.4.b.3.ii 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; and

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 8.02.08 and the Air Pollution Control Commission's Regulation XXV.

8.2.4.c For off-site facilities, the waste analysis plan required in (b) of this section 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.

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

8.2.5a 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 this section.

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.

8.2.5b Unless the owner or operator has made a successful demonstration under paragraphs (a)(1) and (a)(2) of this section, 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.i 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.ii 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 (b) of this section 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 (b)(1) or (b)(2) of this section.

8.2.5.c Unless the owner or operator has made a successful demonstration under (a)(1) and (a)(2) of this section, 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

8.2.6a The owner or operator must inspect the facility formal functions 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 theenvironment; or

8.2.6.a.2 A threat to human healty. The owner or operator must conduct these inspections often enought to identify problems in time to correct them before they harm human health or the environment.

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 of 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 Sections 8.7.6, 8.8.4, 8.9.5, 8.10.5, and 8.11.3 where applicable.

8.2.6.b.5 A copy of the inspection schedule as required by Section 8.02.06(b) 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.

8.2.6c 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.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 this section. The owner or operator must ensure that this program includes all the elements described in the

document required under (d)(3) of this section.

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.i Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment;

8.2.7.a.3.ii Key parameters for automatic waste feed cut-off systems;

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

8.2.7.a.3.iv Response to fires or explosions.

8.2.7.a.3.v Response to groundwater contamination incidents, and

8.2.7.a.3.vi Shutdown of operations.

8.2.7.a.4 An outline of the training program required by Section 8.2.7 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 (a) of this section 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 (a) of this section.

8.2.7c Facility personnel must take part in an annual review of the initial training required in (a) of this section.

8.2.7d 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 (d)(1) of this section. This description ma. 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 (d)(1) of this section.

8.2.7.d.4 Records that document that the training or job experience required under (a), (b), and (c) of this section 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

8.2.8a 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.

8.2.8b 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 waste 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.

8.2.8c When required to comply with (a) or (b) of this section, 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) 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 this section apply to owners and operators of all hazardous waste management facilities except as Section 8.1 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 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.

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.

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 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 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 this section apply to owners and operators of all hazardous waste facilities except as Section 8.1 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 Section 8.4.2 and Section 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 CFR 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 this section.

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 run-off 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' Emergency Notification Number 1-800-642-3074. The notification shall include:

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

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

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

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

8.4.7.d.v The extent of injuries, if any, and

8.4.7.d.2.vi The possible hazards to human health, be 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 cleanup 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 sub-sections 8.4.7 f,g,h,i and j of this section 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.

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, Recordkeeping, and Reporting

8.5.1 Applicability

The regulations in this section apply to owners and operators of both on-site and off-site facilities, except as Section 8.1 provides otherwise. Sections 8.5.2, 8.5.3, and 8.5.7 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 8.5.3.a 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 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 years from the date of delivery.

8.5.2b 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 8.5.3.a) 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 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 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 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

8.5.3a 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 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.

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.

8.5.3b 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 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 I;

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.

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).

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

8.5.4.b.6 For off-site facilities, notices to generators as specified in Section 8.2.3(b).

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 8.13, 8.9.5, 8.10.4, 8.10.5, 8.12.7, 8.12.9, 8.12.11, 8.11.3(a), 8.11.3(b), 8.11.10(a), and 8.11.10(b).

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 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 this section 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) 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 post-closure cost estimate and, for disposal facilities, the most recent post-closure cost estimate.

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 3.1.4, 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.

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 this section 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.

8.5.8.b Facility closure as specified in Section 8.6.

8.5.8.c As otherwise required by sections 8.9, 8.10, 8.11, 8.12, and 8.13.

8.6 Closure and Post-Closure

8.6.1 Applicability

Except as Section 8.1 provides otherwise:

8.6.1a Sections 8.6.2 - 8.6.8 and 15.1 (which concern closure) apply to the owners and operators of all hazardous waste management facilities; and

8.6.1b Sections 8.6.2 - 8.6.8, 15.1 and 15.3 (which concern post-closure care) apply to the owners and operators of all hazardous waste disposal facilities.

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 prevent threats to human health and the environment, post-closure escape of hazardous waste, hazardous waste constituents, leachate, contaminated rainfall, or waste decomposition products to the State waters or to the atmosphere.

8.6.3 Closure Plan; Amendment of Plan

8.6.3.a The owner or operator of a hazardous waste management facility must have a written 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 become a condition of the permit. A copy of the approved plan and all revisions to the plan must be kept at the facility until closure is completed and certified. The plan must identify steps necessary to completely or partially close the facility at any point during its intended operating life and to completely close the facility at the end of its intended operating life. The closure plan must include, at least:

8.6.3.a.1 A description of how and when the facility will be partially closed, if applicable, and finally closed. The description must identify the maximum extent of the operation which will be unclosed during the life of the facility, and how the applicable requirements of this section will be met;

8.6.3.a.2 An estimate of the maximum inventory of wastes in storage and treatment at any time during the life of the facility;

8.6.3.a.3 A Description of the steps needed to decontaminate facility equipment during closure;

8.6.3.a.4 An estimate of the expected year of closure and a schedule for final closure. The schedule must include, at a minimum, the total time required to close the facility and the time required for intervening closure activities which will allow tracking of the progress of closure. (Comment: For example, in the case of a landfill, estimates of the time required to treat and dispose of all waste inventory and of the time required to place a final cover must be included);

8.6.3.a.5 And must satisfy the applicable requirements of Sections 8.6.2, 8.6.4, 8.6.6, 8.7.10, 8.8.5, 8.9.7, 8.9.10, 8.10.9, 8.11.11, 8.12.11 and Air Pollution Control Regulation XXV, Section 24.

8.6.3.b The owner or operator may amend the closure plan at any time during the active life of the facility. (The active life of the facility is that period during which waste are periodically received.) The owner or operator must amend the plan whenever changes in operating plans or facility design affect the closure plan, or whenever there is a change in the expected year of closure. When the owner or operator requests a permit modification to authorize a change in operating plans or facility design, a modification of the closure plan must be made at the same time. If a permit modification is not needed to authorize the change in operating plans or facility design, the request for modification of the closure plan must be made within sixty (60) days after the change in operating plans or facility design occurs.

8.6.3.c The owner or operator must notify the chief at least 180 days prior to the expected closure date.

8.6.3.d All closure plans must be approved by the chief based on the determination of compliance with the applicable requirements of Sections 8.6.2, 8.6.4, 8.6.6 , 8.7.10, 8.8.5, 8.9.7, 8.9.10, 8.10.9 8.11.11, 8.12.11 and Air Pollution Control Regulation XXV, Section 24. Upon approval, the closure plan shall become a condition of the Hazardous Waste Management Permit.

8.6.4 Closure; Time Allowed for Closure

8.6.4.a Within ninety (90) days after receiving the final volume of hazardous wastes, the owner or operator must treat, remove from the site, 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 demonstrated that:

8.6.4.a.1.i The activities required to comply with this paragraph will, of necessity, take longer than 90 days to complete; or

8.6.4.a.1.ii.A. The facility has the capacity to receive additional wastes.

8.6.4.a.1.ii.B. There is a reasonable likelihood that a person other than the owner or operator will recommence operation of the site; and

8.6.4.a.1.ii.C. Closure of the facility would be incompatible with continued operation of the site; and

8.6.4.a.2 He has taken, and will continue to take, all steps to prevent threats to human health and the environment.

8.6.4.a.2.b The owner or operator must complete closure activities in accordance with the approved closure plan and within 180 days after receiving the final volume of wastes. The Chief may approve a longer closure period if the owner or operator demonstrates that:

8.6.4.a.2.b.1.i The closure activities will, of necessity, take longer than 180 days to complete; or

8.6.4.a.2.b.1.ii.A The facility has the capacity to receive additional wastes;

8.6.4.a.2.b.1.ii.B There is reasonable likelihood that a person other than the owner or operator will recommence operation of the site; and

8.6.4.a.2.b.1.ii.C Closure of the facility would be incompatible with continued operation of the site; and

8.6.4.a.2.b.2 He has taken and will continue to take all steps to prevent threats to human health and the environment from the unclosed but inactive facility. (Comment: Any extension of the ninety (90) or

180 day period in this section shall be made as a major modification under Section 11. Under paragraphs (a) (1)(ii) and (b)(1)(ii) of this section, if operation of the site is recommenced, the Chief may defer completion of closure activities until the new operation is terminated.)

8.6.5 Disposal or Decontamination of Equipment

When closure is completed, all facility equipment and structures must have been properly disposed of, or decontaminated by removing all hazardous waste and residues.

8.6.6 Certification of Closure

When closure is completed, the owner or operator must submit to the Chief certification both by the owner or operator and by an independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved closure plan.

8.6.7 Post-Closure Care and Use of Property

8.6.7.a.1 Post closure care must continue for thirty (30) years after the date of completing closure and must consist of at least the following:

8.6.7.a.1.i Groundwater monitoring and reporting as applicable.

8.6.7.a.1.ii Maintenance of monitoring and waste containment systems as applicable.

8.6.7.a.1.iii All applicable post closure regulations of Sections 8.9; 8.10; 8.11; 8.12; and 8.13.

8.6.7.a.2.i During the 180 day period preceding closure or at any time thereafter, the Chief may reduce the post-closure care period to less than thirty (30) years if it is found that the reduced period is sufficient to protect human health and the environment (e.g., leachate or groundwater monitoring results, characteristics of the waste, application of advanced technology, or alternative disposal, treatment, or re-use techniques indicate that the facility is secure).

8.6.7.a.2.ii Prior to the time that the post-closure period is due to expire, the Chief may extend the post-closure care period if it is found that the extended period is necessary to protect human health and the environment (e.g., leachate or groundwater monitoring results indicate a potential for migration of waste at levels which may be harmful to human health and the environment.)

8.6.7.b The chief may require, at closure, continuation of any of the security requirements of Section 8.2.5 during part or all of the

post-closure period after the date of completing closure when 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.

8.6.8 Post-Closure Plan;Amendment of Plan

8.6.8a The owner or operator of a disposal facility must have a written post-closure plan. The plan must be submitted with Part B of the permit application and approved by the Chief as a part of the permit issuance proceeding. The approved post-closure plan will become a condition of any permit issued. A copy of the approved plan and all revisions must be kept at the facility until the post-closure care period begins. This plan must identify the activities which will be carried on after closure and the frequency of these activities, and include at least:

8.6.8.a.1 A description of the planned groundwater monitoring activities and frequencies at which they will be performed.

8.6.8.a.2 A description of the planned maintenance activities, and frequencies at which they will be performed, to ensure:

8.6.8.a.2.i The integrity of the cap and final cover or other containment structures where applicable; and

8.6.8.a.2.ii The function of the facility monitoring equipment.

8.6.8.a.3 The name, address, and phone number of the person or office to contact about the disposal facility during the post-closure period. This person or office must keep an updated post-closure plan during the post-closure period.

8.6.8b The owner or operator may amend the post-closure plan at any time during the active life of the disposal facility or during the post-closure care period. The owner or operator must amend the plan

whenever changes in operating plans or facility design, or events which occur during the active life of the facility or during the post-closure period, affect the post-closure plan. This plan must be amended whenever there is a change in the expected year of closure.

8.6.8c When a permit modification is requested during the active life of the facility to authorize a change in operating plans or facility design, modification of the post-closure plan must be requested at the same time. In all other cases, the request for modification of the post-closure plan must be made within sixty (60) days after the change in operating plans or facility design or the events which affect the post-closure plans occur.

8.7 Use and Management of Containers

8.7.1 Applicability

The regulations in this section apply to owners and operators of all hazardous waste management facilities that store containers of hazardous waste, except as Section 8.1 provides otherwise. (Comment: Under Sections 3.1.6 and 3.4.4(c) 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 3.1.6. In that event, management of the container is exempt from the requirements of this section.)

8.7.2 Conditions of Containers

If a container holding hazardous waste is not in good condition (e.g., severe rusting, apparent structural defects) or if it begins to leak, the owner or operator must transfer the hazardous 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 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 paragraph (b) of this section, except as otherwise provided by paragraph (c) of this section.

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 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 paragraph (b)(3) of this section 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, 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 paragraph (b) of this section, 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 Waste

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 materials must not be placed in the same container, unless Section 8.2.8 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 materials 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

8.8.1.a The regulations in this section apply to owners and operators of facilities that use tanks to treat or store hazardous waste except

as Section 8.1 and (b) of this section provide otherwise.

8.8.1.b The regulations in this section do not apply to facilities that treat or store hazardous waste in covered underground tanks that cannot be entered for inspection. Existing covered underground tanks may continue to operate under interim status but existing and new covered underground tanks will not be able to receive a finally effective Hazardous Waste Management Permit.

8.8.2 Design of Tanks

Tanks must have sufficient shell strength and, for closed tanks, pressure controls (e.g., vents) to assure that they do not collapse or rupture. The Chief will review the design of the tanks, including the foundation, structural support, seams and pressure controls. The Chief shall require that a minimum shell thickness be maintained at all times to ensure sufficient shell strength. Factors to be considered in establishing minimum thickness include the width, height, and materials of construction of the tank, and the specific gravity of the waste which will be placed in the tank. In reviewing the design of the tank and establishing a minimum thickness, the Chief shall rely upon appropriate industrial design standards and other available information.

8.8.3 General Operating Requirements

8.8.3.a Wastes and other materials (e.g., treatment reagents) which are incompatible with the material of construction of the tank must not be placed in the tank unless the tank is protected from accelerated corrosion, erosion or abrasion through the use of:

8.8.3.a.1 An inner liner or coating which is compatible with the waste or material and which is free of leaks, cracks, holes or other deterioration; or

8.8.3.a.2 Alternative means of protection (e.g., cathodic protection or corrosion inhibitors).

8.8.3.b The owner or operator must use appropriate controls and practices to prevent overfilling. These must include:

8.8.3.b.1 Controls to prevent overfilling (e.g., waste feed cutoff system or by-pass system to a standby tank); and

8.8.3.b.2 For uncovered tanks, maintenance or sufficient freeboard to prevent overtopping by wave or wind action or by precipitation. The freeboard shall not be less than 60 centimeters (2 feet) unless the permittee can demonstrate to the Chief that an alternate freeboard level will be sufficient to prevent overtopping.

8.8.4 Inspections

8.8.4a The owner or operator must inspect:

8.8.4.a.1 Overfilling control equipment (e.g., waste feed cut-off systems and by-pass systems) at least once each operating day to ensure that it is in good working order.

8.8.4.a.2 Data gathered from monitoring equipment (e.g., pressure and temperature gauges) where present, at least once each operating day to ensure that the tank is being operated according to design.

8.8.4.a.3 For uncovered tanks, the level of waste in the tank, at least once each operating day to ensure compliance with Section 8.8.3(b).

8.8.4.a.4 The construction materials of above-ground portions of the tank, at least weekly to detect corrosion or erosion and leaking of fixtures and seams.

8.8.4.a.5 The area immediately surrounding the tank, at least weekly, to detect obvious signs of leakage (e.g., wet spots, or dead vegetation).

8.8.4.b As part of the inspection schedule required in Section 8.2.6(b) and in addition to the specific requirements of paragraph (a) of this section, the owner or operator must develop a schedule and procedure for assessing the condition of the tank. The schedule and procedure must be adequate to detect cracks, leaks, corrosion and erosion which may lead to cracks or leaks, or wall thinning to less than the thickness required under Section 8.8.2. Procedures for emptying a tank to allow entry and inspection of the interior must be established when necessary to detect corrosion or erosion of the tank sides and bottom. The frequency of these assessments must be based on the material of construction of the tank, type of corrosion or erosion protection used, rate of corrosion or erosion observed during previous inspections, and the chracteristics of the waste being treated or stored.

8.8.4.c As part of the contingency plan required under Section 8.4 the owner or operator must specify the procedures to be used to respond to tank spills or leakage including procedures and timing for expeditious removal of leaked or spilled waste and repair of the tank.

8.8.5 Closure

8.8.5.a At closure, all hazardous waste and hazardous waste residues must be removed from tanks, discharge control equipment, and discharge confinement structures.

8.8.5.b At closure, as throughout the operating period, unless the owner or operator can demonstrate in accordance with Section 3.1.2.d

that the waste removed from the tank is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and must manage it in accordance with all applicable State laws and regulations promulgated thereunder.

8.8.6 Special Requirements for Ignitable or Reactive Wastes

8.8.6.a Ignitable or reactive waste must not be placed in a tank unless:

8.8.6.a.1 The waste is treated, rendered, or mixed before or immediately after placement in the tank so that the resulting waste, mixture, or dissolution of material no longer meets the definition or ignitable or reactive waste and Section 8.2.8 is complied with; or

8.8.6.a.2 The waste is stored or treated in such a way that it is protected from any material or conditions which may cause the waste to ignite or react; or

8.8.6.a.3 The tank is used solely for emergencies.

8.8.6.b The owner or operator of a facility which treats or stores ignitable or reactive waste in covered tanks must comply with the National Fire Protection Association's (NFPA's) buffer zone requirements for tanks, contained in Tables 2-1 through 2-6 of the "Flammable and Combustible Liquids Code --1981."

8.8.7 Special Requirements for Incompatible Wastes

8.8.7.a Incompatible wastes or incompatible wastes and materials, must not be placed in the same tank, unless Section 8.2.8.b is complied with.

8.8.7.b Hazardous waste must not be placed in an unwashed tank which previously held an incompatible waste or material unless Section 8.2.8(b) is complied with.

8.9 Surface Impoundments

8.9.1 Applicability

8.9.1.a The regulations in this section apply to owners and operators of facilities that use surface impoundments to treat, store; or dispose of hazardous waste, except as Section 8.1 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 or level controllers, alarms and other equipment, precipitation and 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 (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, except as provided in (f) of this section.

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 Existing facilities are exempt from the requirements outlined in Sections 8.9.2(c), (e), 8.9.4(a)(1), (c), (d), 8.9.6, 8.9.10(c)(2) and (d) provided that paragraph (2) of this section is complied with.

8.9.2.f.2 The owner or operator, in order to qualify for the exemption in (1) above, 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 (f)(4) of this Section.

8.9.2.f.3 If statistically significant increases of hazardous constituents are detected as outlined in Section 8.13.8(d) 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 (if ground water contamination has been determined).

8.9.2.f.4 If the owner or operator determines that the corrective action program being implemented under Section 8.13.09 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.i Retrofit the unit with liners; in accordance with Section 8.9.4(a)(1);

8.9.2.f.4.ii Stop the leak;

8.9.2.f.4.iii Continue the operation of the unit, (while concurrently developing/implementing an alternate treatment, storage or disposal method), for a period of five years at which time the unit must be closed; or

8.9.2.f.4.iv 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.iv.A Potential adverse effects on groundwater quality, considering:

8.9.2.f.iv.A.1 The physical and chemical characteristics of the waste in the regulated unit, including its potential for migration;

8.9.2.f.4.iv.A.2 The hydrogeological characteristics of the facility and surrounding land;

8.9.2.f.4.iv.A.3 The quantity of ground water and the direction of ground water flow;

8.9.2.f.4.iv.A.4 The proximity and withdrawal rates of ground water users;

8.9.2.f.4.iv.A.5 The current and future uses of ground water in the area;

8.9.2.f.4.iv.A.6 The existing quality of ground water, including other sources of contamination and their cumulative impact on the ground water quality;

8.9.2.f.4.iv.A.7 The potential for health risks caused by human exposure to waste constituents;

8.9.2.f.iv.A.8 The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents;

8.9.2.f.4.iv.A.9 The persistence and permanence of the potential adverse effects; and

8.9.2.f.4.iv.B Potential adverse effects on hydraulically connected surface water quality, considering:

8.9.2.f.4.iv.B.1 The volume and physical and chemical characteristics of the waste in the regulated unit;

8.9.2.f.4.iv.B.2 The hydrogeological characteristics of the facility and surrounding land;

8.9.2.f.iv.B.3 The quantity and quality of ground water, and the direction of ground water flow:

8.9.2.f.4.iv.B.4 The patterns of rainfall in the region;

8.9.2.f.4.iv.B.5 The proximity of the regulated unit to surface waters;

8.9.2.f.4.iv.B.6 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.iv.B.7 The existing quality of surface water, including other sources of contamination and the cumulative impact on surface water quality;

8.9.2.f.4.iv.B.8 The potential for health risks caused by human exposure to waste constituents;

8.9.2.f.4.iv.B.9 The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and

8.9.2.f.4.iv.B.10 The persistence and permanence of the potential adverse effects.

8.9.2.f.4.iv.C In making any determination under paragraph (4) of this section concerning the use of ground water in the area around the facility, the Chief will consider any identification of underground sources of drinking water and exempted aquifers made under the West Virginia Administrative Regulations of the State Water Resources Board Chapter 20, Article 5E, Series IV (1983).

8.9.3 Operating Requirements

8.9.3.a A surface impoundment must be operated and maintained to prevent any overtopping resulting from normal and abnormal operations, wind and wave action, overfilling, precipitation, malfunctions of level controllers, alarms and other equipment, and 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 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 and/or leachate 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 and/or leachate 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.i 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.ii 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; and

8.9.4.a.1.iii Installed to cover all surrounding earth likely to be in contact with the waste and leachate; and

8.9.4.a.1.iv Constructed to be free of lenses, cracks, channels, holes, or other structural nonuniformities; and

8.9.4.a.1.v 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 nomore than 1 x 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 lower most liner components) which must be located at a minimum of 3 feet above the highest known seasonal water table elevation. This 3 foot distance may be achieved by elevating the surface impoundment artificially or by the non-mechanical 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 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, 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 Section 8.09.03(a), (b) and (c) 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).

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 8.09.05(b), 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.i The stress of the pressure head of liquids placed into the impoundment;

8.9.5.c.1.ii 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.iii 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.iv 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 paragraph (d) of this section. 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 (b) of this section, 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' Emergency Notification Number 1-800-642-3074.

8.9.6.c.4 If all leaks specified in (b) of this section (including leaks not evident at the surface) cannot be stopped by any other means, empty the impoundment.

8.9.6.c.5 Within 15 days after detecting the leak, submit to the Chief a written report of the problem and corrective measures taken.

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 8.04, the owner or operator must specify:

8.9.6.d.1 A procedure for complying with the requirements of (c) of this section; 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 (b) of this section 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 (b) of this section and that is not being repaired must be closed in accordance with Section 8.09.07.

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 is subject to the requirements of the 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 8.09.10). 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 8.9.2f of these regulations must:

1. Prepare a contingent plan for complying with Sections 8.9.10(a)(1), (a)(2) and (b) of these regulations in case not all contaminated

subsoils can be practicably removed at closure; and

2. Prepare a contingent post-closure plan for complying with Section 8.9.10c, except paragraph 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 Ignitable or reactive waste must not be placed in a surface impoundment unless: 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 is complied with; or

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 Incompatible Wastes

Incompatible wastes, or incompatible wastes and materials must not be placed in the same surface impoundment, unless Section 8.2.8.b is complied with.

8.9.10 Additional Requirements for Impoundments Used for Disposal of Hazardous Wastes

In addition to all the other requirements of this section, when an owner or operator leaves wastes, or 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;

8.9.10.a.2 Stabilize the remaining wastes to a bearing capacity sufficient to support the final cover;

8.9.10b 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 x 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, 13.00, 15.1 and 15.3 including maintenance and monitoring throughout the post closure period (specified in the permit under Section 8.6.7). 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;

8.9.10.c.4 Prevent run-on and run-off from eroding or otherwise damaging the cover; and

8.9.10d 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.i Immediately notify the Chief through the Division of Water Resources' Emergency Notification Number 1-800-642-3074.

8.9.10.d.1.ii Within 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.

Section 8.10 Waste Piles

8.10.1 Applicability

8.10.1a The regulations in this section apply to owners and operators of facilities that store or treat hazardous waste in piles, except as Section 8.1 provides otherwise.

8.10.1b (Reserved)

8.10.1c 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 with respect to these 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 run-off 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 during the active life (including the closure period) of the waste pile. The liner must be:

8.10.2.a.1.i 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.ii 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; and

8.10.2.a.1.iii At least three (3) feet above the seasonal high water table; and

8.10.2.a.1.iv 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.1.i Constructed of materials that are:

8.10.2.a.2.i.A Chemically resistant to the waste managed in the pile and the leachate expected to be generated; and

8.10.2.a.2.i.B 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.ii 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 run-off is a hazardous waste under Section 3.00, it must be managed as a hazardous waste in accordance with all applicable requirements. If collected leachate or run-off is discharged through a point source to waters of the State, it is subject to the requirements of the 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 run-off management system to collect and control at least

the water volume resulting from a 24-hour, 25-year storm.

8.10.2.d Collection and holding facilities (e.g., tanks or basins) associated with run-on and run-off 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 this section 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.

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;

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.

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' Emergency Notification Number 1-800-642-3074;

8.10.3.b.2 Within 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 8.10.06.

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 8.02.06 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.

8.10.4.a.3 The requirements listed in section 8.10.2.a and Section 8.10.2.b.

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' Emergency Notification Number 1-800-642-3074.

8.10.4.b.2 Within 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 8.10.06.

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; and

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 run-off control systems;

8.10.5.b.2 The presence of liquids in the leachate detection systems, where installed to comply with Section 8.10.03;

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 (d) of this section. 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 (b) of this section, 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.

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 the owner or operator must specify:

8.10.6.d.1 All procedures, and design and operating specifications for complying with the requirements of (c) of this section; 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 (b) of this section 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 (b) of this section and that is not being repaired must be closed in accordance with Section 8.10.09.

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 is subject to the requirements of the Water Pollution Control Act and all regulations promulgated thereunder.

8.10.7 Special Requirements for Ignitable or Reactive Waste

8.10.7.a Ingnitable 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 8.02.08; 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 material must not be placed in the same pile, unless Section 8.02.8 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 8.02.8.

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 paragraph (c) of this Section. 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 8.02.2; 8.02.3; 8.02.4; 8.02.5; 8.02.6; 8.02.7; and 8.02.8.

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 paragraph (a) of this Section due to technical infeasibility, then the owner or operator must submit an application for modifying the permit pursuant to section 11.17. Such application must contain all information which demonstrates compliance with the requirements for managing a landfill, pursuant to Sections 8.11, 11.00 and 13.00

8.11 Landfills

8.11 Landfills

8.11.1 Applicability

The regulations in this section apply to owners and operators of facilities that dispose of hazardous waste in landfills, except as Section 8.1 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 and/or leachate 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 and/or leachate 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.i 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.ii 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.iii Installed to cover all surrounding earth likely to be in contact with the waste and leachate;

8.11.2.a.1.iv Constructed to be free of lenses, cracks, channels, holes, or other structural nonuniformities; and

8.11.2.a.1.v 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 x 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.i Constructed of materials that are:

8.11.2.a.2.i.A Chemically resistant to the waste managed in the landfill and the leachate expected to be generated; and

8.11.2.a.2.i.B 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; and

8.11.2.a.2.ii Must be overlain by a graded granular material assuring a hydraulic conductivity of 1 x 10-3 cm/sec placed with a minimum slope of 2%.

8.11.2.a.2.iii Designed and operated to function without clogging through the operating life and scheduled closure and post closure period of the landfill.

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 run-off 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 run-off 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 3 feet above the highest known seasonal water table elevation. This 3 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 this section 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), (c)(3), and (d) provided that paragraph (i)(1), is complied with.

8.11.2.i.1 The owner or operator, in order to qualify for the exemption in paragraph (i) above, 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 paragraph (j) of this Section.

8.11.2.i.2 If statistically significant increases of hazardous constituents are detected as outlined in Section 8.13.08(d) 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 (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 8.13.09 is in sufficient 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 8.11.01(a)(1);

8.11.2.j.2 Stop the leak;

8.11.2.j.3 Continue the operation of the unit, (while concurrently developing/implementing an alternate treatment, storage, or disposal method), for a period of five 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 and 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.i Potential adverse effects on ground water quality, considering:

8.11.2.j.4.i.A The physical and chemical characteristics of the waste in the regulated unit, including its potential for migration;

8.11.2.j.4.i.B The hydrogeological characteristics of the facility and surrounding land;

8.11.2.j.4.i.C The quantity of ground water and the direction of ground water flow;

8.11.2.j.4.i.D The proximity and withdrawal rates of ground users;

8.11.2.j.4.i.E The current and future uses of ground water in the area;

8.11.2.j.4.i.F The existing quality of ground water, including other sources of contamination and their cumulative impact on ground water quality;

8.11.2.j.4.i.G The potential for health risks caused by human exposure to waste constituents;

8.11.2.j.4.i.H The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents;

8.11.2.j.4.i.I The persistence and permanence of the potential adverse effects; and

8.11.2.j.4.ii Potential adverse effects on hydraulically connected surface water quality, considering:

8.11.2.j.4.ii.A The volume and physical and chemical characteristics of the waste in the regulated unit;

8.11.2.j.4.ii.B The hydrogeological characteristics of the facility and surrounding land;

8.11.2.j.4.ii.C The quantity and quality of ground water, and the direction of ground water flow;

8.11.2.j.4.ii.D The patterns of rainfall in the region;

8.11.2.j.4.ii.E The proximity of the regulated unit to surface waters;

8.11.2.j.4.ii.F 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.ii.G The existing quality of surface water, including other

sources of contamination and the cumulative impact on surface water quality;

8.11.2.j.4.ii.H The potential for health risks caused by human exposure to waste constituents;

8.11.2.j.4.ii.I The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and

8.11.2.j.4.ii.J The persistence and permanence of the potential adverse effects.

8.11.2.j.4.iii In making any determination under paragraph (4) of this section concerning the use of ground water in the area around the facility, the Chief will consider any identification of underground sources of drinking water and exempted aquifers made under the West Virginia Administrative Regulations of the State Water Resources Board, Chapter 20, Article 5A, Series IX (1983).

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; and

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, ornonuniformities, 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 run-off 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.

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, he 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; Emergency Notification Number 1-800-642-3074.

8.11.4.c.6 Within 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 the owner or operator must specify:

8.11.4.d.1 A procedure for complying with the requirements of (c) of this section, 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 inaccordance with (b) of this section 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 (b) of this section and that is not being repaired must be closed

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; Emergency Notification Number 1-800-642-3074 and follow with written notification within 7 days of detecting the leak.

8.11.3.c.2 Within 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.

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 this section 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 (d) of this section. 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.

8.11.4b 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.

8.11.4c If the landfill must be removed from service as required by (b) of this section, 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; Emergency Notification Number 1-800-642-3074.

8.11.4.c.6 Within 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 the owner or operator must specify:

8.11.4.d.1 A procedure for complying with the requirements of (c) of this section; 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 (b) of this section 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 (b) of this section and that is not being repaired must be closed

in accordance with Section 8.11.11.

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 is subject to the requirements of the Water Pollution Control Act and all regulations promulgated thereunder.

8.11.5 - 11.11.9 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:

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 and/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; and

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 including maintenance and monitoring throughout the post closure period (specified in the permit under Section 8.6.7). 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, 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 run-off 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.

8.11.11.d During the post-closure period, if liquid leaks into a leachate detection system installed under Section 8.11.2, the owner or operator must:

8.11.11.d.1 Immediately notify the chief through the Division of Water Resources' Emergency Notification Number 1-800-642-3074 followed with written notification within 7 days of detecting the leak.

8.11.11.d.2 Within 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.

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 paragraph (b) of this section, 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) is complied with.

8.11.13.b Non-liquid ignitable wastes in containers may be landfilled without meeting the requirements of paragraph (a) of this section, 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 non-combustible 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 materials, (see Appendix I of this section for examples) must not be placed in the same landfill cell, unless Section 8.2.8.b is complied with.

8.11.15 Restrictions on Liquid Waste

8.11.15a Bulk or non-containerized 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 8.11.2; 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.

8.11.15b 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 drum (lab pack) as defined in Section 8.11.17 and is disposed of in accordance with Section 8.11.17.

8.11.16 Special Requirements for Containers

Containers must be either:

8.11.16.a At least 90 percent 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 Department of Transportation (DOT) hazardous materials regulations (49 CFR 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 CFR 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.

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 non-reactive prior to packaging in accordance with paragraphs (a) through (d) of this section. Cyanide and sulfide bearing reactive waste may be packed in accordance with paragraphs (a) through (d) of this section without first being treated or rendered non-reactive.

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 increases permeability).

8.11.19 - 8.11.40 (Reserved)

8.12 Land Treatment

8.12.1 Applicability

The regulations in this section apply to owners and operators of facilities that treat or dispose of hazardous waste in land treatment units, except as Section 8.1 provides otherwise.

8.12.2 Treatment Program

8.12.2.a An owner or operator subject to this section 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;

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; and

8.12.2.a.3 Unsaturated zone monitoring provisions meeting the requirements of Section 8.12.9.

8.12.2.b The chief will specify in the facility permit the hazardous constituents that must be degraded, transformed, or immobilized under this section. Hazardous constituents are constituents identified in Appendix VIII of Section 3 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 paragraph (a) of this section, he must obtain a treatment or disposal permit under Section 11. 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 paragraph (c) of this section.

8.12.3.c Any field test or laboratory analysis conducted in 8.12.3.c order to make a demonstration under paragraph (a) of this section 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.i The characteristics of the waste (including the presence of Appendix VIII constituents);

8.12.3.c.1.ii The climate in the area,

8.12.3.c.1.iii The topography of the surrounding area,

8.12.3.c.1.iv The characteristics of the soil in the treatment zone (including depth); and

8.12.3.c.1.v 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.i The characteristics of the waste to be tested,

8.12.3.c.3.ii The operating and monitoring measures taken during the course of the test;

8.12.3.c.iii The duration of the test,

8.12.3.c.3.iv The volume of waste used in the test, and

8.12.3.c.v 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 this section.

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. 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, 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 run-off 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 run-off management system to collect and control at least the water volume resulting from a 24-hour, 25-year storm.

8.12.4.e Collection and holding facilities (e.g., tanks or basins) associated with run-on and run-off 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/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 run-off control systems; and

8.12.4.h.2 Improper functioning of wind dispersal control measures.

8.12.5 - 8.12.6 (Reserved)

8.12.7 Food Chain Crops

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 this section. 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.i 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.ii Will not occur in greater concentrations in or on the food or feed portions of crops grown on the treatment zone than in or 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 this paragraph prior to the planting of crops at the facility for all constituents identified in Appendix VIII of Section 3 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 this paragraph, the owner, or operator may use field tests, greenhouse studies, available data, or, in the case of existing units, operating data, and must;

8.12.7.a.3.i Base the demonstration on conditions similar to those present in the treatment zone, including soil characteristics (e.g., pH, cation exchange capacity), specific wastes, application rates, application methods, and crops to be grown; and

8.12.7.a.3.ii 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 this paragraph, he must obtain a permit for conducting such activities.

8.12.7b 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.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.ii The annual application from cadmium from waste must not exceed .44 lbs/acre on land used for production of tobacco, leafy vegetables, or root crops grown for human consumption. For other food

chain crops, the annual cadmium application rate must not exceed:

Time Period	Annual Cd application rate lbs/acre
Present to June 30, 1984	1.78
July 1, 1984 to December 31, 1986	1.11
Beginning January 1, 1987	.44

8.12.7.b.1.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.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.i Animal feed must be the only food chain crop produced;

8.12.7.b.2.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.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.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 paragraph (b)(2) of this section.

8.12.8 (Reserved)

8.12.9 Unsaturated Zone Monitoring

An owner or operator subject to this section 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.

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. 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 paragraph (a) of this section. 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 paragraph (f) of this section.

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 paragraph (b) (1) of this section.

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 paragraph (f) of this section.

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 paragraph (a) of this section below the treatment zone each time he conducts soil monitoring and soil-pore liquid monitoring under paragraph (d) of this section.

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 paragraph (d) of this section, to the background value for that constituent according to the statistical procedure specified in the facility permit under this paragraph.

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 faiclity 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.i Is appropriate for the distribution of the data used to establish background values; and

8.12.9.f.3.ii 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 paragraph (f) of this section, 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.

8.12.9.g.2 Within 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 paragraph (f) of this section, that there is a statistically significant increase of hazardous constituents below the treatment zone, he may demonstrate that the increase resulted form an error in sampling, analysis, or evaluation. While the owner or operator may make a demonstration under this paragraph in addition to, or in lieu of, submitting a permit modification application under paragraph (g)(2) of this section, he is not relieved of the requirement to submit a permit modification application within the time specified in paragraph (g)(2) unless the demonstration made under this paragraph successfully shows that the increase resulted from an error in sampling, analysis, or evaluation. In making a demonstration under this paragraph, 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 this paragraph;

8.12.9.h.2 Within 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 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 this section.

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.

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), except to the extent such measure are inconsistent with paragraph (a)(8 of this section;

8.12.11.a.2 Continue all operations in the treatment zone to minimize run-off of hazardous constituents as required under Section 8.12.4(b);

8.12.11.a.3 Maintain the run-on control system required under Section 8.12.4(c);

8.12.11.a.4 Maintain the run-off management system required under Section 8.12.4(d);

8.12.11.a.5 Control wind dispersal of hazardous waste if required under Section 8.12.4(f);

8.12.11.a.6 Continue to comply with any prohibitions or conditions concerning growth of food chain crops under Section 8.12.7;

8.12.11.a.7 Continue unsaturated zone monitoring in compliance with Section 8.12.09, except that soil-pore liquid monitoring may be terminated 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 8.06.06, 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);

8.12.11.c.4 Maintain the run-off management system required under Section 8.12.4(d);

8.12.11.c.5 Control wind dispersal of hazardous waste if required under Section 8.12.04(f);

8.12.11.c.6 Continue to comply with any prohibitions or conditions concerning growth of food chain crops under Section 8.12.7; and

8.12.11.c.7 Continue unsaturated zone monitoring in compliance with Section 8.12.9 except that soil-pore liquid monitoring may be terminated 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 paragraphs (a)(8) and (c) of this section 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 paragraph (d)(3) f this section. 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 this paragraph:

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).

8.12.11.d.1.i 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.ii 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 paragraph (d)(3) of this section.

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.i Is appropriate for the distribution of the data used to establish background values; and

8.12.11.d.3.ii 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 paragraph (d) of this section and if unsaturated zone monitoring under Section 8.12.9 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 3.3.4 of these regulations; and

8.12.12.a.2 Section 8.2.8(b) 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 materials (see Appendix V for examples), in or

on the same treatment zone, unless Section 8.2.8.b is complied with.

8.12.14 - 8.12.30 (Reserved)

Section 8.13 Groundwater Protection

8.13.1 Applicability

8.13.1.a Except as provided in paragraph (b) of this section, the regulations in Section 8.13 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. The owner or operator must satisfy the requirements of Section 8.13 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 (hereinafter referred to as a "regulated unit"). Any waste or waste constituent migrating beyond the waste management area under Section 8.13.05(b) 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 if:

8.13.1.b.1 He is exempted under Section 8.01;

8.13.1.b.2 He designs and operates a pile in compliance with Section 8.10.01(c);

8.13.1.b.3 The Chief finds, pursuant to Section 8.12.11(d), 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 has not shown a statistically significant increase in hazardous constituents below the treatment zone during the operating life of the unit. An exemption under this paragraph can only relieve an owner or operator of responsibility to meet the requirements of Section 8.13 during the post closure care period.

8.13.1.c The regulations under Section 8.13 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:

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 8.06.07 in all other cases.

8.13.2 Required Programs

8.13.2.a Owners and operators subject to Section 8.13 must conduct a monitoring and corrective action program as follows:

8.13.2.a.1 Whenever the Water Resources Board's Groundwater Protection Standard Regulations Series VII, Section 1 is exceeded, the owner or operator must institute a corrective action program under Section 8.13.9;

8.13.2.a.2 In all other cases, the owner or operator mustinstitute a groundwater monitoring program under Section 8.13.8.

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.

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 paragraph (a) of this section. 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 thefollowing information:

8.13.2.b.1 A description of corrective actions that will achieve compliance with the Water Resources Board's Groundwater Protection Standard Regulation Series VII, Section 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.

8.13.3 (Reserved)

8.13.4 Hazardous Constituents

The Chief will specify in the permit the hazardous constituents to which the Water Resources Board's Groundwater Protection Standard Regulation, Series VII, Section 1 applies. Hazardous constituents are constituents identified in Appendix VIII of Section 3 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 1 of Section 3.3.5 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 Water Resources Board's Groundwater Protection Standard Regulation Series VII, Section 1 applies 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 8.13.9.

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 paragraph (a) of this section, the compliance period is extended until the owner or operator can demonstrate that the Water Resources Board's Groundwater Protection Standard Regulation, Series VII, Section 1 has 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 8.13.07(c). The screened interval of an individual well should not exceed 20 feet (screened intervals greater than 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 non-reactive, non-synergistic and non-catalytic to the hazardous constituents being monitored;

8.13.7.b.5 The annular space (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 this section.

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 8.13.05(b)(2).

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 8.13.04 and/or reaction products that provide a reliable indication of the presence of hazardous constituents in groundwater. The Chief will specify the monitoring parameters (indicator parameters and/or reaction products) and constituents to be monitored in the permit, after considering the following factors:

8.13.8.a.1.i The types, quantities, and concentrations of hazardous constituents in wastes managed at the regulated unit;

8.13.8.a.1.ii 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.iii The detectability of indicator parameters, hazardous constituents, and reaction products in groundwater; and

8.13.8.a.1.iv 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 8.13.05. The groundwater monitoring system must comply with Section 8.13.07.

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.i Sample collection;

8.13.8.a.3.ii Sample preservation and shipment;

8.13.8.a.3.iii Analytical procedures; and

8.13.8.a.3.iv 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 CFR 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 this section, he must, within 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 Water Resources Board's Groundwater Protection Standard Regulation, Series VII, Section 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.i The background concentration for a hazardous constituent must be based on data from upgradient wells.

8.13.8.b.1.ii 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.iii 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 (b)(1)(v) of this section must be used when utilizing the statistical test outlined in Section 8.13.8.c.

8.13.8.b.1.iv 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.v 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 (c) of this section.

8.13.8.c Statistical method:

The owner or operator must use the following statistical procedure in determining whether the Water Resources Board's Groundwater Protection Standard Regulation, Series VII, Section 1 has 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 it's 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.i 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 II. 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.ii 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 paragraph (c)(1)(i) of this section. 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 (Appendix III) 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.i Is appropriate for the distribution of the data used to establish concentration values; and

8.13.8.c.3.ii 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 8.13.07 and which fulfills the requirements of Section 8.13.08.

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 paragraph (a)(1) of this section each time he determines the concentration of hazardous constituents or monitoring parameters in the groundwater at the point of compliance under paragraph (b)(2) of this section.

8.13.8.d.1.i 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 8.13.08(c).

8.13.8.d.1.ii 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 paragraph (d)(1) of this section, that there is a statistically significant increase in the concentrations of any monitoring parameter or hazardous constituents specified pursuant to paragraph (a)(1) of this section at any monitoring well at the point of compliance, he must:

8.13.8.d.2.i 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.ii Immediately sample the groundwater in all monitoring wells and determine the concentration of all constituents identified in Appendix VIII of Section 3 of these regulations that are present in ground water;

8.13.8.d.2.iii Establish a background value for each Appendix VIII constituent that has been found at the compliance point under paragraph (d)(2)(ii) of this section as follows:

8.13.8.d.2.iii.A. The owner or operator must comply with Section 8.13.8.b in developing the data base used to determine background values;

8.13.8.d.2.iii.B. 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; and

8.13.8.d.2.iii.C. In taking samples used in the determination of background values, the owner or operator must use a groundwater monitoring system that complies with Section 8.13.7.a, (b), (c), and (d);

8.13.8.d.2.iv Within 60 days submit to the Chief a written report including the following information:

8.13.8.d.2.iv.A. Any proposed changes to the groundwater monitoring system at the facility necessary to meet the requirements of Section 8.13.9;

8.13.8.d.2.iv.B. 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;

8.13.8.d.2.iv.C. An identification of the concentration of any Appendix VIII constituents found in the groundwater at each monitoring well at the compliance point; and

8.13.8.d.2.iv.D. If such changes are proposed under (A) and (B) of this subsection, then an application for permit modification must be submitted, with the report, pursuant to Section 11.17; and,

8.13.8.d.2.v If the owner or operator determines, pursuant to paragraph (d)(1) of this section, that there is a statistically significant increase in the concentrations of hazardous constituents specified pursuant to paragraph (a)(1) of this section at any monitoring well at the point of compliance (thereby violating the Water Resources Board's Groundwater Protection Standard Regulation, Series VII, Section 1), he must comply with the provisions of the corrective action program specified in the permit, unless the Chief determines that a demonstration made under paragraph (d)(3) of this section 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 paragraph (d)(1) of this section, that the Water Resources Board's Groundwater Protection Standard Regulation, Series VII, Section 1 if 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 this paragraph, the owner or operator must;

8.13.8.d.3.i Notify the Chief in writing within seven (7) days that he

intends to make a demonstration under this paragraph;

8.13.8.d.3.ii Within 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.iii Within 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.iv Continue to monitor in accord with the groundwater monitoring program established under this section.

8.13.9 Corrective Action Program

An owner or operator, required to establish a corrective action program under Section 8.13 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 Water Resources Board's Groundwater Protection Standard Regulation, Series VII, Section 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 Water Resources Board's Groundwater Protection Standard Regulation, Series VII, Section 1, is exceeded.

8.13.9.d.1 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 8.13.08 and must be as effective as that program in determining compliance with the Water Resources Board's Groundwater Protection Standard Regulation, Series VII, Section 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 Section 3 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 this section, the owner or operator must conduct a corrective action program to remove any hazardous constituents under Section 8.13.4 that exceed their respective background concentrations in groundwater at the point of compliance under Section 8.13.6 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 this paragraph must be initiated and completed within a reasonable time considering the extent of contamination.

8.13.9.e.2 Corrective action measures under this paragraph 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 Water Resources Board's Groundwater Protection Standard Regulation, Series VII, Section 1 is 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 paragraph (d) of this section, that the Water Resources Board's Groundwater Protection Standard Regulation, Series VII, Section 1, has 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 semi-annually.

8.13.9.h If the owner or operator determines that the corrective action program no longer satisfies the requirements of this section, he must, within 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 15 days of the determination made under Section 8.13.08(d). The owner or operator must obtain approval to implement any alternate corrective action plan from the Chief and begin implementation of such plan, within 90 days of the determination made under Section 8.13.08(d). If the alternate plan is not approved or in effect within 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 - 8.13.20 (Reserved)

APPENDIX I - Recordkeeping Instructions

The recordkeeping provisions of Section 8.5.4 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 8.5.4b for additional recordkeeping 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:

A. Records of each hazardous waste received, treated, stored, or disposed of at the facility which include the following:

A.1 A description by its common name and the EPA Hazardous Waste Number(s) from Section 3 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, the description also must include the process that produced it (for example, solid filter cade from production of _____, EPA Hazardous Waste Number W051).

Each hazardous waste listed in Section 3.4 and each hazardous waste characteristic defined in Section 3.8 has a four-digit EPA Hazardous Waste Number assigned to it. This number must be used for recordkeeping 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.

A.2 The estimated or manifest-reported weight, or volume and density, where applicable, in one of the units of measured specified in Table 1;

A.3 The method(s) (by handling code(s) as specified in Table 2) and date(s) of treatment storage, or disposal.

APPENDIX I - Continued

TABLE 1

Unit of Measure	Symbol	Density
Pounds	P	
Short tons (2000 lbs)	T	
Gallons (U.S.)	G	P/G
Cubic yards	Y	T/Y
Kilograms	K	
Tonnes (1000 kg)	M	
Liters	L	K/L
Cubic meters	C	M/C

Single digit symbols are used here for data processing purposes.

TABLE 2 - 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
T33 Photolysis
T34 Other (specify)

(c) Physical Treatment

(1) 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)

(2) 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 Stipping
T65 Sand filter
T66 Other (specify)

(d) Biological Treatment

T67 Activated sludge
T68 Aerobic lagoon
T69 Aerobic tank
T70 Anaerobic lagoon
T71 Composting
T72 Septic tank
T73 Spry irrigation
T74 Thickening filter
T75 Tricking filter
T76 Waste stabilization pond
T77 Other (specify)
T78-79 (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 II

Cochran's Approximation to the Behrens-Fisher Student's t-test

Using all the available background data (n_b readings), calculate the background mean ($\bar{X}_B$) and background variance (s^2_B). For the single monitoring well under investigation (n_m reading), calculate the monitoring mean (X_m) and monitoring variance (s^2_m).

For any set of data (X_1, X_2, . . . X_n) the mean is calculated by:

$$X = \frac{X_1 + X_2 + \ldots + X_n}{n}$$

and the variance is calculated by:

$$s = \frac{(X_1 - \bar{X})^2 + (X_2 - \bar{X})^2 + \ldots + (X_n - \bar{X})^2}{n-1}$$

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_c). The t* value is compared to the t_c 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:

$$t^* = \frac{\bar{X}_m - \bar{X}_B}{\sqrt{\frac{s^2_m}{n_m} \quad \frac{s^2_B}{n_m}}}$$

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_c), against which t* will be compared necessitates finding t_b and t_n from standard (one-tailed) tables where,

t_B = t-tables with (n_B - 1) degrees of freedom, at the 0.05 level of significance.

t_m = t-tables with $(n_m - 1)$ degrees of freedom, at the 0.05 level of significance.

Finally, the special weightings W_B and W_m are defined as:

$$W_B = \frac{s_B^2}{n_B} \quad \text{and} \quad W_m = \frac{s_m^2}{n_m}$$

and so the comparison t-statistic is:

$$t_c = \frac{W_B t_B + W_m t_m}{W_B + W_m}$$

The t-statistic (t*) is now compared with the comparison t-statistic (t_c) using the following decision-rule:

If t* is equal to or larger than t_c, then conclude that there most likely has been a significant increase in this specific parameter.

If t* is less than t_c, 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 t for pH and similar monitoring parameters.

If t* is equal to or larger than t_c, 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_c, 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 J. H. Torrie.

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" (1947, R. A. Fisher and F. Yates.)

APPENDIX III

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 ed., 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.

Section 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 This Section applies to recyclable materials that are applied to or placed on the land;

9.3.1.a.1 without mixing with any other substances; or

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 paragraphs 9.3.1.a.1 through 9.3.1.a.3 will be referred to throughout this Section as "materials used in a manner that constitutes disposal."

9.3.1b 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

Generators and transporters of materials that are used in a manner that constitutes disposal are subject to applicable requirements of Sections 4, 5, and 6 of these regulations.

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.

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 and 11 of these regulations, and 40 CFR

Part 265, subparts A through L.

9.3.4 Standards Applicable to Users of Materials that are Used in a Manner that Constitutes Disposal

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 and 11 of these regulations, and 40 CFR Part 265, Subparts A through N. (These requirements do not apply to products which contain these recyclable materials under the provisions of paragraph 9.3.1b of these regulations.)

9.4 Hazardous Waste Burned for Energy Recovery

9.4.1 Applicability

9.4.1.a The regulations of this Subpart apply to hazardous wastes that are burned for energy recovery in any boiler or industrial furnace except as provided by paragraph 9.4.1.b of this section. 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.

9.4.1.b The following hazardous wastes are not regulated under this section:

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 3.3.2 of these regulations. Such used oil is subject to regulation under Section 9.5 of these regulations rather than this section and

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 small quantity generators under the provisions of Section 3.1.4 of these regulations.

9.4.1.b.3 Hazardous waste fuels that are exempt from the labeling requirements of RCRA Section 3004(r).

9.4.1.b.4 Coke from the iron and steel industry that contains hazardous waste from the iron and steel production process.

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 9.4.7 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.

9.4.3.c Generators who are burners also must comply with Section 9.4.6.

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 9.4.7 exempts certain spent materials and by-products from these provisions.

9.4.4.b Transporters of hazardous waste fuel are not presently subject to regulation when they transport hazardous wastes fuel from marketers, who are not also the generators of the waste, to burners or other marketers.

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 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 Prohibitions (Reserved).

9.4.5.b Prohibitions (Reserved).

9.4.5.c.1 Storage. 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 and Section 11 of these regulations or 40 CFR Subparts A through L of Part 265 and Parts 270 and 124, except as provided by Section 9.4.7 of this Section for certain spent materials and by-products;

9.4.5.c.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 and Section 13 of these regulations or 40 CFR Subparts A through L of Part 265 and Parts 270 and 124, except as provided by Section 9.4.7 of this section for certain spent materials and by-products.

9.4.6 <u>Standards applicable to burners of hazardous waste fuel</u>

9.4.6.a (Reserved)

9.4.6.b Notification. (Reserved)

9.4.6.b.c Burners that store hazardous waste fuel prior to burning are subject to the requirements of Section 6.3.5 of this chapter, or to all applicable requirements in Sections 8.1 through 8.10, 8.13 and Section 13 of these regulations or 40 C.F.R. Subparts A through L of Part 265 or 40 CFR Part 265 of this chapter with respect to such storage, except as provided by Section 9.4.7 of this subpart for certain spent materials and by-products.

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 paragraph (b), 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 Chapter 20,Article 5E, Section 10, the generator, transporter, or storagerequirements of Chapter 20, Article 5E.

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 (Reserved)

9.6 Recyclable Materials Utilized for Precious Metal Recovery

9.6.a The regulations of this section apply to recyclable materials that are reclaimed to recover economically significant amounts of gold, silver, platinum, paladium, irridium, osmium, rhodium, ruthenium, or any combination of these.

9.6.b Persons who generate, transport, or store recyclable materials that are subject to this section are subject to the following requirements:

9.6b.1 notification requirements of Section 4;

9.6b.2 (analog to 262, Subpart B) (for generators), (analogs to 263.20 and 263.21) (for transporters), and 40 CFR Sections 265.71 and 265.72 (for persons who store).

9.6.c Persons who store recyclable materials that are subject to this section must keep the following records to document that they are not accumulating these materials speculatively (as defined in Section 3.1b of these regulation):

9.6c.1 records showing the volume of these materials stored at the beginning of the calendar year;

9.6c.2 the amount of these materials generated or received during the calendar year; and

9.6c.3 the amount of these materials remaining at the end of the calendar year.

9.6.d Recyclable materials that are regulated under this section that accumulated speculatively (as defined in Section 3.1b of these regulations) are subject to all applicable provisions of Sections 5 through 8 and 11 of these regulations and 40 CFR Part 265.

9.7 Reclaimed Spent Lead-Acid Batteries

9.7.a This section 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 or 11 of these regulations, nor 40 CFR Part 265.

9.7.b Owners or operators of facilities that store spent batteries before reclaiming them are subject to the following requirements:

9.7b.1 the notification requirements of Section 4 of these regulations;

9.7b.2 all applicable provisions of Sections 8.1 through 8.10 of these regulations, except Section 8.2.3 concerning waste analysis and 8.5.2 and 8.5.3 concerning use of the manifest and manifest discrepancies.

9.7b.3 all applicable provisions of Subparts A, B (but not Section 265.13 (waste analysis)), C, D, E (but not Sections 265.71 and 265.72 (dealing with use of the manifest and manifest discrepancies)), and F through L of 40 CFR Part 265; and

9.7b.4 all applicable provisions of Section 11 of these regulations.

Section 10. (Reserved)

Section 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, 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.

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 ninety (90) days as provided in Section 6.3.5.

11.1.2.b Farmers who dispose of hazardous waste pesticides from their own use as provided in Section 6.5.2.

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 this section by Sections 3.1.3 or 3.1.4.

11.1.2.d Owners or operators of totally enclosed treatment facilities, as defined in Section 2.

11.1.2.e Owners and operators of elementary neutralization units or wastewater treatment units as defined in Section 2.

11.1.2.f Transporters storing manifested shipments of hazardous waste in containers meeting the requirements of Section 6.3.1 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.i A discharge of a hazardous waste;

11.1.2.g.1.ii An imminent and substantial threat of a discharge of hazardous waste;

11.1.2.g.1.iii A discharge of a material which, when discharged, becomes a hazardous waste.

11.1.2.g.2 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 this Part for those activities.

11.1.2.h 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 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 this section. 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 their permit application to the Chief or a copy of Part A if it was already submitted to EPA.

11.2.4.b 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 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.c 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.

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 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 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 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 and/or operation of a hazardous waste management facility 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 below:

STORAGE

EPA Code	Activity	Fee	
S01	Drum	<100 tons capacity $1,000.00	≥100 tons capacity $3,000.00
S02	Tank	<100 tons capacity $1,000.00	≥100 tons capacity $3,000.00
S03	Waste Pile	<100 tons capacity $1,500.00	≥100 tons capacity $3,000.00
S04	Surface Impoundment	<1,000 tons capacity $2,500.00	≥1,000 tons capacity $3,000.00

DISPOSAL

EPA Code	Activity	Fee	
D80	Landfill	<1,000 tons/year $2,500.00	≥1,000 tons/year $5,000.00
D81	Land Application	<1,000 tons/year $2,500.00	≥1,000 tons/year $5,000.00
D83	Surface Impoundment	<1,000 tons/year $2,500.00	≥1,000 tons/year $5,000.00

TREATMENT

EPA Code	Activity	Fee	
T01	Tank	<100 tons capacity $1,000.00	≥100 tons capacity $3,000.00
T02	Surface Impoundment	<1,000 tons/year $2,500.00	≥1,000 tons/year $3,000.00
T03	Incinerator	<1,000 tons/year $1,000.00	≥1,000 tons/year $3,000.00
T04	Other		

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 Federal EPA established pursuant to Section 3005 of the Federal Solid Waste Disposal Act;

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 rules and regulations;

11.3.1.b.1 If the chief determines that a facility is not complying with the requirements of Section 11.3.1 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.2 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 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 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 deficien the may take appropriate enforcement action.

11.3.1c Any person who owns or operates an existing facility which was not previously required to have a permit under the Act because it managed no hazardous wastes identified or listed under Section 3.00 of these regulations, but which due to a revision of Section 3.00 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; and

11.3.1.c.2 Complies with and continues to operate in compliance with the interim status requirements of the federal Environmental Protection Agency established pursuant to Section 3005 of the Federal Solid Waste Disposal Act, as amended, if applicable within ninety (90) days from the effective date of such revision to Section 3, 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 apermit as required by Section 11 of these regulations.

11.3.2 Coverage

During the interim status period the facility shall not:

11.3.2a Treat, store, or dispose of hazardous waste not specified in Part A of the permit application.

11.3.2b Employ processes not specified in Part A of the permit application.

11.3.2c Exceed the design capabilities specified in Part A of the permit application.

11.3.3 Changes During Interim Status

11.3.3a 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.

11.3.3b 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.

11.3.3c 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; or

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 insafer or environmentally more acceptable processes.

11.3.3d 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. 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.

11.3.3e 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.

11.3.4 Interim Status Standards

During interim status, owners or operators shall comply with the interim status standards at 40 C.F.R Part 265.

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:

11.3.5.1 Failure to furnish requrested Part B application on time, or to furnish in full the information required by the Part B application; or

11.3.5.2 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.

11.3.5.3 A determination is made that the facility has failed to comply with the requirements of 20-5E-10 and the corresponding federal requirements at 40 C.F.R. 270.73 and 40 C.F.R. Part 265.

11.4 Contents of Part A

Part A of the application shall include the following information:

11.4a The activities conducted by the applicant which require it to obtain a Hazardous Waste Management Permit.

11.4b Name, mailing address, and location of the facility for which the application is submitted.

11.4c Up to four (4) SIC codes which best reflect the principal products or services provided by the facility.

11.4d The latitude and longitude of the facility.

11.4e The name, address, and telephone number of the owner of the facility.

11.4f An indication of whether the facility is new or existing and whether it is a first or revised application.

11.4g For existing facilities, a scale drawing of the facility showing the location of all past, present, and future treatment, storage and disposal areas.

11.4h 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.

11.4i The operator's name, address, telephone number, ownership status, and status as Federal, State, private, public, or other entity.

11.4j 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.j.1 Hazardous waste management program under RCRA,

11.4.j.2 UIC program under SDWA,

11.4.j.3 NPDES program under the Clean Water Act,

11.4.j.4 Prevention of significant deterioration (PSD) program under the Clean Air Act;

11.4.j.5 Non attainment program under the Clean Air Act,

11.4.j.6 National emission standards for hazardous pollutants (NESHAPS) pre-construction approval under the Clean Air Act;

11.4.j.7 Ocean dumping permits under the marine protection, Research and Sanctuaries Act;

11.4.j.8 Dredge or fill permits under section 404 of CWA, and

11.4.j.9 Other relevant environmental permits, including local permits.

11.4k A topographic map (or other map if a topographic mapis 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.

11.41 A brief description of the nature of the business.

11.4m A description of the processes to be used for treating, storing and disposing of hazardous waste, and the design capacity of these items.

11.4n A specification of the hazardous wastes listed or designated under Section 3 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.

11.4o The filing of a completed copy of an EPA Part A Application with the Chief shall constitute compliance with Section 11.4.

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. 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:

11.5.1a A general description of the facility.

11.5.1b 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.

11.5.1c A copy of the waste analysis plan required by8.2.4(b) and, if applicable, 8.2.4(c).

11.5.1d A description of the security procedures and equipment required by 8.2.5 or a justification demonstrating the reasons for requesting a

waiver of this requirement.

11.5.1e A copy of the general inspection schedule requiredby Section 8.2.6(b). Include, where applicable, as part of the inspection schedule, specific requirements in Sections 8.7.6, 8.8.4, 8.9.5, 8.10.5, 8.11.3, and 8.12.4.

11.5.1f A justification of any request for a waiver(s) ofthe preparedness and prevention requirements of Section 8.3.

11.5.1g A copy of the contingency plan required by Section 8.4. (Note: Include where applicable, as part of the contingency plan, specific requirements in Sections 8.9.6 and 8.10.6.)

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, 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, 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 incompatibe wastes as required to demonstrate compliance with 8.2.8 including documentation demonstrating compliance with 8.2.8(c).

11.5.1.j Traffic pattern, estimated volume (number, types of vehicles), and control (e.g., show turns across traffic lanes, and stacking lanes (if appropriate), describe access road surfacing and load bearing capacity; and show traffic control signals.

11.5.1k Reserved.

11.5.1l 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. 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.

11.5.1.1.i Seismic considerations. The information submitted must show that either:

11.5.1.1.i.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 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.2 Aerial reconnaissance of the area within a five-mile radius from the facility, available from the USGS;

11.5.1.1.1.A.3 An analysis of aerial photographs covering a 3,000 foot radius of the facility; and

11.5.1.1.1.A.4 If needed to clarify the above data, are connaissance based on walking portions of the area within 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 3,000 feet of a facility, no faults pass within 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 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 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 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.ii 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.ii.A Fracture trend maps and karst subsidence maps from the U. S. Geological Survey and the West Virginia Geological Survey.

11.5.1.1.ii.B Test borings to determine the stability of the overburden;

11.5.1.1.iii Subsurface mining areas. The information submitted must show that the site is not located within 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.iii.A Maps and reports fromthe West Virginia Department of Mines.

11.5.1.1.iii.B Maps from the U.S. Bureau of Mines.

11.5.1.1l.iii.C Maps from the West Virginia Geological and Economic Survey.

11.5.1.1.iv 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 15 connections or 25 residents on a permanent year-round basis. Sources of information include:

11.5.1.1.iv.A U.S. Geological Survey maps.

11.5.1.1.iv.B West Virginia Division of Water Resources.

11.5.1.1.iv.C West Virginia Department of Health.

11.5.1.1.v 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.v.A U.S. Geological Survey maps.

11.5.1.1.v.B West Virginia Division of Wildlife.

11.5.1.1.vi 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.vi.A Reports from the U.S. Army Corps of Engineers.

11.5.1.1.vi.B U.S. Geological Survey Maps.

11.5.1.1.vi.C West Virginia Division of Reclamation.

11.5.1.1.vii 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. 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.viii Owners and operators of facilities located in the 100-year floodplain must provide the following information:

11.5.1.1.viii.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.viii.B Structural or other engineering studies showing the design of operational units (e.g., tanks, incinerators) and flood protection devices (e.g., floodwalls, dikes) at the facility and how these will prevent washout.

11.5.1.1.viii.C If applicable, and in lieu of paragraphs (A) and (B) above, a detailed description of procedures to be followed to remove hazardous waste to safety before the facility is flooded, including:

11.5.1.1.viii.C.1 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.viii.C.2 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 Section 8, and 11.

11.5.1.1.viii.C.3 The planned procedures, equipment, and personnel to be used and the means to ensure that such resources will be available in time for use.

11.5.1.iii.C.4 The potential for accidental discharges of the waste during movement.

11.5.1.1.ix Existing facilities not in compliance with Section 12.1.7 shall provide a plan showing how the facility will be brought into compliance and a schedule for compliance.

11.5.1m 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. 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).

11.5.1n A copy of the closure plan and, where applicable, thepost-closure plan required by 8.6.3 and 8.6.8. Include where applicable, as part of the plans, specific requirements in Sections 8.7.10, 8.8.5, 8.9.7, 8.10.9, 8.11.11, 8.12.11.

11.5.1o For existing facilities, documentation that a notice has been placed in the deed or appropriate alternate instrument as required by Section 15.

11.5.1p The most recent closure cost estimate for the facility prepared in accordance with Section 13 plus a copy of the financial assurance mechanism adopted in compliance with Section 13.

11.5.1q Where applicable, the most recent post closure cost estimates for the facility prepared in accordance with Section 13 plus a copy of the financial assurance mechanism adopted in compliance with Section 13

11.5.1r Where applicable, a copy of the insurance policy or other documentation which comprises compliance with the requirements of Section 13. For a new facility, documentation showing the amount of insurance meeting the specification of Section 13, and, if applicable, Section 13, 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.

11.5.1s (Reserved).

11.5.1t A topographic map showing a distance of 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.i Map scale and date.

11.5.1.t.ii 100-Year floodplain area.

11.5.1.t.iii Surface waters including intermittent streams.

11.5.1.t.iv Surrounding land uses (residential, commercial, agricultural, recreational).

11.5.1.t.v A wind rose (i.e., prevailing wind speed anddirection).

11.5.1.t.vi Orientation of the map (north arrow).

11.5.1.t.vii Legal boundaries of the hazardous waste management facility site.

11.5.1.t.viii Access control (fences, gates).

11.5.1.t.ix Injection and withdrawal wells both on-site and off-site.

11.5.1.t.x Buildings, treatment, storage, or disposal operations; or other structures (recreation areas, runoff control systems, access and internal roads, storm, sanitary, and process sewerage systems, loading and unloading areas, fire control facilities, etc.).

11.5.1.t.xi Barriers for drainage or flood control.

11.5.1.t.xii Location of operational units within the hazardous waste management facility site, where hazardous waste is (or will be) treated, stored, or disposed (include equipment cleanup areas).

11.5.1.u Where appropriate, proof of coverage by a financial mechanism in compliance with Section 13.

11.5.2 Specific Information Requirements

The following additional information is required from owners or operators of specific types of hazardous waste management facilities that are used or to be used for storage or treatment:

11.5.2a For facilities that store containers of hazardous waste except as otherwise provided in Section 8.7.1:

11.5.2.a.1 A description of the containment system to demonstrate compliance with Section 8.7.7. Show at least the following:

11.5.1.a.1.i Basic design parameters, dimensions, and materials of construction.

11.5.2.a.1.ii How the design promotes drainage or how containers are kept from contact with standing liquids in the containment system.

11.5.2.a.1.iii Capacity of the containment system relative to the number and volume of containers to be stored.

11.5.2.a.1.iv Provisions for preventing or managing run-on.

11.5.2.a.1.v 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), including:

11.5.2.a.2.i 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.ii 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 (location or buffer zone and containers holding ignitable or reactive wastes) and Section 8.7.9(c) (location of incompatible wastes), where applicable.

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) and (b) and 8.2.8(b) and (c).

11.5.2b For facilities that use tanks to store or treat hazardous waste, except as otherwise provided in Section 8.8.1, description of design and operation procedures which demonstrate compliance with all applicable requirements of Section 8, including:

11.5.2.b.1 References to design standards or other available information used (or to be used) in design and construction of the tank.

11.5.2.b.2 A description of design specifications including identification of construction materials and lining materials (include pertinent characteristics such as corrosion or erosion resistence).

11.5.2.b.3 Tank dimensions, capacity, and shell thickness.

11.5.2.b.4 A diagram of piping, instrumentation, and process flow.

11.5.2.b.5 Description of feed systems, safety cutoff, bypass systems, and pressure controls (e.g., vents).

11.5.2.b.6 Description of procedures for handling incompatible, ignitable, or reactive wastes, including the use of buffer zone.

11.5.2c For facilities that store, treat, or dispose of hazardous waste in surface impoundments, except as otherwise provided in Section 8.9.1:

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. This submission must address the following items:

11.5.2.c.2.i The liner system,

11.5.2.c.2.ii Prevention of overtopping; and

11.5.2.c.2.iii 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. This information should be included in the inspection plan and submitted under paragraph 11.5.1.e of this section;

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. 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 Section 8.9.6 and paragraph (c). This information should be included in the contingency plan submitted under paragraph 11.5.1.g of this section;

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. 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 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);

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 will be complied with;

11.5.2.c.8 If incompatible wastes, or incompatible wastes and materials will be placed in a surface impoundment, an explanation of how Section 8.9.9 will be complied with.

11.5.2d For facilities that store or treat hazardous waste in waste piles, except as otherwise provided in Section 8.1:

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 Section 8.10.2, 8.10.3, 8.10.4 and 8.10.6 pursuant to 8.10.1c a demonstration must be made sufficient to show compliance with Section 8.10.1(c) (1)-(6).

11.5.2.d.~~2~~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. This submission must address the following items as specified in Section 8.10.2:

11.5.2.d.3.i The liner system;

11.5.2.d.3.ii Control of run-on;

11.5.2.d.3.iii Control of run-off;

11.5.2.d.3.iv Management of collection and holding units associated with run-on and run-off control systems; and

11.5.2.d.3.v~~i~~ 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 run-off, will be inspected in order to meet the requirements of Section 8.10.5. This information should be included in the inspection plan submitted under paragraph 1 of this section; 11.5.1.e

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 will be complied with;

11.5.2.d.7 If incompatible wastes, or incompatible wastes and materials will be placed in a waste pile, an explanation of how Section 8.10.8 will be complied with;

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.

11.5.2e For facilities that use land treatment to dispose of hazardous waste, except as otherwise provided in Section 8.1:

11.5.2.e.1 A description of plans to conduct a treatment demonstration as required under Section 8.12.3. The description must include the following information:

11.5.2.e.1.i The wastes for which the demonstration will be made and the potential hazardous constituents in the wastes;

11.5.2.e.1.ii The data sources to be used to make the demonstration (e.g., literature, laboratory data, field data, or operating data);

11.5.2.1.iii Any specific laboratory or field test that will be conducted, including:

11.5.2.e.1.iii.A The type of test (e.g., column leaching, degradation);

11.5.2.e.1.iii.B Materials and methods, including analytical procedures;

11.5.2.e.1.iii.C Expected time for completion;

11.5.2.e.1.iii.D 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. 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.i The wastes to be land treated;

11.5.2.e.2.ii Design measures and operating practices necessary to maximize treatment in accordance with Section 8.12.4 including;

11.5.2.e.2.ii.A Waste application method and rate;

11.5.2.e.2.ii.B Measures to control soil pH;

11.5.2.e.2.ii.C Enhancement of microbial or chemical reactions;

11.5.2.e.2.ii.D Control of moisture content;

11.5.2.e.2.iii Provisions for unsaturated zone monitoring, including:

11.5.2.e.2.iii.A Sampling equipment, procedures, and frequency;

11.5.2.e.2.iii.B Procedures for selecting sampling locations;

11.5.2.e.2.iii.C Analytical procedures;

11.5.2.e.2.iii.D Chain of custody control;

11.5.2.e.2.iii.E Procedures for establishing background values;

11.5.2.e.2.iii.F Statistical methods for interpreting results;

11.5.2.e.2.iii.G The justification for any hazardous constituents, in accordance with the criteria for such selection in Section 8.12.9;

11.5.2.e.2.iv 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;

11.5.2.e.2.v 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. This submission must address the following items;

11.5.2.e.3.i Control of run-on;

11.5.2.e.3.ii Collection and control of run-off;

11.5.2.e.3.iii Minimization of run-off of hazardous constituents from the treatment zone;

11.5.2.e.3.iv Management of collection and holding facilities associated with run-on and run-off control systems;

11.5.2.e.3.v Periodic inspection of the unit. This information should be included in the inspection plan submitted under paragraph 11.5.1.e of this section;

11.5.2.e.3.vi 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) will be conducted including;

11.5.2.e.4.i Characteristics of the food-chain crop for which the demonstration will be made;

11.5.2.e.4.ii Characteristics of the waste, treatment zone, and waste application method and rate to be used in the demonstration;

11.5.2.e.4.iii Procedures for crop growth, sample collection, sample analysis, and data evaluation;

11.5.2.e.4.iv 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 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. This information should be included in the closure plan and, where applicable, the post-closure care plan submitted under Section 11.5.1(n).

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 will be complied with;

11.5.2.e.8 If incompatible wastes, or incompatible wastes and materials, will be placed in or on the same treatment zone, an explanation of how Section 8.12.13 will be complied with.

11.5.2f For facilities that dispose of hazardous waste in landfills, except as otherwise provided in Section 8.1:

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. This submission must address the following items as specified in Section 8.11.2:

11.5.2.f.2.i The liner system and leachate collection and removal system;

11.5.2.f.2.ii Control of run-on;

11.5.2.f.2.iii Control of run-off;

11.5.2.f.2.iv Management of collection and holding facilities associated with run-on and run-off control systems; and

11.5.2.f.2.v 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. This information should be included in the inspection plan submitted under paragraph 11.5.1.e of this section;

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, and a description of how each landfill will be maintained and monitored after closure in accordance with Section 8.11.11. This information should be included in the closure and post-closure plans submitted under paragraph 11.5.1.n of this section.

11.5.2.f.5 If ignitable or reactive wastes will be landfilled, an explanation of how the requirements of Section 8.11.13 will be complied

with;

11.5.2.f.6 If incompatible wastes, or incompatible wastes and materials will be landfilled, an explanation of how Section 8.11.14 will be complied with;

11.5.2.f.7 If bulk or non-containerized liquid waste or waste containing free liquids is to be landfilled, an explanation of how the requirements of Section 8.11.15 will be complied with;

11.5.2.f.8 If containers of hazardous waste are to be landfilled, an explanation of how the requirements of Sections 8.11.16 or 8.11.17, as applicable, will be complied with.

11.5.2g The following additional information regarding protection of ground water is required from owners or operators of hazardous waste surface impoundments, piles, land treatment units, and landfills, except as otherwise provided in Section 8.13.1(G):

11.5.2.g.1 A summary of the ground-water monitoring data obtained during the interim status period under 40 C.F.R. 265.90-265.94, were applicable.

11.5.2.g.2 Identification of the uppermost aquifer and aquifers hydraulically interconnected beneath the facility property, including ground-water 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.i Characterization of the site hydrogeology:

11.5.2.g.2.i.A Copies of any available geophysical logs of the site (Spontaneous potential, resistivity, gamma ray, etc.);

11.5.2.g.2.i.B Depth to the top of each water-bearing formation;

11.5.2.g.2.i.C Depth to the bottom of each water-bearing formation;

11.5.2.g.2.i.D Areas of recharge and discharge for the uppermost aquifer;

11.5.2.g.2.i.E Water level depth information (i.e., a water-table map);

11.5.2.g.2.i.F Depth to and type of bedrock present;

11.5.2.g.2.i.G Information available on the three dimensional flow of the site (including horizontal and vertical flow rates and directions); and

11.5.2.g.2.i.H Any additional information deemed necessary by the Chief.

11.5.2.g.2.ii Characterization of each soil horizon underlying the hazardous waste management area:

11.5.2.g.2.ii.A pH;

11.5.2.g.2.ii.B Cation exchange capacity;

11.5.2.g.2.ii.C Particle size ratio and textural classification;

11.5.2.g.2.ii.D Bulk density;

11.5.2.g.2.ii.E Percent voids present;

11.5.2.g.2.ii.F Permeability;

11.5.2.g.2.ii.G Infiltration rate; and

11.5.2.g.2.ii.H Any other information deemed necessary by the Chief.

11.5.2.g.3 On the topographic map required under Section 11.5.1(t), a delineation of the waste management area, the property boundary, the propsoed "point of compliance" as defined under Section 8.13.5, the proposed location of ground-water monitoring wells as required under Section 8.13.7 and, to the extent possible, the information required in paragraph g(2) of this section;

11.5.2.g.4 A description of any plume of contamination that has entered the ground water from a regulated unit at the time that the application is submitted that:

11.5.2.g.4.i Delineates the extent of the plume on the topographic map required under Section 11.5.1(t);

11.5.2.g.4.ii Identifies the concentration of each Appendix VIII constituent in the plume.

11.5.2.g.5 Detailed plans and an engineering report describing the proposed ground-water monitoring program to be implemented to meet the requirements of Section 8.13.7 (including such information as proposed purging methods, proposed development of wells, etc.);

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.

11.5.2.g.7 The owner or operator must submit sufficient information, supporting data, and analyses to establish a ground-water monitoring program which meets the requirements of Section 8.13.8. This submission must address the following items as specified under Section 8.13.8:

11.5.2.g.7.i 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 ground water;

11.5.2.g.7.ii A proposed ground-water monitoring system;

11.5.2.g.7.iii Background concentrations of each proposed monitoring parameter or hazardous constituent, or procedures to calculate such concentrations; and

11.5.2.g.7.iv A description of proposed sampling, analysis and statistical comparison procedures to be utilized in evaluating ground-water monitoring data.

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), 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. To demonstrate compliance with Section 8.13.9, the owner or operator must address the following items (in addition to other Section 8.13.9 requirements):

11.5.2.g.8.i A characterization of the contaminated groundwater, including concentrations of hazardous constituents;

11.5.2.g.8.ii The background concentration for each hazardous constituent found in the groundwater as set forth in Section 8.13.8(b);

11.5.2.g.8.iii Detailed plans and an engineering report describing the corrective action to be taken;

11.5.2.g.8.iv A description of how the ground-water monitoring program will assess the adequacy of the corrective action under Section 8.13.9(d);

11.5.2.g.8.v A proposed compliance schedule for beginning the corrective action; and

11.5.2.g.8.vi A description of the wastes previously handled at the facility.

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, 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:

11.5.3a 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 oftransportation 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.

11.5.3b 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, 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 Hazardous Waste Management Act.

11.6 Recordkeeping

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:

11.7.1a For a corporation: by a responsible corporate officer. For the purpose of this section, 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 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 §11.7.1.a.1. 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 §11.7.1.a.2 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 this section, 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 All reports required by permits and other information requested by the Chief shall be signed by a person described in Section 11.7.1 above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

11.7.2a The authorization is made in writing by a person described in Section 11.07.01;

11.7.2b 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 permits; and

11.7.2c 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 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 imprisonmentfor knowing violations.

11.8 Permits by Rule

Notwithstanding any other provisions of Section 11, 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:

11.8.1a Has an NPDES permit and a state water pollution Control Permit.

11.8.1b Complies with the conditions of those permits.

11.8.1c 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.

11.8.1.c.6 Unmanifested waste report.

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:

11.8.3a Has a UIC permit for underground injection issued by the Water Resources Division; and

11.8.3b Complies with the regulatory and permitting requirements established by the Office of Oil and Gas and the Shallow Gas Well Review Board pursuant to the authority contained in West Virginia Code 20-5E et. seq.

11.9 Emergency Permits

Notwithstanding any other provision of section 11, 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:

11.9a May be oral or written. If oral, it shall be followed within five (5) days by a written emergency permit.

11.9b Shall not exceed ninety (90) days in duration.

11.9c Shall clearly specify the hazardous wastes to be received, and the manner and location of their treatment, storage, or disposal.

11.9d 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.

11.9e Shall be accompanied by a public notice as required by these regulations including:

11.9.e.1 Name and location of the permitted hazardous waste management facility. 51.9.e.1

11.9.e.2 A brief description of the wastes involved.

11.9.e.3 A brief description of the action authorized and reasons for authorizing.

11.9.e.4 Duration of the emergency permit.

11.9.e.5 Name and address of the office granting the emergency authorization.

11.9f Shall incorporated, 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

The permittee shall comply with all conditions of this permit. Any permit non-compliance constitutes a violation of these regulations and is grounds for enforcement action, for permit termination, revocation, modification, or 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 non-compliance 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 non-compliance 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 shut-down 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 non-compliance does not stay any permit condition.

11.10.7 Property Rights

The permit does not convey any property rights of any sort, orany 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, suspension, 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:

11.10.9a 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.

11.10.9b 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.

11.10.9c 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.

11.10.8 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, suspension, 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.

11.10.10 Monitoring Records

11.10.10a Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

11.10.10b 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 8.5.4.b.9, 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.

11.10.10c 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.

11.10.10d 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.

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.

11.10.12 Reporting Requirements

11.10.12a 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.i 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.ii Within fifteen (15) days of the date of submission of the letter in paragraph (a)(1) of this section, 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.

11.10.12b Anticipated non-competence.

The permittee shall give advance written notice to the chief of any planned changes in the permitted facility or activity which may result in non-compliance with permit requirements.

11.10.12c (Reserved.)

11.10.12d Transfers.

This permit is not transferrable except after notice to the Chief, and modification or revocation and re-issuance 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 11.18.2.)

11.10.12e Monitoring reports.

Monitoring results shall be reported at the intervals specified.

11.10.12f Compliance schedules.

Reports of compliance or non-compliance 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.

11.10.12g Immediate reporting.

The permittee shall report any non-compliance 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 non-compliance and its cause; the period of non-compliance, including exact dates and times, and 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 non-compliance.

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.

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.i Name, address and telephone number of the owner or operator.

11.10.12.g.2.ii Name, address and telephone number of the facility.

11.10.12.g.2.iii Date, time and type of incident.

11.10.12.g.2.iv Name and quantity of material(s) involved:

11.10.12.g.2.v The extent of injuries, if any.

11.10.12.g.2.vi An assessment of actual or potential hazards to the environment and human health outside the facility; and,

11.10.12.g.2.vii Estimated quantity and disposition of recovered material that resulted from the incident.

11.10.12h Other non-compliance.

The permittee shall report all instances of non-compliance not reported under Sections 11.10.12(a), (e), (f) and (g) above, at the time monitoring reports are submitted. The report shall contain the information listed in Section 11.10.12(g).

11.10.12i 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.

11.10.12j In addition, the following reports required by Section 8 shall be submitted:

11.10.12.j.1 Manifest discrepancy report: 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 report including a copy of the manifest to the Chief. (See 8.5.3.)

11.10.12.j.2 Unmanifested waste report: Must be submitted to the Chief within fifteen (15) days of receipt of unmanifested waste. (See 8.5.5.)

11.10.12.j.3 Annual report: Must be submitted covering facility activities during the previous calendar year. (See 8.5.6.)

11.10.12.j.4 (Reserved.)

11.10.13 (Reserved.)

11.10.14 (Reserved.)

11.10.15 (Reserved.)

11.11 Establishing Permit Conditions

11.11a 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 Hazardous Waste Management Act and of these regulations, and any applicable statutory or regulatory requirement that takes effect prior to the final administrative disposition of a permit.

11.11b New or reissued permits, and to the extent allowed under Section 11.18, modified or revoked and reissued permits, shall incorporate each of the applicable requirements in these regulations.

11.11c 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

11.12a Hazardous waste management permits shall be effective for a fixed term not to exceed ten (10) years.

11.12b Except as provided in section 11.12(c), the term of a permit shall not be extended by modification beyond the maximum duration specified in this section.

11.12c The conditions of an expired permit shall continue in force until the effective date of a new permit if:

11.12.c.1 The permittee has submitted a timely application under Section 11.5 which is a complete application for a new permit; and

11.12.c.2 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.

11.12d Permits continued under subsection (d) 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.d.1 Initiate enforcement action based upon the permit which has been continued;

11.12.d.2 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.d.3 Issue a new permit with appropriate conditions, or

11.12.d.4 Take other actions authorized by statute or these regulations.

11.12e The chief may issue any permit for a duration that is less than the full allowable term under this section.

11.13 Effect of a Permit

Compliance with a permit during its term constitutes compliance, for purposes of enforcement with the State Hazardous Waste Management Act except under Section 17 of such 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 11.18.2(b), 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.

11.15.1a Any schedules of compliance under this section shall require compliance as soon as possible.

11.15.1b 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.

11.15.1c 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 non-compliance with the interim or final requirements.

11.15.2 Alternative Schedules of Compliance

A permit applicant or permittee may cease conducting regulatedactivities rather than continue to operate and meet permit requirements as follows:

11.15.2a 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 non-compliance with any interim or final compliance schedule

requirement already specified in the permit.

11.15.2b 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.

11.15.2c 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.

11.15.2d 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:

11.16a When appropriate, requirements concerning the proper use, maintenance, and installation, when appropriate, of monitoring equipment or methods, including biological monitoring methods and introduced tracer methods.

11.16b Required monitoring including type, intervals and frequency sufficient to yield data which are representative of the monitored activity including, when appropriate, continuous monitoring.

11.16c 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

11.17a 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. All requests shall be submitted in writing and shall contain facts or reasons supporting the request.

11.17b If the chief tentatively decides to modify or revoke and reissue a permit and the modification is not made under Section 11.20, a draft permit under Section 11.21 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.

11.17c In a permit modification under this section, 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 this section, 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.

11.17d "Minor modifications" as defined in 11.20 are not subject to the requirements of this section.

11.17e If the chief tentatively decides to suspend, revoke or terminate a permit, a notice of such intent shall be issued. A 51.17e 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.

11.18 Modification or Revocation and Reissuance of Permits

When the chief receives any information (for example, 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, 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, and may request an updated application if necessary. If cause does not exist under this section or Section 11.20, the Chief shall not modify or revoke and reissue the permit. If a permit modification satisfies the criteria in Section 11.20 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:

11.18.1a 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.

11.18b 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.

11.18c 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.c.1 For promulgation of amended standards or regulations, when:

11.18.c.1.i The permit condition requested to be modified was based on a promulgated hazardous waste regulation.

11.18.c.1.ii The water resources board and/or the director have revised, withdrawn, or modified that portion of the regulation on which the permit condition was based.

11.18.c.1.iii A permittee requests modification within ninety (90) days after State Register notice of the action on which the request is based.

11.18.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.

11.18d Compliance schedules.

The Chief determines good cause exists for modification of a compliance schedule, such as an act of God, strike, flood, or materials shortage or other events over which the permittee has little or no control and for which there is not reasonably available remedy.

11.18e The chief may also modify a permit

11.18.e.1 When modification of a closure plan is required,

11.18.e.2 When the chief receives notification of expected closure pursuant to Section 8.6.4 and determines the following permit conditions are unwarranted:

11.18.e.2.i Extension of the 90 to 180 day periods under Section 8.6.4;

11.18.e.2.ii Modification of the 30-year post-closure period under Section 8.6.7(a);

11.18.e.2.iii Continuation of security requirements under Section 8.6.7(b); or

11.18.e.2.iv Permission to disturb the integrity of a containment system under Section 8.6.7.

11.18.e.3 When the permittee has filed a request under section 13 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.e.4 When a corrective action program specified in a permit under Section 8.13.9 has not brought the regulated unit into compliance with the ground water protection standard within a reasonable period of time.

11.18.e.5 To include a monitoring program meeting the requirements of Section 8.13.8, when the owner or operator has been conducting a corrective action program under Section 8.13.9 and the compliance period ends before the end of the post-closure care period for the unit.

11.18.e.6 To include conditions applicable to units at a facility that were not previously included in the facilities permit.

11.18.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:

11.18.2a Cause exists for revocation under section 11.19, and the Chief determines that modification or revocation and reissuance is appropriate.

11.18.2b 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

11.19a The following are causes for revocation or suspension of a permit during its term, or for denying a permit renewal application:

11.19.a.1 Non-compliance by the permittee with any condition of the permit; or

11.19.a.2 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.a.3 A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit revocation.

11.19b The chief shall follow the applicable procedures set forth in Section 11.17e 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 this section, without following the required procedures found in section 11.18 . Any permit modification not processed as a minor modification under this section shall be made for causes and with draft permit and public notice as required. Minor modifications may only:

11.20a Correct typographical errors.

11.20b Require more frequent monitoring or reporting by the permittee.

11.20c Change an interim compliance date in a schedule of compliance, provided the new date is not more than one hundred twenty (120) days

after the date specified in the existing permit and does not interfere with attainment of the final compliance date requirement.

11.20d Reserved.

11.20e Change the lists of facility emergency coordinators or equipment in the permit's contingency plan.

11.20f Change estimates of maximum inventory under section 8.6.3.

11.20g Changes in ownership.

11.20h Changes in estimates of expected year of closure or schedules of final closure.

11.21 Draft Permits

11.21a Once an application is complete, the chief shall tentatively decide whether to prepare a draft permit or to deny the application.

11.21b If the chief decides to prepare a draft permit, a draft permit shall be prepared that contains the following information:

11.21.b.1 All conditions under sections 11.10 and 11.11.

11.21.b.2 All compliance schedules under section 11.15.

11.21.b.3 All monitoring requirements under section 11.16.

11.21.b.4 Standards for treatment, storage, and disposal and other permit conditions under Section 11.

11.21c A fact sheet prepared in accordance with section 11.22 shall accompany the draft permit

11.22 Fact Sheet

11.22a 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.

11.22b The fact sheet shall include, when applicable:

11.22.b.1 A brief description of the type of facility or activity which is the subject of the draft permit.

11.22.b.2 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.b.3 A brief summary of the basis for the draft permit conditions including references to applicable statutory or regulatory provisions.

11.22.b.4 Reasons why any requested variances or alternatives to required standards do or do not appear justified.

11.22.b.5 A description of the procedures for reaching a final decision on the draft permit including:

11.22.b.5.i The beginning and ending dates of the comment period and the address where comments will be received.

11.22.b.5.ii Procedures for requesting a hearing and the nature of that hearing.

11.22.b.5.iii Any other procedures by which the public may participate in the final decision.

11.22.b.6 Name and telephone number of a person to contact for additional information.

11.23 Public Access to Information

11.23a 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.b It shall be the responsibility of the person claiming any information as confidential under the provisions of Section (a) above 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.

11.23c 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.

11.23d No information shall be protected as confidential information by the Chief unless it is submitted in accordance with the provisions of Section (c) above and no information which is submitted in accordance with the provisions of Section (c) above 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.

11.23e All information which meets the tests of section (d) above 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 (d) above, the Chief shall mark the information "REJECTED" and promptly return such information to the person submitting such information.

11.23f 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/her designee.

11.23g Nothing in this section 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 this article.

11.23h Persons interested in obtaining information pursuant to this section should submit a request in accordance with the Water Resources Board's Freedom of Information Act Regulations.

11.23.i 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:

11.24.1a A draft permit has been prepared, or

11.24.1b A hearing has been scheduled.

11.24.2 Timing

11.24.2a Public notice of the preparation of a draft permit required under this section shall allow at least forty-five (45) days for public comment.

11.24.2b 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 this section shall be given by the following methods:

11.24.3a By mailing a copy of a notice to the following persons, any person otherwise entitled to receive notice under this paragraph may waive the right to receive notice for any classes and categories of permits:

11.24.3.a.1 The applicant.

11.24.3.a.2 Any other federal or state agency, including EPA, which the Chief knows has issued or is required to issue a RCRA, UIC, PSD, NPDES permit for the same facility or activity; including

11.24.3.a.3 Federal and state agencies with jurisdiction over fish and wildlife resources, and other appropriate government authorities.

11.24.3.a.4 To any unit of local government having jurisdiction over the area where the facility is proposed to be located.

11.24.3.a.5 Persons on a mailing list developed by:

11.24.3.a.5.i Including those who request in writing to be on the list.

11.24.3.a.5.ii Soliciting persons for "area lists" from participants in past permit proceedings in that area.

11.24.3.a.5.iii 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.a.6 By mailing a copy to each state agency having authority under State law with responsibility to the construction or operation of such facility.

11.24.3.a.7 Any other 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

11.24.3.a.8 The US Fish and Wildlife Service, the US Forest Service, the WV Department of Culture and History, other appropriate government authorities including any affected States, US Army Corps of Engineers, the the Department of Health, and the Advisory Council on Historic Preservation (Suite 430, 1522 K Street NW, Washington, DC 20005).

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

this section, any newspaper which meets the provisions of Chapter 59, Article 3, Section 1(b) of the Code of West Virginia, as amended.

11.24.3c 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.

11.24.4 Personal Notification By Facility Owner or Operator to Individual Residents

11.24.4a 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.

11.24.4b 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.

11.24.4c 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, 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.

11.24.4d 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 adivising 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

11.24.5a All public notices issued under this section 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.

11.24.5.a.5 A brief description of the comment procedures required by Sections 11.25 and 11.26 and the time and place of any hearing that will be hedl, 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.

11.24.5b In addition to the general public notice described in Section 11.24.5(a), 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.

11.24.5.c Name and address of the nearest district office where the file will be available for inspection.

11.24.5.d In addition to the general public notice, all persons identified in Section 11.24.3 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.

11.26 Public Hearings

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.

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 this section 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.

11.27 (Reserved.)

11.28 Reopening of the Public Comment Period

11.28a 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 onr or more of the following actions:

11.28.a.1 Prepare a new draft permit, appropriately modified, under Section 11.

11.28.a.2 Prepare a revised fact sheet under Section 11 and reopen the comment period under this section; or

11.28.a.3 Reopen or extend the comment period under Section 11 to give interested persons an opportunity to comment on the information or arguments submitted.

11.28b 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 shall define the scope of the reopening.

11.29 Response to Comments

11.29a 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 include:

11.29.a.1 Specify which provisions if any, of the draft permit have been changed in the final permit, and the reasons for change; and

11.29.a.2 Briefly describe and respond to all significant comments on the draft permit raised during the public comment period, or during any hearing.

11.29b 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

11.30a For the purpose of allowing an owner or operator to meet the treatment demonstration requirements of Section 8.12.3, 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). 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.a.1 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.a.2 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, he must issue a treatment demonstration permit covering only the field test or laboratory analyses.

11.30b 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, postdemonstration cleanup activities, and any other conditions which the Chief finds may be necessary under Section 8.12.3(c). 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.

11.30c 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, 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 90 days of completion of those tests or analyses unless the Chief approves a later date.

11.30d If the Chief determines that the results of the field tests or laboratory analyses meet the requirements of Section 8.12.3, 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, based upon the results of the field tests or laboratory analyses.

11.30.d.1 This permit modification may proceed as a minor modification under Section 11.20, provided any such changes is minor, or otherwise will proceed as a modification under Section 11.18.1(b).

11.30.d.2 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 Section 124.15(b).

11.30.d.3 If modification under Section 11.18.1(b) are necessary, the second phase of the permit will become effective only after those modifications have been made.

Section 12. Location Standards for Hazardous Waste Management Facilities

12.1 General

These regulations describe the location restrictions for the construction or placement of new hazardous waste management facilities, except as specifically provided otherwise in this section.

12.1.1 Seismic Considerations

12.1.1a Portions of new facilities where treatment, storage or disposal of hazardous waste must not be located within sixty-one (61) meters (200 feet) of a fault which has had displacement in Holocene time.

12.1.1b As used in Section 12.1.1(a).

12.1.1b.1 "Fault" means a fracture along which rocks strate on one side have been displaced with respect to those on the other side.

12.1.1b.2 "Displacement" means the relative movement of any two (2) sides of a fault measured in any direction.

12.1.1b.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

12.1.2a Facilities must not be located on areas of Karst terrain.

12.1.2b As used in Section 12.1.2(a) 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, being produced by solution of the carbonate rock.

12.1.2c The location restriction of 12.1.2(a) shall be limited to all disposal facilities, and to storage and/or treatment surface impoundments.

12.1.3 Subsurface Mining Areas

12.1.3a Portions of new faiclities where hazardous waste management will be conducted must not be located within three hundred five (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.

12.1.3b As used in Section 12.1.3(a):

12.1.3b.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.

12.1.3c The location restriction of 12.1.3(a) shall be limited to all disposal facilities, and to storage and/or treatment surface impoundments.

12.1.4 Critical Recharge Areas

12.1.4a Facilities must not be located in critical rechargeareas.

12.1.4b As used in Section 12.1.4(a). Critical recharge areas are those surface land areas which serve as recharge areas for those portions of aquifers used for public water supply.

12.1.4c The location restriction of 12.1.4(a) shall be limited to those surface land areas which recharge portions of aquifers serving as a public ground water supply. A public ground water supply means a ground water supply system serving at least 15 service connections or an average of 25 or more permanent residents on a year round basis.

12.1.4d The location restriction of 12.1.4(a) shall be limited to all disposal facilities, and to storage and/or treatment surface impoundments.

12.1.5 Wetlands

12.1.5a No facility shall be located in wetlands or in areas that may have an impact on wetlands.

12.1.5b The location of facilities that have the potential for influencing wetlands shall be determined by the Chief.

12.1.5c As used in Section 12.1.5(a)

12.1.5.c.1 Wetlands are those areas that are inundated or saturated by surface 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

12.1.6a 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.

12.1.6b As used in Section 12.1.6(a):

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 run-off 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.

12.1.7a 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. Part 123 271, permitted by Section 11 of these regulations, or in interim status under 40 C.F.R. Parts 270 and 265 and 20-5E-10 of the Act.

12.1.7b As used in Section 12.1.7(a):

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 equaled 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(10.)

Section 13. Financial Requirements

The Director hereby adopts and incorporates by reference 40 CFR Parts 264 and 265, Subparts H, as published in the Code of Federal Regulations on the effective date of these regulations with the following modifications: Sections 264.143(f), 265.143(e), 264.145(f), 265.145(e), and 264.147(f), 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 30 days after notification of the disallowance."

Sections 264.149, 265.149, 264.150 and 265.150 shall be deleted.

Wherever the term Administrator or Regional Administrator is used, the term shall have the meaning of the Director of the 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.

40 CFR Sections 264.147(b)(4)(iii) and 265.147(b)(4)(iii) shall be amended to read: "All other owners or operators, 30 days after the effective date of these regulations."

applicable requirements.)

15.3 Notice to Local Land Authority

Within 90 days after closure is completed, the owner or operator of a disposal facility 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 disposal areas 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 note, prominently displayed, which states the owner's or operator's obligation to restrict disturbance of the site as specified in Section 8.6.7(c). In addition, 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, location, and quantity of hazardous wastes disposed of within each cell or area of the facility. For wastes disposed of before these regulations were promulgated, the owner or operator must identify the type, location and quantity of the wastes to the best of his knowledge and in accordance with any records he has kept. Any changes in the type, location, or quantity of hazardous wastes disposed of within each cell or area of the facility that occur after the survey plat and record of wastes have been filed must be reported to the local zoning authority or the authority with jurisdiction olocal land use and to the Chief.

15.4 Other Requirements

Nothing contained herein shall relieve any person from complying with the requirements on deed and lease disclosures set forth in 20-5E-20.

Section 16. Notices of Changes to the Director

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, 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, 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.a Persons desiring to exclude a waste at a particular generating facility from the lists in Section 3.04, must petition the Director for such an exclusion. The petition shall include

16.2.a.1 A copy of the petition submitted to the Administrator pursuant to 40 CFR 260.22, including all demonstration information;

16.2.a.2 A copy of the administrator's approval granting the exclusion pursuant to 40 CFR 260.20(d); and

16.2.a.3 Any other additional information which may be required for the Director to evaluate the petition.

16.2.b Within 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.c The Director shall not deny a petition to exclude a waste at a particular facility that has been approved by the EPA Administrator unless scientifically supportable reasons for such denial are advanced which had not been presented to the EPA 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 and the procedures in Section 16.3.3, the Director may determine on a case-by-case basis that the following recycled materials are not wastes:

(a) materials that are accumulated speculatively without sufficient amounts being recycled (as defined in Section 3.1.c.8 of these regulations):

(b) Materials that are reclaimed and then reused within the original

primary production process in which they were generated; or

(c) Materials that have been reclaimed but must be reclaimed further before the materials are completely recovered.

16.3.2 Standards and Criteria

(a) The Director may grant requests for a variance from classification as a waste 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 this section 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:

(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);

(2) The reason that the applicant has accumulated the material for one or more years without recycling 75 percent of the volume accumulated at the beginning of the calendar year;

(3) The quantity of material already accumulated and the quantity expected to be generated and accumulated before the material is recycled;

(4) The extent to which the material is handled to minimize loss; and

(5) Other relevant factors.

(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:

(1) How economically viable the production process would be if it were to use virgin materials, rather than reclaimed materials;

(2) The prevalence of the practice on an industry-wide basis;

(3) The extent to which the material is handled before reclamation to minimize loss;

(4) The time periods between generating the material and its

reclamation, and between reclamation and return to the original primary production process;

(5) The location of the reclamation operation in relation to the production process;

(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;

(7) Whether the person who generates the material also reclaims it; and

(8) Other relevant factors.

(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:

(1) The degree of processing the material has undergone and the degree of further processing that is required to complete recovery of the material;

(2) The value of the material after it is reclaimed;

(3) The degree to which the reclaimed material has been like an analogous raw material;

(4) The extent to which an end market for the reclaimed material is guaranteed;

(5) The extent to which the reclaimed material is handled to minimize loss, and

(6) Other relevant factors.

16.3.3 Variance Procedures

(a) An applicant for a variance from classification as a waste under this section must apply to the Director. The application must address the applicable criteria or standards contained in section 16.3.2 of these regulations.

(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 paragraph 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 Water Resources Board.