

CONTAINS ALL AMENDMENTS THROUGH JANUARY 1, 1985

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Appendix

Appendix

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JS EPA ARCHIVE DOCUMENT

DEPARTMENT OF HEALTH AND MENTAL HYGIENE

Subtitle 51

DISPOSAL OF CONTROLLED HAZARDOUS SUBSTANCES

Table of Contents

10.51.01 Hazardous Waste Management System: General .01 General .02 Availability of Information, Confidentiality of Information .03 Definitions .04 Rulemaking Petitions .05 Criteria for Listing Hazardous Waste 10.51.02 Identification and Listing of Hazardous Waste .01 Purpose and Scope Definitions of Solid Waste .02 .03 Definition of Hazardous Waste .04 Exclusions Special Requirements for Hazardous Waste Produced .05 by Small Quantity Generators .06 Special Requirements for Hazardous Waste Which is Used, Re-used, Recycled or Reclaimed .07 Criteria for Identifying the Characteristics of Hazardous Wastes .08 Criteria for Listing Hazardous Waste .09[.] General Characteristics of Hazardous Wastes .10 Characteristic of Ignitability Characteristic of Corrosivity .11 Characteristic of Reactivity .12 .13 Characteristic of EP Toxicity .14 General Lists of Hazardous Wastes Hazardous Wastes from Non-specific Sources .15 Hazardous Wastes from Specific Sources .16 .17 Discarded Commercial Chemical Products and Associated Off-specification Materials, Containers, and Spill Residues APPENDICES Appendix Representative Sampling Methods Ι -----EP Toxicity Test Procedures Appendix ΙI -Appendix III -Chemical Analysis Test Methods

Basis for Listing

Hazardous Constituents

10.51.03	<pre>Standards Applicable to Generators of Hazardous Waste .01 Purpose, Scope, and Applicability .02 Hazardous Waste Determination .03 EPA Identification Numbers .04 The Manifest .05 Pre-Transport Requirements .06 Recordkeeping and Reporting .07 Special Conditions Appendix - Annual Report Form</pre>
10.51.04	 Standards Applicable to Transporters of Hazardous Waste .01 General .02 Compliance with the Manifest System and Recordkeeping .03 Hazardous Waste Discharges .04 Bonding
10.51.05	<pre>Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities .01 General .02 General Facility Standards .03 Preparedness and Prevention .04 Contingency Plan and Emergency Procedures .05 Manifest System, Recording and Reporting .06 Ground-Water Protection .07 Closure and Post-closure .08 Financial Requirements .09 Use and Management of Containers .10 Tanks .11 Surface Impoundments .12 Waste Piles .13 Land Treatment .14 Landfills .15 Incinerators .15-1 Thermal Destruction of Hazardous Waste .16 Thermal Treatment .17 Chemical, Physical, and Biological Treatment .18 Underground Injection</pre>
	APPENDICES
	Appendix IV – Students T-Test Appendix V – Incompatible Waste
10.51.06	Site Selction for CHS Facilities .01 General Regulations

· -----

- .

US EPA ARCHIVE DOCUMENT

- Permits for CHS Facilities .01 Permit Required 10.51.07

 - .02 Permit Procedure
 - .0Ż Administrative Procedures
 - .04 Permit Fees
 - Limited Facility Permits .05
- (Repealed) See 10.51.01.02 10.51.08
- Right of Condemnation 10.51.09 .01 Determination by the Department

Enforcement 10.51.10

.01 Enforcement Provisions

Title 10

DEPARTMENT OF HEALTH AND MENTAL HYGIENE

Subtitle 51 DISPOSAL OF CONTROLLED HAZARDOUS SUBSTANCES

Chapter 01 Hazardous Waste Management System: General

Authority: Health-Environmental Article, §2-206 et seq., Annotated Code of Maryland

.01 General

A. This Chapter provides definitions of terms, general standards, and overview information applicable to this subtitle.

B. In this Chapter:

(1) Regulation .02 sets forth the rules that the Department will use in making information it receives available to the public and sets forth the requirements that generators, transporters, or owners or operators of treatment, storage, or disposal facilities shall follow to assert claims of business confidentiality with respect to information that is submitted to the Department under this subtitle.

(2) Regulation .03 defines terms which are used in this subtitle.

(3) Regulation .04A establishes procedures for petitioning the Department to amend, modify, or revoke any provision of this subtitle and establishes procedures governing the Department's action on these petitions.

(4) Regulation .04B establishes procedures for petitioning the Department to approve testing methods as equivalent to those prescribed in COMAR 10.51.02 or 10.51.05.

(5) Regulation .04C establishes procedures for petitioning the Department to amend COMAR 10.51.02.03 or 10.51.02.14 - 17 to exclude a waste from a particular facility.

C. The provisions of this subtitle shall be supplemental and additional to the air control regulations under COMAR 10.18.01 — 10.18.22 and may not be interpreted as in derogation of any authority of the Secretary to implement and enforce those regulations.

Supp. 20

10.51.01.02 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

.02 Availability of Information; Confidentiality of Information.

A. Except in accordance with §D, the department shall protect any information contained in the application, or other records, reports, or plans as confidential upon a showing by any person that the information, if made public, would divulge methods or processes entitled to protection as trade secrets, or proprietary business information relating to processes of production, methods of manufacturing, or production volume which are of financial or commercial value.

A-1. Claims of confidentiality for the name and address of any permit applicant or permittee will be denied. Claims for other information shall be made and substantiated at the time the application is submitted. If substantiation is not provided, the Secretary will notify the applicant by certified mail of the requirement. If the substantiation is not provided after 10 days of receipt of the certified mail, the information in question shall be placed in the public file.

B. The Department shall insure that any permit forms or any public comment upon those forms shall be available to the public for inspection and copying. The Department shall make available to the public any other records, reports, plans, or any information obtained by the State other than that information designated as confidential.

C. The Department shall provide facilities for the inspection of information relating to permit forms and insure that State employees honor requests for inspection promptly without undue requirements or restrictions. The Department shall insure that a machine or device for the copying of papers and documents is available for a reasonable fee, or otherwise provide for coordination with copying facilities or services so that requests for copies of nonconfidential documents may be honored promptly.

D. Information that is required to be supplied to the Department contained in any application or other record that would be considered as confidential shall still be made available by the Department to the U.S. Environmental Protection Agency at their request or shall be included in any regular report, if the information has been submitted by the Department with this claim to the EPA. If EPA obtains from the State information that is not claimed to be confidential, that information is available for public distribution.

EPA ARCHIVE DOCUMENT

1996

.03 Definitions.

A. When used in this subtitle the following terms have the meanings given.

B. Terms.

(1) "Active portion" means that portion of a facility where treatment, storage, or disposal operations are being or have been conducted after the effective date of this subtitle and which is not a closed portion. -

(2) "Aquifer" means a geologic formation, group of formations, or part of a formation capable of yielding a significant amount of ground water to wells or springs.

(3) "Authorized representative" means the person responsible for the overall operation of a facility or an operational unit (that is, part of a facility); for example, the plant manager, superintendent, or person of equivalent responsibility.

(4) "Closed portion" means that portion of a facility which an owner or operator has closed in accordance with the approved facility closure plan and all applicable closure requirements. (See also "active portion" and "inactive portion".)

(5) "Confined aquifer" means an aquifer:

(a) Bounded above and below by impermeable beds or by beds of distinctly lower permeability than that of the aquifer itself;

(b) Containing confined ground water.

(6) "Constituent" or "hazardous waste constituent" means a constituent which caused the Secretary to list the hazardous waste in COMAR 10.51.02.14-17 or a constituent listed in Table 1 of COMAR 10.51.02.13.

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

(8) "Contingency plan" means a document setting out an organized, planned, and coordinated course of action to be followed in case of a fire, explosion, or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment.

(9) "Department" means the Department of Health and Mental Hygiene.

(10) "Designated facility" means a hazardous waste treatment, storage, or disposal facility which has received a permit from the Department of Health and Mental Hygiene (or a facility with interim status, or a facility permitted by a state with interim or final authorization) in accordance with the requirements of these regulations.

(11) "Dike" means an embankment or ridge of either natural or man-made materials used to prevent the movement of liquids, sludges, solids, or other materials.

10.51.01.03B DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(12) "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 water.

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

(14) "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 waste will remain after closure.

(14-1) "Elementary neutralization unit" means a device which:

(a) Is used for neutralizing wastes which are hazardous wastes only because they exhibit the corrosivity characteristic defined in COMAR 10.51.02.11, or are listed in COMAR 10.51.02.15-...17 only for this reason; and

(b) Meets the definition of tank, container, transport vehicle, or vessel in COMAR 10.51.01.

(15) "EPA hazardous waste number" means the number assigned by EPA to each hazardous waste listed in COMAR 10.51.02.14-17 and to each characteristic identified in COMAR 10.51.02.09-13.

(16) "EPA identification number" means the number assigned by EPA to each generator, transporter, and treatment, storage, or disposal facility.

(17) "Equivalent method" means any testing or analytical method approved by the Secretary under Regulation .04 A and B.

EPA ARCHIVE DOCUMENT

(18) "Existing hazardous waste management facility" or "existing facility" means a facility which was in operation, or for which construction had commenced, on or before November 18, 1980. Construction had commenced if:

(a) The owner or operator has obtained all necessary federal. State, and local preconstruction approvals or permits;

(b) A continuous physical, on site construction program has begun, or the owner or operator has entered into contractual obliga-

1998

10.51.01.03B

tions, which cannot be cancelled or modified without substantial loss, for construction of the facility to be completed within a reasonable time.

(18-1) "Existing portion" means that land surface area of an existing hazardous waste management facility on which wastes have been placed before January 26, 1983.

(19) "Facility" means all continuous 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 (for example, one or more landfills, surface impoundments, or combinations of them).

(20) "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.

(21) "Food-chain crops" means tobacco, crops grown for human consumption and crops grown for feed for animals whose products are consumed by humans.

(22) "Freeboard" means the vertical distance between the top of a tank or surface impoundment dike, and the surface of the waste contained in it.

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

(24) "Generator" means any person, by site, whose act or process produces hazardous waste identified or listed in COMAR 10.51.02.

(25) "Ground water" means water below the land surface in a zone of saturation.

(26) "Hazardous waste" means a hazardous waste as defined in COMAR 10.51.02. Hazardous waste shall be synonymous with Controlled Hazardous Substance or CHS.

(26-1) "Hazardous waste discharge" means the accidental or intentional spilling, leaking, pumping, pouring, emitting, emptying, or dumping of hazardous waste or a material listed in COMAR 10.51.02.17 which, because it is discharged, becomes a hazardous waste, onto or into the land or water.

Supp. 20

10.51.01.03B DEPARTMENT OF HEALTH AND MENTAL HYCIEVE

(26-2) "Hazardous waste incinerator" means an enclosed device using controlled flame combustion, which is used to thermally break down hazardous waste and which is subject to the performance requirements of COMAR 10.51.05.15 or .15-1. Examples are rotary kiln, hazardous waste incinerators, hazardous waste fluidized bed incinerators, and liquid injection hazardous waste incinerators.

(27) "Inactive portion" means that portion of a facility which is not operated after the effective date of this subtitle. (See also "active portion" and "closed portion").

(29) "Inactive disposal facility" means a disposal facility that is no longer operated but is maintained to permanently contain CHS.

(29) "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 (for example, container inner liners or tank walls); 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. (See COMAR 10.51.05, Appendix V, for examples).

(30) "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.

(31) "In operation" refers to a facility which is treating, storing, or disposing of hazardous waste.

,(32) "Injection well" means a well into which fluids are injected. (See also "underground injection".)

(33) "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.

(34) "International shipment" means the transportation of hazardous wasts into or out of the jurisdiction of the United States.

(35) "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.

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

(37) "Land treatment facility" means a facility or part of a facility at which hazardous wasts is applied onto or incorporated into the soil surface. These facilities are disposal facilities if the waste will remain after closure.

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

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.01.03B

(39) "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 constituents, or leachate.

(40) "Management" or "hazardous waste management" means the systematic control of the collection, source separation, storage, transportation, processing, treatment, recovery, and disposal of hazardous waste.

(41) "Manifest" means the shipping document originated and signed by the generator which contains the information required by COMAR 10.51.03.04. The document shall be provided by or approved by the Department.

(42) "Manifest document number" means the serially increasing number assigned to the manifest by the generator for recording and reporting purposes.

(43) "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.

(44) "Movement" means that hazardous waste transported to a facility in an individual vehicle.

(45) "New hazardous waste management facility" or "new facility" means a facility which began operation, or for which construction commenced after November 18, 1980. (See also "Existing hazardous waste management facility".)

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

(47) "Open burning" means the combustion of any material without the following characteristics:

(a) Control of combustion air to maintain adequate temperature for efficient combustion;

(b) Containment of the combustion-reaction in an enclosed device to provide sufficient residence time and mixing for complete combustion; and

2001

Supp. 10

US EPA ARCHIVE DOCUMENT

10.51.01.03B DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(c) Control of emission of the gaseous combustion products. (See also "thermal destruction" and "thermal treatment".)

(43) "Operator" means the person responsible for the overall operation of a facility.

(49) "Owner" means the person who owns a facility or part of a facility.

(50) "Partial closure" means the closure of a discrete part of a facility in accordance with the applicable closure requirements of COMAR 10.51.05. For example, partial closure may include the closure of a trench, a unit operation, a landfill cell, or a pit, while other parts of the same facility continue in operation or will be placed in operation in the future.

(51) "Person" means an individual, trust, firm, joint stock company, federal agency, corporation (including a government corporation), partnership, association, State, municipality, commission, political subdivision of a State, or any interstate body.

(52) "Personnel" or "facility personnel" means all persons who work at, or oversee the operations of, a hazardous waste facility, and . whose actions or failure to act may result in noncompliance with the requirements of COMAR 10.51.05.

(53) "Pile" means any non-containerized accumulation of solid, nonflowing hazardous waste that is used for treatment or storage.

(54) "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.

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(55) "Publicly owned treatment works" or "POTW" means any device or system used in the treatment (including recycling and reclamation) of municipal sewage or industrial waste of a liquid nature which is owned by a "State" or "municipality" (as defined by Section 502(4) of the CWA).

(56) "Representative sample" means a sample of a universe or whole (for example, waste pile, lagoon, ground water) which can be expected to exhibit the average properties of the universe or whole.

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

2002

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

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

(60) "Secretary" means the Secretary of Health and Mental Hygiene.

(61) "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.

(62) "Solid waste" means a solid waste as defined in COMAR 10.51.02.

(62-1) "Spill" means the accidental spilling, leaking, pumping, pouring, emitting, or dumping of hazardous wastes or materials which, when spilled, become hazardous wastes into or onto any land or water.

(63) "State" means any of several states, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands.

(64) "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.

(65) "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.

(66) 'Tank" means a stationary device, designed to contain an accumulation of hazardous wastes which is constructed primarily of non-earthen materials (for example, wood, concrete, steel, plastic) which provide structural support.

(66-1) "Thermal destruction" means thermal treatment using controlled flame combustion. "Thermally destroy" or "incinerate" means the act of thermal destruction.

Supp. 20

10.51.01.03B DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(67) "Thermal treatment" means the treatment of hazardous waste in a device which uses elevated temperatures as the primary means to change the chemical, physical, or biological character or composition of the hazardous waste. Examples of thermal treatment processes are incineration, molten salt, pyrolysis, calcination, wet air oxidation, and microwave discharge. (See also "hazardous waste incinerator" and "open burning".)

(68) "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 the release of any hazardous waste or any constituent of hazardous waste into the environment during treatment.

(69) "Transportation" means the movement of hazardous waste by air, rail, highway, or water.

(69-1) "Transport vehicle" means a motor vehicle, vessel, or rail car used for the transportation of hazardous waste by any mode. Each cargo-carrying body (trailer, railroad car, etc.) is a separate transport vehicle.

(70) "Transporter" means a person engaged in the off-site trans-. portation of hazardous waste by air, rail, highway, or water.

(71) "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 far as to:

(a) Neutralize the waste;

(b) Recover energy or material resources from the waste;

(c) Render the waste:

US EPA ARCHIVE DOCUMENT

(i) Non-hazardous or less hazardous,

(ii) Safer to transport, store, or dispose of, or

(iii) Amenable for recovery, amenable for storage, or reduced in volume.

(72) "Underground injection" means the subsurface emplacement of fluids through a bored, drilled, or driven well, or through a dug well, where the depth of the dug well is greater than the largest surface dimension. (See also "injection well".)

(73) "Unsaturated zone" or "zone of aeration" means the zone between the land surface and the water table.

10.51.01.03B DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(67) "Thermal treatment" means the treatment of hazardous waste in a device which uses elevated temperatures as the primary means to change the chemical, physical, or biological character or composition of the hazardous waste. Examples of thermal treatment processes are incineration, molten sait, pyrolysis, calcination, wet air oxidation, and microwave discharge. (See also "hazardous waste incinerator" and "open burning".)

(68) "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 the release of any hazardous waste or any constituent of hazardous waste into the environment during treatment.

(69) "Transportation" means the movement of hazardous waste by air, rail, highway, or water.

(69-1) "Transport vehicle" means a motor vehicle, vessel, or rail car used for the transportation of hazardous waste by any mode. Each cargo-carrying body (trailer, rsilroad car, etc.) is a separate transport vehicle.

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

(71) "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 far as to:

(a) Neutralize the waste;

(b) Recover energy or material resources from the waste;

(c) Render the waste:

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(i) Non-hazardous or less hazardous,

(ii) Safer to transport, store, or dispose of, or

(iii) Amenable for recovery, amenable for storage, or reduced in volume.

(72) "Underground injection" means the subsurface emplacement of fluids through a bored, drilled, or driven well, or through a dug well, where the depth of the dug well is greater than the largest surface dimension. (See also "injection well".)

(73) "Unsaturated zone" or "zone of aeration" means the zone between the land surface and the water table.

2004

(74) "United States" means the 50 states, the District of Columbia, the Commonwealth of Puerto Rico, the U.S. Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands.

(74-1) "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 facilities' property boundary.

(74-2) "Vessel" means every description of watercraft used, or capable of being used, as a means of transportation on the water.

(74-3) "Wastewater treatment unit" means a device which:

(a) Is part of a wastewater treatment facility which is subject to regulation under either §402 or §307(b) of the Clean Water Act;

(b) Receives and treats or stores an influent wastewater which is a hazardous waste as defined in COMAR 10.51.02 or generates and accumulates a wastewater treatment sludge which is hazardous waste as defined in COMAR 10.51.02 or treats or stores a wastewater treatment sludge which is a hazardous waste as defined in COMAR 10.51.02; and

(c) Meets the definition of tank in $\S B(66)$.

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

(76) "Well" means any shaft or pit dug or bored into the earth, generally of a cylindrical form, and often walled with bricks or tubing to prevent the earth from caving in.

(77) "Well injection" (See "underground injection").

.04 Rulemaking Petitions.

A. General.

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(1) Any person may petition the Secretary to modify or revoke any provision in this subtitle. This section sets forth general requirements which apply to these petitions. Section B sets forth additional requirements for petitions to add a testing or analytical method to COMAR 10.51.02 or 10.51.05. Section C sets forth additional requirements for petitions to exclude a waste at a particular facility from COMAR 10.51.02.03 or the lists of hazardous wastes in COMAR 10.51.02.14 — .17.

10.51.01.04 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(2) Each petition shall be submitted to the Secretary by certified mail and shall include:

(a) The petitioner's name and address;

(b) A statement of the petitioner's interest in the proposed action;

(c) A description of the proposed action, including (when appropriate) suggested regulatory language; and

(d) A statement of the need and justification for the proposed action, including any supporting tests, studies, or other information.

(3) The Secretary will make a tentative decision to grant or deny a petition and will publish notice of the tentative decision, either in the form of an advanced notice of proposed rulemaking, a proposed rule, or a tentative determination to deny the petition, in the Maryland Register for written public comment.

(4) Upon the written request of any interested person, the Secretary may, at his discretion, hold an informal public hearing to consider oral comments on the tentative decision. A person requesting a hearing shall state the issues to be raised and explain why written comments would not suffice to communicate the person's views. The Secretary may in any case decide on his own motion to hold an informal public hearing.

(5) After evaluating all public comments, the Secretary will make a final decision by publishing in the Maryland Register a regulatory amendment or a denial of the petition.

B. Petitions for Equivalent Testing or Analytical Methods.

(1) Any person seeking to add a testing or analytical method to COMAR 10.51.02 or 10.51.05 may petition for a regulatory amendment under this section and §A, above. To be successful, the person must demonstrate to the satisfaction of the Secretary that the proposed method is equal to or superior to the corresponding method prescribed in COMAR 10.51.02 or 10.51.05 in terms of its sensitivity, accuracy, and precision (that is, reproducibility).

(2) Each petition shall include, in addition to the information required by A(2):

JS EPA ARCHIVE DOCUMENT

(a) A full description of the proposed method, including all procedural steps and equipment used in the method;

(b) A description of the types of wastes or waste matrices for which the proposed method may be used;

(c) Comparative results obtained from using the relevant or corresponding methods prescribed in COMAR 10.51.02 or 10.51.05;

(d) An assessment of any factors which may interfere with, or limit the use of, the proposed method; and

(e) A description of the quality control procedures necessary to ensure the sensitivity, accuracy, and precision of the proposed method.

10.51.01.04C DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(3) After receiving a petition for an equivalent method, the Secretary may request any additional information on the proposed method which he may reasonably require to evaluate the method.

C. Petitions to Amend COMAR 10.51.02 to Exclude a Waste Produced at a Particular Facility.

(1) Any person seeking to exclude a waste at a particular generating facility from the lists in COMAR 10.51.02.14-17 may petition for a regulatory amendment under this section and §A. To be successful, the petitioner must demonstrate to the satisfaction of the Secretary that the waste produced by a particular generating facility does not meet any of the criteria under which the waste was listed as a hazardous waste and, in the case of an acutely hazardous waste listed under COMAR 10.51.02.08A(2), that it also does not meet the criterion of COMAR 10.51.02.08A(3). A waste which is so excluded may still, however, be a hazardous waste by operation of COMAR 10.51.02.09-13.

(2) The procedures in this section and \$A may also be used to petition the Secretary for a regulatory amendment to exclude from COMAR 10.51.02.03A(2)(b) or B which is described in those sections and is either a waste listed in COMAR 10.51.02.14-17, contains a waste listed in COMAR 10.51.02.14-17, or is derived from a waste listed in COMAR 10.51.02.14-17. This exclusion may only be issued for a particular generating, storage, treatment, or disposal facility. The petitioner must make the same demonstration as required by \$C(1), except that where the waste is a mixture of solid waste and one or more listed hazardous wastes or is derived from one or more hazardous wastes, his demonstration may be made with respect to each constituent listed waste or the waste mixture as a whole. A waste which is so excluded may still be a hazardous waste by operation of COMAR 10.51.02.09-13.

(3) If the waste is listed with codes "I", "C", "R", or "E" in COMAR 10.51.02.14-17, the petitioner shall show that demonstration samples of the waste do not exhibit the relevant characteristic of COMAR 10.51.02.10-13 using any applicable test methods prescribed therein.

(4) If the waste is listed with code "T" in COMAR 10.51.02.14-17, the petitioner shall demonstrate that:

(a) Demonstration samples of the waste do not contain the constituent (as defined in Appendix VII of COMAR 10.51.02) that caused

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.01.04C

the Secretary to list the waste, using the appropriate test methods prescribed in Appendix III; or

(b) The waste does not meet the criterion of COMAR 10.51.02.08A(3) when considering the factors listed in COMAR 10.51.02.08A(3).

(5) If the waste is listed with the code "H" in COMAR 10.51.02.14-17, the petitioner shall demonstrate that the waste does not meet both of the following criteria:

(a) The criterion of COMAR 10.51.02.08A(2);

(b) The criterion of COMAR 10.51.02.08A(3) when considering the factors listed in COMAR 10.51.02.08A(3).

(6) Demonstration samples shall consist of enough representative samples, but not less than four samples, taken over a period of time sufficient to represent the variability or the uniformity of the waste.

(7) Each petition shall include, in addition to the information required by Regulation .04A(2):

(a) The name and address of the laboratory facility performing the sampling or tests of the waste;

(b) The names and qualifications of the persons sampling and testing the waste;

(c) The dates of sampling and testing.

(d) The location of the generating facility;

(e) A description of the manufacturing processes or other operations and feed materials producing the waste and an assessment of whether these processes, operations, or feed materials can or might produce a waste that is not covered by the demonstration;

(f) A description of the waste and an estimate of the average and maximum monthly and annual quantities of waste covered by the demonstration:

(g) Pertinent data on and discussion of the factors delineated in the respective criterion for listing a hazardous waste, where the demonstration is based on the factors in COMAR 10.51.02.08A(3);

(h) A description of the methodologies and equipment used to obtain the representative samples;

10.51.01.05 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(i) A description of the sample handling and preparation techniques used for extraction, containerization, and preservation of the samples;

(j) A description of the tests performed (including results);

(k) The names and model numbers of the instruments used in performing the tests; and

(1) The following statement signed by the generator of the waste or his authorized representative: I certify under penalty of law that I have personally examined and am familiar with the information submitted in this demonstration and all attached documents, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

(8) After receiving a petition for an exclusion, the Secretary may request any additional information which he may reasonably require to evaluate the petition.

(9) An exclusion will only apply to the waste generated at the individual facility covered by the demonstration and will not apply to waste from any other facility.

(10) The Secretary may exclude only part of the waste from which the demonstration is submitted when he has reason to believe that variability of the waste justifies a partial exclusion.

(11) The Secretary may (but is not required to) grant a temporary exclusion before making a final decision under Regulation .04A(4) whenever he finds that there is a substantial likelihood that an exclusion will be finally granted. The Secretary will publish notice of a temporary exclusion in the Maryland Register.

.05 Criteria for Listing Hazardous Waste.

A. When used in COMAR 10.51.01-.08, the following publications are incorporated by reference:

(1) "ASTM Standard Test Methods of Flash Point of Liquids by Setaflash Closed Tester." ASTM Standard D-3278-78 is available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

(2) "ASTM Standard Test Methods for Flash Point by Pensky-Martins Closed Tester," ASTM Standard D-93-79 or D-93-80. D-93-80

2008

is available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

(3) "Flammable and Combustible Liquids Code" (1977 or 1981), available from the National Fire Protection Association, 470 Atlantic Avenue, Boston, Massachusetts 02210.

(4) "Test Methods for the Evaluation of Solid Waste, Physical/ Chemical Methods" (1980). EPA Publication Number SW-846 is available from the U.S. Environmental Protection Agency, Solid Waste Information, 26 West St. Clair Street, Cincinnati, Ohio 45268.

B. (Reserved)

Administrative History

Regulations .01 — .04 adopted as an emergency provision effective November 18, 1980 (7:25 Md. R. S-1); adopted permanently effective April 3, 1981 (8:7 Md. R. 642)

Requisions .02A and .03B amended effective January 15, 1962 (9:1 Md. R. 20) Regulation .02A-1 adopted effective February 13, 1964 (11:3 Md. R. 202) Regulation .02D adopted effective January 18, 1962 (9:1 Md. R. 20)

Regulation .03B amended effective January 31, 1953 (10:2 Md. R. 110); February 13, 1954 (11:3 Md. R. 2021; July 30, 1984 (11:15 Md. R. 1330)

Regulation .05 adopted effective January 31, 1963 (10:2 Md. R. 110)

10.51.01.05

Title 10

DEPARTMENT OF HEALTH AND MENTAL HYGIENE

Subtitle 51 DISPOSAL OF CONTROLLED HAZARDOUS SUBSTANCES

Chapter 02 Identification and Listing of Hazardous Waste

Authority: Health-Environmental Article, §2-206 et seq., Annotated Code of Maryland

.01 Purpose and Scope.

This Chapter identifies those solid wastes which are subject to regulation as hazardous wastes under COMAR 10.51.03 - 10.51.05.

In this Chapter:

A. Regulations .01 - .06 defines the terms "solid waste" and "hazardous waste," identifies those wastes which are excluded from regulation under COMAR 10.51.03 - 10.51.05 and establishes special management requirements for hazardous waste produced by small quantity generators and hazardous waste which is used, re-used, recycled, or reclaimed.

B. Regulations .07 and .08 set forth the criteria used by the Department to identify characteristics of hazardous waste and to list particular hazardous wastes.

C. Regulations .09 — .13 identify characteristics of hazardous waste.

D. Regulations .14 - .17 list particular hazardous wastes.

.02 Definitions of Solid Waste.

A. "Solid waste" means any garbage, refuse, sludge, or any other waste material which is not excluded under Regulation .04A.

B. "Other waste material" means any solid, liquid, semi-solid, or contained gaseous material, resulting from industrial, commercial, mining or agricultural operations, or from community activities, which:

(1) Is discarded or is being accumulated, stored, or physically, chemically or biologically treated before being discarded;

(2) Has served its original intended use and sometimes is discarded; or

Supp. 20

10.51.02.02 DEFARTMENT OF HEALTH AND MENTAL HYGIENE

(3) Is a manufacturing or mining by-product and sometimes is discarded.

C. A material is "discarded" if it is:

(1) Disposed of;

(2) Burned or incinerated after having served it's original intended use; or

(3) Physically, chemically, or biologically treated in lieu of or before being disposed of.

D. A material is "disposed of" if it is discharged, deposited, injected, dumped, spilled, leaked, or placed into or on any land or water so that the material or any constituent of the material may enter the environment or be emitted into the air or discharged into ground or surface waters.

E. "Manufacturing or mining by-product" means a material that is not one of the primary products of a particular manufacturing or mining operation, is a secondary and incidental product of the particular operation, and would not be solely and separately manufactured or mined by the particular manufacturing or mining operation. The term does not include an intermediate manufacturing or mining product which results from one of the steps in a manufacturing or mining process and is typically processed through the next step of the process within a short time.

F. Empty Container.

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(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 Regulation .17C of this chapter, is "empty" if:

(a) All wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container, for example, pouring, pumping, and aspirating; and

(b) Not more than 2.5 centimeters (1 inch) of residue remain on the bottom of the container or inner liner.

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

2010

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(3) A container or an inner liner removed from a container that has held a hazardous waste identified in Regulation .17C of this chapter is empty if:

(a) The container or inner liner has been triple rinsed using a solvent capable of removing the commercial chemical product or manufacturing chemical intermediate;

(b) 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

(c) 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.

(4) Residues of Hazardous Waste in Empty Containers.

(a) Any hazardous waste remaining in either an empty container or an inner liner removed from an empty container, as defined in $\S F(1) - (3)$, is not subject to COMAR 10.51.01 - 10.51.09.

(b) Any hazardous waste in either a container that is not empty or an inner liner removed from a container that is not empty, as defined in F(1) — (3), is subject to these regulations.

.03 Definition of Hazardous Waste.

A. A solid waste, as defined in Regulation .02 is a hazardous waste if:

(1) It is not excluded from regulation as a hazardous waste under Regulation .04B; and

(2) It meets any of the following criteria:

(a) It exhibits any of the characteristics of hazardous waste identified in this chapter.

(b) It is listed in Regulations .14 - .17 and has not been excluded from the lists by COMAR 10.51.01.04A and C.

(c) It is a mixture of a solid waste and a hazardous waste that is listed in this chapter solely because it exhibits one or more of the characteristics of hazardous waste identified in this chapter unless the resultant mixture no longer exhibits any characteristic of hazardous waste as identified in this chapter.

(d) It is a mixture of solid waste and one or more hazardous wastes listed in this chapter and has not been excluded from this paragraph under COMAR 10.51.01.04; however, the following mixtures

Supp. 20

US EPA ARCHIVE DOCUMENT

2010-1

10.51.02.03 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

of solid wastes and hazardous wastes listed in this chapter are not hazardous wastes (except by application of $\frac{3}{42}$ (2)(a) and (b) of this regulation) if the generator can demonstrate that the mixture consists of wastewater, the discharge of which is subject to regulation under either $\frac{402}{20}$ or $\frac{307}{6}$) of the Clean Water Act (including wastewater) at facilities which have eliminated the discharge of wastewater) and:

(i) One or more of the following spent solvents listed in Regulation .15 — carbon tetrachloride, tetrachloroethylene, trichloroethylene — provided that the maximum total weekly usage of these solvents (other than the amounts that can be demonstrated not to be discharged to wastewater) divided by the average weekly flow of wastewater into the headworks of the facility's wastewater treatment or pre-treatment system does not exceed one part per million;

(ii) One or more of the following spent solvents listed in Regulation .15 — methylene chloride l.1.1. — trichloroethane, chlorobenzene, o-dichlorobenzene, toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, spent chlorofluorocarbon solvents, cresols, cresylic acid and nitrobenzene, provided that the maximum total weekly usage of these solvents (other than the amounts that can be demonstrated not to be discharged to wastewater) divided by the average weekly flow of wastewater into the headworks of the facility's wastewater treatment or pre-treatment system does not exceed 25 parts per million;

(iii) One of the following wastes listed in Regulation .16 heat exchanger bundle cleaning sludge from the petroleum refining industry (EPA Hazardous Waste No. K050);

(iv) A discarded commercial chemical product or chemical intermediate listed in Regulation .17 arising from de minimis losses of these materials from manufacturing operations in which these materials are used as raw materials or are produced in the manufacturing process. For purposes of this subparagraph, "de minimis" losses include those from normal material handling operations (for example, spills from the unloading or transfer of materials from bins or other containers, leaks from pipes, valves or other devices used to transfer materials); minor leaks of process equipment, storage tanks or containers; leaks from well maintained purip packings and seals; sample purgings; relief device discharges; discharges from safety showers and rinsing and cleaning of personal safety equipment; and rinsate from empty containers or from containers that are rendered empty by that rinsing; or

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2010-2

(v) Wastewater resulting from laboratory operations containing toxic (T) wastes listed in this chapter provided that the annualized average flow of laboratory wastewater does not exceed 1 percent of the total wastewater flow into the headworks of the facility's wastewater treatment or pre-treatment system or provided the wastes, combined annualized average concentration does not exceed one part per million in the headworks of the facility's wastewater treatment or pre-treatment facility. Toxic (T) wastes used in laboratories that are demonstrated not to be discharged to wastewater are not to be included in this calculation.

B. A solid waste which is not excluded from regulation under A(1) becomes a hazardous waste when any of the following events occur:

(1) In the case of a waste listed in Regulations .14 - .17, when the waste first meets the listing description set forth in Regulations .14 - .17.

(2) In the case of a mixture of solid waste and one or more listed hazardous wastes, when a hazardous waste listed in Regulations .14 - .17 is first added to the solid waste.

(3) In the case of any other waste (including a waste mixture), when the waste exhibits any of the characteristics identified in Regulations .09 - .13.

C. Unless and until it meets the criteria of §D:

(1) A hazardous waste will remain a hazardous waste.

(2) Any solid waste generated from the treatment, storage, or disposal of a hazardous waste, including any sludge, spill residue, ash, emission control dust or leachate (but not including precipitation run-off), is a hazardous waste.

D. Any solid waste described in §C is not a hazardous waste if it meets the following criteria:

(1) In the case of any solid waste, it does not exhibit any of the characteristics of hazardous waste identified in Regulations .09 — .13.

(2) In the case of a waste which is a listed waste under Regulations .14 - .17, contains a waste(s) listed under Regulations .14 - .17or is derived from a waste listed in Regulations .09 - .13, it also has been excluded from §C under COMAR 10.51.01.04A(3) and C.

Supp. 20

US EPA ARCHIVE DOCUMENT

10.51.02.04 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

.04 Exclusions.

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A. Materials Which Are Not Solid Wastes. The following materials are not solid wastes for the purpose of this chapter:

(1) Domestic sewage that passes through a sewer system to a publicly-owned treatment work for treatment. "Domestic sewage" means untreated sanitary wastes that pass through a sewer system.

(2) Industrial wastewater discharges that are point source discharges permitted pursuant to $\frac{5}{402}$ of the Clean Water Act, as amended, or permitted pursuant to Health-Environmental Article, $\frac{5}{99}$ -324 - 9-332.

(3) Irrigation return flows.

(4) Materials subjected to in-site mining techniques which are not removed from the ground as part of the extraction process.

B. Solid Wastes Which Are Not Hazardous Wastes. The following solid wastes are not hazardous wastes:

(1) Household waste, including household waste that has been collected, transported, stored, treated, disposed, recovered (for example, 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).

(2) Solid wastes generated by any of the following and which are returned to the soils as fertilizers:

(a) The growing and harvesting of agricultural crops;

(b) The raising of animals, including animal manures.

(3) Mining overburden returned to the mine site.

(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.

(5) Drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil, natural zas, or geothermal energy.

(6) Contaminated soils and other solids recovered from spills or removed from old disposal sites containing PCB at concentrations of less than 50 ppm which shall be disposed of at approved sites only if they do not qualify as a hazardous waste under any other section of this regulation.

2012

(7) For the purpose of disposal of waste mixtures containing insignificant amounts of CHS which are not hazardous wastes as defined by COMAR 10.51.02.03A(2), it is the obligation of the waste generator to show that the concentration of the CHS is such that the waste mixture can be disposed of in places other than a facility.

(8) Solid waste from the extraction, beneficiation, and processing of ores and minerals (including coal), including phosphate rock and overburden from the mining of uranium ore.

(9) Cement kiln dust waste.

C. Hazardous Wastes Which Are Exempt 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, or in an associated non-waste-treatment manufacturing unit, is not subject to 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 90 days after the unit ceases to be operated for manufacturing, or for storage or transportation of products or raw material.

D. Samples.

(1) Except as provided in D(2), a sample of solid waste or a sample of water, soil, or air, the quantity of which is to be determined by the Department, which is collected for the sole purpose of testing to determine its characteristics or composition, is not subject to any requirement of this part of COMAR 10.51.03 - .08 or to the notification requirements of §3010 of the Resource Conservation and Recovery Act, when the sample is being:

(a) Transported to a laboratory for the purpose of testing;

(b) Transported back to the sample collector after testing,

(c) Stored by the sample collector before transport to a laboratory for testing;

(d) Stored in a laboratory before testing;

(e) Stored in a laboratory after testing but before it is returned to the sample collector; or

(f) Stored temporarily in the laboratory after testing for a specific purpose (for example, until conclusion of a court case or enforcement action if further testing of the sample may be necessary).

Supp. 20

10.51.02.05 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(2) In order to qualify for the exemption in $\frac{1}{2}D(1)(a)$ and (b), a sample collector shipping samples to a laboratory and a laboratory returning samples to a sample collector shall:

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

(b) Comply with the following requirements if the sample collector determines that DOT, USPS, or other shipping requirements do not apply to the shipment of the sample:

(i) Package the sample so that it does not leak, spill, or vaporize from its packaging; and

(ii) Assure that the following information accompanies the samples:

(as) The sample collector's name, mailing address, and telephone number,

(bb) The laboratory's name, mailing address, and tele-

(cc) The quantity of the sample,

(dd) The date of shipment, and

(ee) A description of the sample.

US EPA ARCHIVE DOCUMENT

(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 $\frac{5}{2}$ (1) of this regulation.

.05 Special Requirements for Hazardous Waste Generated by Small Quantity Generators.

A. Except as otherwise provided in this regulation, if a person generates, in a calendar month, a total of less than 1000 kilograms of hazardous wastes, those wastes are not subject to regulation under COMAR 10.51.03 — 10.51.05.

B. If a person whose waste has been excluded from regulation under §A accumulates hazardous wastes in quantities greater than 1000 kilograms, those accumulated wastes are subject to regulation under COMAR 10.51.03 — 10.51.06.

C. If a person generates in a calendar month or accumulates at any time any of the following hazardous wastes in quantities greater than set forth below, those wastes are subject to regulation under COMAR 10.51.03 - 10.51.06;

2014

(1) One kilogram of any commercial product or manufacturing chemical intermediate having the generic name listed in Regulation .17E;

(2) One kilogram of any off-specification commercial chemical product or manufacturing chemical intermediate which, if it met specifications, would have the generic name listed in Regulation .17E;

(3) Any containers identified in Regulation .17C that are larger than 20 liters in capacity;

(4) 10 kilograms of inner liners from containers identified under Regulation .17C;

(5) 100 kilograms of any residue or contaminated soil, water or other debris resulting from the cleanup of a spill, into or onto any land or water, of any commercial chemical product or manufacturing chemical intermediate having the generic name listed in Regulation .17E.

D. In order for hazardous waste to be excluded from regulation under this chapter, the generator shall comply with COMAR 10.51.03.02. The generator must also either treat or dispose of the waste in an on-site facility, or ensure delivery to an off-site treatment, storage, or disposal facility, either of which is:

(1) Permitted by EPA under 40 CFR Part 122, or by a state with a hazardous waste management program authorized under 40 CFR Part 123;

(2) In interim status under 40 CFR Parts 122 and 265;

(3) Permitted, licensed, or registered by a state to manage municipal or industrial solid waste;

(4) Permitted under COMAR 10.18.02.03B(1) (air quality operating permit) and has a limited facility permit; or

(5) A generating station constructed by an electric company and has a limited facility permit.

E. Hazardous waste subject to the reduced requirements of this chapter 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 chapter, unless the mixture meets any of the characteristics of hazardous waste identified in Regulations .09 — .13.

Supp. 20

US EPA ARCHIVE DOCUMENT

10.51.02.06 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

F. Hazardous waste that is removed from the site of generation and is accumulated for the purposes of thermal destruction or is thermally destroyed in quantities greater than the minimum quantities specified in §§A, B, and C of this regulation may not be excluded from the requirements of COMAR 10.51.05.15, 10.51.07.02, and 10.51.07.05.

G. If a small quantity generator mixes a solid waste with a bazardous waste that exceeds a quantity exclusion level of this chapter, this mixture is subject to full regulation.

.06 Special Requirements for Hazardous Waste Which is Used, Re-used. Recycled, or Reclaimed, and Residues from Emptied Drums.

A. Except as otherwise provided in §B, a hazardous waste which meets the following criteria is not subject to regulation under COMAR 10.51.03 — 10.51.05 until such time as the Secretary promulgates to the contrary: It is being accumulated, stored, or physically, chemically, or biologically treated before beneficial use or re-use or legitimate recycling or reclamation.

B. A hazardous waste which is a sludge, or which is listed in Regulations .14 - .17; or which contains one or more hazardous wastes listed in Regulations .14 - .17 and which is transported or stored before being used, recycled, or reclaimed, is subject to the following requirements with respect to its transportation or storage:

(1) Notification requirements under Section 3010 RCRA;

(2) COMAR 10.51.03;

(3) COMAR 10.51.04:

JS EPA ARCHIVE DOCUMENT

(4) COMAR 10.51.05.01 - .12;

(5) COMAR 10.51.06 and 10.51.07, with respect to storage facilities.

.07 Criteria for Identifying the Characteristics of Hazardous Waste.

The Secretary shall identify and define a characteristic of hazardous waste in Regulations .09 - .13 only upon determining that:

A. A solid waste that exhibits the characteristic may:

(1) Cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness, or

2016

(2) 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

B. The characteristic can be:

(1) Measured by an available standardized test method which is reasonably within the capability of generators of solid waste or private sector laboratories that are available to serve generators of solid waste, or

(2) Reasonably detected by generators of solid waste through their knowledge of their waste.

.08 Criteria for Listing Hazardous Waste.

A. The Secretary shall list a solid waste as a hazardous waste only upon determining that the solid waste meets one of the following criteria:

(1) It exhibits any of the characteristics of hazardous waste identified in Regulations .09 — .13.

(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 LD50 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 LD50 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) It contains any of the toxic constituents listed in Appendix V unless, after considering any of the following factors, the Secretary 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:

(a) The nature of the toxicity presented by the constituent.

(b) The concentration of the constituent in the waste.

(c) The potential of the constituent or any toxic degradation product of the constituent to migrate from the waste into the environment under the types of improper management considered in $-\frac{1}{2}A(3)(g)$, below.

(d) The persistence of the constituent or any toxic degradation product of the constituent.

(e) The potential for the constituent or any toxic degradation product of the constituent to degrade into non-harmful constituents and the rate of degradation.

(f) The degree to which the constituent or any degradation product of the constituent bioaccumulates in ecosystems.

(g) The plausible types of improper management to which the waste could be subjected.

(h) The quantities of the waste generated at individual generation sites or on a regional or national basis.

(i) The nature and severity of the human health and environmental damage that has occurred as a result of the improper management of wastes containing the constituent.

10.51.02.09 DEPARTMENT OF HEALTH AND MENTAL HYGENE

(j) Actions taken by other governmental agencies of regulatory programs based on the health or environmental hazard posed by the waste or waste constituents.

(k) Such other factors as may be appropriate.

B. Substances will be listed on Appendix V 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.

C. The Secretary may list classes or types of solid waste 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 COMAR 10.51.02.

D. The Secretary will use the criteria for listing specified in this subsection to establish the exclusion limits referred to in Regulation .05C.

.09 General Characteristics of Hezardous Waste.

A. A solid waste, as defined in Regulation .02, which is not excluded from regulation as a hazardous waste under Regulation .04B, is a hazardous waste if it exhibits any of the characteristics identified in Regulations .09 — .13.

B. A hazardous waste which is identified by a characteristic in Regulations .09 — .13, but is not listed as a hazardous waste in Regulations .14 — .17, is assigned the Hazardous Waste Number set forth in the respective characteristic. This number shall be used in complying with the certain recordkeeping and reporting requirements under COMAR 10.51.03 — 10.51.06.

C. For purpose of Regulations .09 - .13, the Secretary 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 COMAR 10.51.01.

.10 Characteristic of Ignitability.

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

(1) It is a liquid, other than an aqueous solution containing less than 24 percent alcohol by volume, and has a flash point less than 60°C (140°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 Setailash Closed Cup Tester, using the test method specified

2018

in ASTM Standard D-3278-78, or as determined by an equivalent test method approved by the Secretary under the procedures set forth in COMAR 10.51.01.04A and B;

(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) It is an ignitable compressed gas as defined in 49 CFR 173.300 and as determined by the test methods described in that regulation or equivalent test methods approved by the Department under COMAR 10.51.01.04A and B:

(4) It is an oxidizer as defined in 49 CFR 173.151.

B. A solid waste that exhibits the characteristic of ignitability, but is not listed as a hazardous waste in Regulations .14 - .17, has the Hazardous Waste Number of D001.

ASTM Standards are available from ASTM, 1916 Race Street, Philadelphia, PA 19103.

.11 Characteristic of Corrosivity.

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

(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 EPA Method 5.2 on "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods", or an equivalent test method approved by the Secretary under the procedures set forth in COMAR 10.51.01.04A and B;

(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 Corrosion Engineers) Standard TM-01-69" as standardized in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods"), or an equivalent test method approved by the Secretary under the procedures set forth in COMAR 10.51.01.04A and B.

"The NACE Standard is available from the National Association of Corrosion Engineers, P.O. Box 986, Katy, Texas 77450

Supp. 15

US EPA ARCHIVE DOCUMENT

2018-1

10.51.02.12 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

B. A solid waste that exhibits the characteristics of corrosivity, but is not listed as a hazardous waste in Regulations .14 — .17, has the EPA Hazardous Waste Number of D002.

.12 Characteristic of Reactivity.

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

(1) It is normally unstable and readily undergoes violent change without detonating;

(2) It reacts violently with water;

(3) It forms potentially explosive mixtures with water,

(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;

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

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

(7) It is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure:

(8) It is a forbidden explosive as defined in 49 CFR 173.51, or a Class A explosive as defined in 49 CFR 173.53 or a Class B explosive as defined in 49 CFR 173.88.

B. A solid waste that exhibits the characteristic of reactivity, but is not listed as a hazardous waste in Regulation .14 - .17, has the EPA Hazardous Waste Number of D003.

.13 Characteristic of EP Toxicity.

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A. A solid waste exhibits the characteristic of EP toxicity, if, using the test methods described in Appendix II or equivalent methods approved by the Secretary under the procedures set forth in COMAR 10.51.01.04A and B, 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. If the waste contains less than 0.5 percent filterable solids, the waste itself, after filtering, is considered to be the extract for the purpose of this regulation.

2018-2

10.51.02.14

B. A solid waste that exhibits the characteristic of EP toxicity, but is not listed as a hazardous waste in Regulations 14. -17, has the EPA 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

LPA		Maximum
Hamrdous Waste		Concentration
Number	Contaminant	(milligrams per liter)
D004	Arsenic	
D005	Barium	
D006	Cadmium	
D007	Chromium	
D008	Lead	
D009	Mercury	0.2
> D010	Selenium	0.1
0010	Silver	50
D012	Endrin /1 2 3 4 10 10 Verseblage	17.anov.
1014		de ande 3 8
	1,9,98,0,0,7,0,08 OCCARydro-1 9-00	140, endo-3,o-
5010		
D013	Lindane (1,2,3,4,5,5-nexachioroc	ycloneiane,
	gamma isomer)	
D014	Methoxychior (1,1,1-Trichloro-2,	2-bis
	(p-methoxyphenyl) ethane)	10.0
D015	Tozaphene (C H Cl, Technical o	nlorinated
	camphene, 67-69 percent chlorir	1e)
D016	2,4-D. (2,4-Dichlorophenoxyaceti	c acid) 10.0
D017	2,4,5-TP Silver (2,4,5-Trichlorop	henoxypropionic
	scid)	1.0

.14 Lists of Hazardous Wastes: General.

A. A solid waste is a hazardous waste if it is listed in Regulations .15 - .17, unless it has been excluded from this list under COMAR 10.51.01.04A and B.

B. The Secretary will indicate his basis for listing the classes or types of wastes listed in Regulation .15 - .17 by employing one or more of the following Hazard Codes:

(1)	Ignitable Waste	(I)
(2)	Corrosive Waste	(C)
(3)	Reactive Waste	(R)
(4)	EP Toxic Waste	(E)
(5)	Acute Hazardous Waste	 (H)
(6)	Toxic Waste	(T)

C. Appendix IV identifies the constituent which caused the Secretary to list the waste as an EP Toxic Waste (E) or Toxic Waste (T) in Regulations .15 and 16.

D. Each hazardous waste listed in Regulations .15 - .17 is assigned a Hazardous Waste Number which precedes the name of the waste. This number shall be used in complying with the notification requirements, certain recordkeeping, and reporting requirements under COMAR 10.51.03 - 10.51.05.

E. Certain of the hazardous wastes listed in Regulations .15 and .16 have exclusion limits that refer to Regulation .05C.

Supp. 20

2019 - 2020
.15 Hazardous Waste from Non-specific Sources.

Industry	EPA Hazardous Waste Number	Hazardous Waste	Hazaro Code
Generic	F001	The following spent halogenated solvents used in degreasing: tetrachloroethylene, trichloroethylene, methylene chloride, 1, 1, 1-trichloroethane, carbon tetrachloride, and chlorinated flu- orocarbons; and sludges from the recovery of these solvents in degreasing operations.	(T)
	F002	The following spent halogenated solvents: tetrachloroethylene, methylene chloride, trichloroethylene, 1, 1, 1-trichloroethane, chlorobenzene, 1, 1, 2-trichloro-1,2, 2-trifluoroethane, ortho dichlorobenzene, and trichlorofluoromethane; and the still bottoms from the recovery of these solvents.	Ĩ
	F003	The following spent non-halogenated solvents: xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isolbutyl ke- tone, n-butyl alcohol, cyclohexanone, and methanol; and the still bottoms from the recovery of these solvents.	ົ
	F004	The following spent non-halogenated solvents; cresols and cre- sylic acid, and nitrobenzene; and the still bottoms from the re- covery of these solvents.	T
	F005	The following spent non-halogenated solvents: toluene, methyl (I.T ethyl ketone, carbon disulfide, isobutanol, and pryidine; and the still bottoms from the recovery of these solvents.	ט
-	F006	Wastswater treatment sludges from electroplating operations (T) except from the following processes: (1) sulfuric acid anodizing of aluminum; (2) tin plating on carbon steel; (3) zinc plating (segregated basis) on carbon steel; (4) aluminum or zinc alumi- num plating on carbon steel; (5) cleaning/stripping associated with tin, zinc and aluminum plating on carbon steel; and chemical etching and milling of aluminum.)
	· F019	Wastewater treatment sludges from the chemical conversion (T) coating of aluminum.	
	F007	Spent cyanide plating bath solutions from electroplating oper- (R.] ations (except for precious metals electroplating spent cyanide plating bath solutions).	ר
	F008	Plating bath sludges from the bottom of plating baths from (R.T electroplating operations where cyanides are used in the pro- cess (except for precious metals electroplating plating bath sludges).	ר
	F009	Spent stripping and cleaning bath solutions from electroplat- ing operations where cyanides are used in the process (except for precious metals electroplating and spent stripping and cleaning bath solutions):	(R,T)
	F010	Quenching bath studge from oil bath from metal heat treating operations where cyanides are used in the process (except for precious metals heat-treating quenching bath sludges).	(R,T)
:	F011	Spent cyanide solutions from salt bath pot cleaning from met- al heat treating operations (except for precious metals heat treating spent cyanide solutions from salt bath pot cleaning).	(R,T)
	F012	Quenching wastewater treatment sludges from metal heat treating operations where cyanides are used in the process (except for precious metals heat treating quenching waste-	Ē
- -	F014	water treatment sudges). Cyanidation wastewater treatment tailing pond sediment from mineral metals recovery operations	Ē
-	F015	Spent cyanide bath solutions from mineral metals recovery operations	(R,T)

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2021

 Industry	EPA Hazardous Waste Number	Hazardous Waste	Hazard Code
 	F024	Wastes, including but not limited to, distillation residues, heavy ends, tars, and reactor cleanout wastes from the produc- tion of chlorinated aliphatic hydrocarbons, having carbon con- tent from one to five, using 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 wastes listed in Regulation .16.)	(T)

Industry	EPA Hazardous Waste Number	Hazardous Waste Coo	ird le
Wood Preservation	K001	Bottom sediment sludge from the treatment of wastewaters (T from wood preserving processes that use creosote and/or pentachlorophenol)
norganic Pigments	K002	Wastewater treatment sludge from the production of chromo yellow and orange pigments	e (7
	K003	Wastewater treatment sludge from the production of molyb date orange pigments	- ("]
	K004	Wastewater treatment sludge from the production of zinc yel low pigments	- (1
	K005	Wastewater treatment sludge from the production of chromo green pigments	e ("
	K006	Wastewater treatment sludge from the production of chrome oxide green pigments (anhydrous and hydrated)	e ()
	K007	Wastewater treatment sludge from the production of iron blue pigments	e (1
	K008	Oven residue from the production of chrome oxide green pig ments	- (1
Organic Chemicals	K009	Distillation bottoms from the production of acetaldehyde from ethylene	n (1
	K010	Distillation side cuts from the production of acetaldehyd	e (1
	K011	Bottom stream from the wastewater stripper in the production of acrylonitrile	- (R

2024

2023-1

Industry	EPA Hazardous Waste Numbe	r Hazardous Waste	Hazar Code
	K013	Bottom stream from the acetronitrile column in the produc-	(R,T)
	K014	Bottoms from the acetronitrile purification column in the pro- duction of acrylonitrile	(T)
	K015	Still bottoms from the distillation of benzyl chloride	(T)
	K016	Heavy ends or distillation residues from the production of car- bon tetrachloride	(T)
	K017	Heavy ends (still bottoms) from the purification column in the production of epichlorohydrin	(TT)
	K018	Heavy ends from fractionation in ethyl chloride production	. (T)
	K019	Heavy ends from the distillation of ethylene dichloride in eth- ylene 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 anhy- dride from naphthalene	(T)
	K024	Distillation bottoms from the production of phthalic anhy- (T) dride from naphthalene	
	K025	Distillation bottoms from the production of nitrobenzene by (T) the nitration of benzene	•
	K093	Distillation light ends from the production of phthalic anhy- (T) dride from ortho-xylene.	
	K094	Distillation bottoms from the production of phthalic anhy- (T) dride from ortho-xylene.	-
	K026	Stripping still tails from the production of methyl ethyl pyri- (T) dines	
	K027	Centrifuge and distillation residues from toluene diisocyanate (R,T) production.	
	K028	Spent catalyst from the hydrochlorinator reactor in the pro- (T) fuction of 1,1,1-trichloroethane	
	K029	Waste from the product stream stripper in the production of (T) 1,1,1-trichloroethane	
	K095	Distillation bottoms from the production of 1,1,1-trichlor- ethane (T)	
	K0 96 I	feavy ends from the heavy ends column from the production (T) of 1, 1, 1-trichloroethane.	

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Industry	EPA Hazardous Waste Number	- Hazardous Waste	Hazard Code
· ·	K013	Bottom stream from the acetronitrile column in the produc- tion of acrylonitrile	(R,T)
	K014	Bottoms from the acetronitrile purification column in the pro- duction of acrylonitrile	(T)
	K015	Still bottoms from the distillation of benzyl chloride	(T)
	K016	Heavy ends or distillation residues from the production of car- bon tetrachloride	(T)
	K017	Heavy ends (still bottoms) from the purification column in the production of epichlorohydrin	(TT)
	K018	Heavy ends from fractionation in ethyl chloride production	(T)
-	K019	Heavy ends from the distillation of ethylene dichloride in eth- ylene 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 anhy- dride from naphthalene	(T)
	K024	Distillation bottoms from the production of phthalic anhy- (T. dride from naphthalene)
	K025	Distillation bottoms from the production of nitrobenzene by (T) the nitration of benzene) .
•	K093	Distillation light ends from the production of phthalic anhy- (T) dride from ortho-xylene.	1 -
	K094 1	Distillation bottoms from the production of phthalic anhy- (T) iride from ortho-xylene.	I
	K026 9	Stripping still tails from the production of methyl ethyl pyri- (T) lines	I
	K027 (Centrifuge and distillation residues from toluene diisocyanate (R.1 production.	.)
	K028 S	Spent catalyst from the hydrochlorinator reactor in the pro- (T) luction of 1,1,1-trichloroethane	I
	K029	Waste from the product stream stripper in the production of (T)	I
	K095 1	Distillation bottoms from the production of 1,1,1-trichlor- ethane	
	K096 H	leavy ends from the heavy ends column from the production (T) of 1, 1, 1-trichloroethane.	

2025

Supp. 10

Supp. 10

	Industry	EPA Hazardous Waste Number	Hazardous Waste	Hazard Code
	· .	K030	Column bottoms or heavy ends from the combined production of trichloroethylene and perchloroethylene	(T)
Pesticides	Pesticides	K031	By-products salts generated in the production of MSMA and cacodylic acid	(T)
	2	K032	Wastewater treatment sludge from the production of chlor- dane	(T)
· 20		K033	Wastewater and scrub water from the chlorination of cyclo- pentadiene in the production of chlordane	(T)
)27		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 pro- duction of disulfoton	(T)
		K037	Wastewater treatment sludges from the production of disulfo- ton	(T)
		K038	Wastewater from the washing and stripping of phorate pro- duction	(T)
. ·		K039	Filter cake from the filtration of diethylphosphorodithoric (" acid in the production of phorate	Γ)
		K040	Wastewater treatment sludge from the production of phorate ('	Г)
		K041	Wastewater treatment sludge from the production of tox- ('	Г)
		K098	Untreated process wastewater from the production of tox- (' aphene.	Г)
2028		K042	Heavy ends or distillation residues from the distillation of te- (' trachlorobenzene in the production of 2,4,5-T	[')
τ ω		K043	2,6-Dichlorophenol waste from the production of 2,4-D ("	r) ·
		K099	Untreated wastewater from the production of 2,4-D. ("	[]
Explosive	Explosives	K044	Wastewater treatment sludges from the manufacturing and (I processing of explosives	?)
		K045	Spent carbon from the treatment of wastewater containing (I explosives	२)
		K046	Wastewater treatment sludges from the manufacturing, for- mulation and loading of lead-based initiating compounds	
		K047	Pink/red water from TNT operations (F	2)

Industry.	EPA Hazardous Waste Number	Hazardous Waste	Hazard Code
Petroleum - Refining	K048	Dissolves air flotation (DAF) float from the petroleum refin- ing industry	(T)
ه.	K049	Slop oil emulsion 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 Steel	K061	Emission control dust/sludge from the electric furnace produc- tion of steel	(T)
	K062	Spent pickle liquor from steel finishing operations	(C,T)
Primary Copper	K064	Acid plant blowdown slurry/sludge resulting from the thick- ening of blowdown slurry from primary copper production	(T)
Primary Lead	K065	Surface impoundment solids contained in and dredged from surface impoundments at primary level lead smelting facili- ties	(T)
Primary Zine	K066	Sludge from treatment of process wastewater and/or acid plant blowdown from primary zinc production	(T)
	K067	Electrolytic anode slimes/sludges (rom primary zinc produc- (T) tion	
· · · · · · · · · · · · · · · · · · ·	X068	Cadmium plant leachate residue (iron oxide) from primary (T) zine production	
Secondary Lead	K069	Emission control dust/sludgs from secondary lead smelting (T)	
	K100	Waste leaching solution from acid leaching of emission control (T) dust/sludge from secondary lead smelting.	
Inorganic Chemicals	K071	Brine purification muds from the mercury cell process in chlo- (T) rine production, where separately prepurified brine is not used	_
	K073	Chloringted hydrocarbon wastes from the purification step of (T) the diaphragm cell process using graphite anodes in chlorine production	
	K106	Wastewater treatment sludge from the mercury cell process in (T) chlorine production.	
Organic	12000	Distillation between from a line and best of	
Unemicals	K 103	Distinguing poly and an	
	*****	of aniline.	

Industry	EPA Hazardous Waste Number	Hazardous Waste	Haza Cod
	K104	Combined wastewater streams generated from nitrobenzene/ aniline production.	(T)
	K085	Distillation or fractionating column bottoms from the produc- tion of chlorobenzenes	(T)
	K105	Separated aqueous stream from the reactor product washing step in the production of chlorobenzenes.	(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)
Veterinary Pharmaceu- ticals	K084	Wastewater treatment sludges generated during the produc- tion of veterinary pharmaceuticals from arsenic or organoar- senic 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)
Coking	K060	Ammonia still lime sludge from coking operations.	(T)
-	K087	Decantor tank tar sludge from coking operations	(T)

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.16-1 Hazardous Waste from Specific Sources (State).

Industry	State Huzardous Waste Number	Hazardous Waste	Hazard Code
Organic Chemical	MD 01	Either coke and chemical sludge from API separators, generated during the production of phthalate esters	. (T)

10.51.02.17A DEPARTMENT OF HEALTH AND MENTAL HYGIENE

.17 Discarded Commercial Chemical Products, Off Specification (specification) Species, Containers, and Spill Residues of These.

The following materials or items are hazardous wastes if they are discarded or intended to be discarded:

A. Any commercial chemical product, or manufacturing chemical intermediate, having the generic name listed in §E or F.

B. Any off-specification commercial chemical product or manufacturing chemical intermediate which, if it met specifications, would have the generic name listed in §E or F.

C. Any container or inner liner removed from a container that has been used to hold any commercial chemical product or manufacturing chemical intermediate having the generic name listed in §E, unless:

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

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

(3) 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.

D. Any residue or contaminated soil, water, or other debris resulting from the clean-up of a spill, into or on any land or water, of any commercial chemical product or manufacturing chemical product or manufacturing chemical intermediate having the generic name listed in $\frac{1}{2}$ or F or mixtures containing Polychlorinated Bi phenyls (PCB's) at concentrations greater than 50 ppm. The hazardous waste number for these mixtures is M001.

E. The commercial chemical products, mixtures, or manufacturing chemical intermediates, referred to in §§A—D, are identified as acute hazardous wastes (H) and are subject to the small quantity exclusion defined in Regulation .05C. These wastes and their corresponding EPA Hazardous Waste Numbers are:

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2032

Supp. 10

HAZARDO	US WASTE .	
NUM	(BER	SUBSTANCE*
		1080 see P058
		1081 see P057
		(Acetato) phenylmercury see P092
		Acetone cyanohydrin see P069
P001	3-(alpha-Aceto	onvibenzyl)-4-hydroxycoumarin and salts
P002		1-Acetyl-2-thiourea
P003		Acrolein
		Agarin see P007
	•	Agrosan GN 5 see P092
		Aldicarb see P069
		Aldifen see P048
P004		Aldrin
		Algimycin see P092
P005		Allyi alcohol
P006		Aluminum phosphide (R,T)
		ALVIT see P037
		Aminoethylene see P054
P007	8	5-(Aminomethyl)-3-isoxazolol
P008	4	4-Aminopyridine
-		Ammonium metavanadate see P119
P009		Ammonium picrate (R)
		ANTIMUCIN WDR see P092
•		ANTURAT see P073
		AQUATHOL see P088
		ARETIT see P020
P010		Arsenic acid
PUII		Arsenic pentoxide
P012		Arsenic trioxide
		ALTERNOL and Door
		AZIFICENE SEE PUD4
	•	Azorbas see POGI
		RANTIL and P072
P013		Barium evanida
7 010		BASENTTE cas 2020
		BCME sas PO16

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.02.17E

• The Department included those trade names of which it was aware. An omission of a trade name does not imply that the omitted material is not hazardous. The material is hazardous if it is listed under its generic name.

Supp. 10

	10.51.02.17E	DEPARTMENT OF HEALTH AND MENTAL HYGIENE
	HAZARDOUS	WASTE
	NUMBE	IR SUBSTANCE*
	P014	Benzenethiol
		Benzoenin see P050
	P015	Beryllium dust
	P016	Bis(chloromethyl) ether
		BLADAN-M see P071
	P017	Bromoacatone
	P018	Brucine
		BUFEN see P092
		Butaphene see P020
	P020	2-sec-Butyl-4.6-dinitrophenol
	P021	Calcium cyanide
	-	CALDON see P020
	P022	Carbon disulfide
		CERESAN see P092
		CERESAN UNIVERSAL see P092
		CHEMOX GENERAL see P020
		CHEMOX P.E. see P020
-		CHEM-TOL see P090
	P023	Chloroacetaldehyde
	P024	p-Chloroaniline
	P026	1-(o-Chlorophenyl)thiourea
	P027	3-Chloropropionitrile
	P028	alpha-Chlorotoluene
÷	P029	- Copper Cyanide
•	•	CRETOX see P108
· .		Coumadin see P001
		Coumafen see P001
	P030	Cyanide salt mixtures not otherwise
		listed
	P031	Cyanogen
•	P033	Cyanogen chloride
		Cyclodan see P050
	P034	2-Cyclohexyl-4,6-dinitrophenol
		D-CON see U001
		DETHMOR see P001
		DETHNEL see P001
		DFP see P043
	P036	Dichlorophenylarsine
		Dicyanogen see P031

2034

Supp. 10

HAZARDO	DUS WASTE
NUM	IBER SUBSTANCE*
P037	Dieldrin
	DIELDREX see P037
P038	Diethylarsine
P039	0,0-Diethyl-S-(2-ethylthio)ethyl)ester of
	phosphorothioic acid
P040	0-0-Diethyl-0-(2-pyrazinyl)phosphorothioate
P041	0,0-Diethyl phosphoric acid,
	0-p-nitrophenyl ester
P042	3,4-Dihydroxy-alpha-(methylamino)-
-	methyl benzyl alcohol
P043	Di-iso-propylfluorophosphate
	DIMETATE see P044
	1,4:5,8-Dimethanonaphthalene, 1,2,3,4,10.10-
	hexachloro-1,4.4a 5,8,8a-hexahydro
•	endo,endo see P060
P044	Dimethoate
P045	3,3-Dimethyl-1-(methylthio)-2-butanone-O-
	(methylamino)carbonyl) oxime
P046	alpha,alpha-Dimethylphenethylamine
	Dinitrocyclohexylphenol see P034
P047	4,6-Dinitro-o-cresol and salts
P048	2,4-Dinitrophenol
	DINOSEB see P020
	DINOSEBE see P020
•	Disulfoton see P039
P049	2,4-Dithiobiuret
	DNBP see P020
	DOLCO MOUSE CEREAL see P108
	DOW GENERAL see P020
	DOW GENERAL WEED KILLER see
	P020
	DOW SELECTIVE WEED KILLER see
	P020
	DOWICIDE G see P090
	DYANACIDE see P092
	EASTERN STATES DUOCIDE see P001
Doco	ELGETOL see P020
PU50	
PU51	
	Epinephrine see P042
•	2035

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.02.17E

Supp. 10

10.51.02.17E	Department of Health and Mental Hygiene
HAŽARDOU NUMB	S WASTE ER SUBSTANCE*
P054	Ethyleneimine FASCO FASCRAT POWDER see P001 FEMMA see P091
P056	Fluorine
P057	2-Fluoreacetamide
P058	Fluoroacetic acid, sodium salt FOLODOL-80 see P071
	FOLODOL M see P071
	FOSFERNO M 50 see P071
	FRATOL see P058
	Fulminate of mercury see P065
	FUNGITOX OR see P092
	FUSSOF see P057
	GALLUTUA see PU92
	CERTINO SEE PULL
D050.	GERUION see FU20 Hastachicz
Posa	1 2 3 4 10 10-Herschlom 1 4 4s 5 8 8s-hersbuden
FUOD	1 4-5 Sando ando
	dimethanmanhthalene
	1.4.5.6.7.7-Hexachloro-cyclic-5-norbornene-2.
	3-dimethanol sulfite see P050
P062	Hexaethyl tetraphosphate
	HOSTAQUICK see P092
	HOSTAQUIK see P092
	Hydrazomethane see P063
P063	Hydrocyanic acid
	ILLOXOL see P037
	INDOCI" see P025
	Indomethacin see P025
	INSECTOPHENE see P050
Beak	Isodrin see P060
PU64	ISOCYANIC ACID, MELNYI ESTER.
	KILUZED 300 PV2U
	KWIK KII ca PIAS
	KWIKSAN sa PA92
	KIIMADER can POOL
	KYPFARN see P001

2036-

Supp. 10

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DISPOSAL OF HAZARDOUS SUBSTANCES

10.51.02.17E

HAZARDOUS WASTE NUMBER

SUBSTANCE*

LEYTOSAN se P092 LIQUIPHENE see P092 MALIK see P050 MAREVAN see P001 MAR-FRIN see P001 MARTIN'D MAR-FRIN see P001 MAVERAN see P001 **MEGATOX** see P005 P065 Mercury Fulminate (R), (T) **MERSOLITE see P092** METACID 50 see P071 **METAFOS** see P071 METAPHOR see P071 METAPHOS see P071 METASOL 30 see P092 P066 Methomyl P067 2-Methylaziridine METHYL-E 605 see P071 P068 Methyl hydrazine Methyl isocyanate see P064 P069 2-Methyllactonitrile P070 2-Methyl-2-(methylthio)propionaldehyde-o-(methylcarbonyl) oxime METHYL NIRON see P042 P071 Methyl parathion METRON see P071 MOLE DEATH see P108 MOUSE-NOTS see P108 MOUSE-RID see P108 MOUSE-TOX see P108 **MUSCIMOL see P007** P072 1-Naphthyl-2-thiourea P073 Nickel carbonyl P074 Nickel cyanide P075 Nicotine and salts P076 Nitric oxide p-Nitroaniline P077 P078 Nitrogen dioxide P081 Nitroglycerine (R)

Supp. 20

- 10.51.02.17E	DEPARTMENT OF HEALTH AND MENTAL HYGIENE
HAZARDOU	S WASTE
NUME	ER SUBSTANCE*
P082	N-Nitrosodimethylamine
P084	N-Nitrosomethylyinylamine
	NYLMERATE See P092
	OCTALOX see P037
P085	Ortamethylownohoenhormide
	OTTAN an DOG?
	OMDA cas DOSS
	OMPACTOF and DORE
0007	Comium anida
FUO1 Dogg	
IU00	i-Oxabicyclo (2.2.1) heptane-2, 3-
	PANIVARPIN See POUL
	PANORAM D-31 See PU37
	PANTHERINE See POUT
Dece	PANWARPIN see POUL
P029	Paratnion
	FUP Ste FUSU
•	PENNCAP-MISEE PU/1
	PENUXYL CARBON N see P048
	Pentachiorophenate see P090
	PENTA-ALL See PUSU
•	PENTASUL see PUSO
	PEIN WAR see F090
	PERMICIDE see PUSO
•	PERMAGUARD see P090
	PERMATUA see PUSU
	PERMITE see POSO
	PERIUA See PUSU
	PEDIUA III See PUSS
	PHENMAD See PU92
	PHENUTAN See PUZU
7000	Frenyi mercaptan see FUI4
F092	Fienyimercury acetate
ru33	Nor denyitaloures
	PRILLIPS 1001 See PUUS
2004	FRILA SEE FUSZ Disconte
EU29 DAGE	
L030	rnceyene
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EPA ARCHIVE DOCUMENT S

Supp. 20

HAZARDOUS WASTE NUMBER	SUBSTANCE*
PAGE	Phosphine
P097	Phosphorothioic acid, 0,0- dimethyl 0-ester
	Phosphorothioic acid 0,0-dimethyl-0-
	(p-nitrophenyl) ester see P071
	PIED PIPER MOUSE SEED see P108
P098	Potassium cyanide
P099	Potassium silver cyanide
	PREMERGE see P020
P101	Propargyi alconoi see P102
P101	2-Propun-1-ol
1 102	PROTHROMADIN See P001
	QUICKSAM see P092
	QUINTOX see P037
	RAT AND MICE BAIT see P001
	RAT-A-WAY see P001
	RAT-B-GON see P001
	RAT-O-CIDE #2 see P001
	RAT-GUARD see P001
	RAT-KILL see P001
	RAT-MLX see POUL
	RAIS-NO-WORE see FUUL BAT OL A see BOOL
· · · ·	RATOREY con POOL
•	RATTUNAL See POOL
	RAT-TROL see P001
	RO-DETH see P001
	RO-DEX see P108
	ROSEX see P001
ب	ROUGH & READY MOUSE MIX see P001
	SANASEED see P108
	SANTOBRITE see P090
	SANTOPHEN see P090
	SANTOPHEN 20 see P090
D1 00	SCHRADAN see P085
F103	Jelenourea
	2039
Supp. 10	

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.02.17E

10.51.02.17E DEPART	ment of Health and Mental Hygiene
HAZARDOUS WASTE	
NUMBER	SUBSTANCE*
P104	Silver cyanide
	SMITE see P105
	SPARIC see P020
<u> </u>	SPOR-KIL see P092
•	SPRAY-TROL BRAND RODEN-TROL
	see P001
	SPURGE see P020
P105	Sodium azide
	Sodium coumadin see P001
P106	Sodium cyanide
	Sodium fluoroacetate see P056
	SODIUM WARFARIN see P001
	SOLFARIN see P001
	SOLFOBLACK BE see P048
	SOLFOBLACK SB see P048
P107	Strontium sulfide
P108	Strychnine and salts
	SUBTEX see P020
•	SYSTAM see P085
•	TAG FUNGICIDE see P092
	TEXWALSA see PUTI
•	
	TERMIN SEE FUIU
B100 .	1 LRY-1-1 RUL See FUSU
P103	Terraethyluthiopyrophosphate
5111 D111	Terrathyl lead Terrathyl read
P112	· Tetranitromethane (R)
. ·	Tetranhosphoric acid hexaethyl
	ester see P062
	TETROSULFUR BLACK PB see P048
•	TETROSULPHUR PBR see P048
P113	Thallic oxide
-	Thallium peroxide see P113
P114	Thallium selenite
P115	Thallium (D sulface
•	THIFOR see P092
	THIMUL see P092
	THIODAN see P050

EPA ARCHIVE DOCUMENT

2

2040

Supp. 10

DISPOSAL OF HAZARDOUS SUBSTANCES

10.51.02.17F

HAZARDOUS WASTE NUMBER	SUBSTANCE*
	THIOFOR see P050 THIOMUL see P050 THIONEX see P050
	THIOPHENIT see P071
P116	Thiosemicarbazide
•	Thiosulfan tionel see P050
	THOMPSON'S WOOD FIX see P090
-	TIOVEL see P050
P118	Trichloromethanethiol
	TWIN LIGHT RAT AWAY see P001
	USAF RH-8 see P069
	USAF EK-4890 see P002
P119	Vanadic acid, ammonium salt
P120	Vandaium pentoxide
	VOFATOX see P071
:	WANADU see P120
•	WARCOUMIN see P001
	WARFARIN SODIUM see P001
•	WARFICIDE see P001
	WUFUIUX see FU72
	YANUUK See PU57
	TADURINULA See PUDB
D101	Ziarinir see Fusz
5141 D199	Zine phoenhide (P.T)
÷ 144	ZOOCOTIMARIN 200 POOL
P123	Toxaphene

E-1. Additionally, the following waste(s) are identified as acute hazardous (H) and are subject to the small quantity exclusion defined in Regulation .05C:

M001

Polychlorinated Biphenyls (PCB) (above 500 PPM)

F. The commercial chemical products or manufacturing chemical intermediates, referred to in §§A, B, and D, are identified as toxic wastes (T) unless otherwise designated and are subject to the smallquantity exclusion defined in Regulation .05A and B. These wastes and their corresponding EPA Hazardous Waste Numbers are:

Supp. 20

HAZARDOUS WASTE NUMBER	SUBSTANCE
	AAF see U005
0001	Acetaidenyde (I)
0002	Acetone (I)-
0003	Acstonitrie (1,1)
_U004	Actophenone
0005	2-Acetylaminotiuorene
0006	Acetyi Unioride (C,R,T)
0007	Acrylanice
	Acetylene tetrachioride see U2U9
11009	Acetylene trichloride see 0223
17009	
0003	AFROTHENE IT and 11998
	SAmino S(nacetamidonhenvi) 1H-124
	trianie hydrata see UD11
11010	Riaminal 1a 2 8 8a 8h herabydra 8
9970	(hydroxymethyl)& methoxy.5-
	methylcarhamate azirino (2.3':3.4)
	uvrrolo (1.2-a)indole-4. 7-dione
	(ester)
U011	Amitrole
U012	Aniline (I.T)
U014	Auramine
U015	Azaserine
U016	Benz(c)acridine
U017	Benzal chloride
U018	Benz(a)anthracene
U019	Benzene (LT)
U020	Benzenesulfonyi chloride (C,R)
U021	Benzidine
	1.2-Benzisothiazolin-3-one,1.1-dioxide see U202
	Benzo(a)anthracene see U018
U022	Benzo(a)pyrene
U023	Benzutrichloride (C.R.T)
U024	Bis(2-chloroethoxy)methane

10.51.02.17F DEPARTMENT OF HEALTH AND MENTAL HYGIENE

"The Department included those trade names of which it was aware. An omission of a trade name does not imply that it is not hazardous. The material is hazardous if it is listed under its generic name.

2042

Supp. 20

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DISPOSAL OF HAZARDOUS SUBSTANCES

10.51.02.17F

HAZARDOUS WASTE NUMBER	SUBSTANCE*
11025	Ris(2-chloroethyl) ether
U026	N.N-Bis(2-chloroethyl)-2-naphthylamine
1027	Bis(2-chloroisopropyl) ether
11028	Bis(2-ethylberyl) phthalate
U029	Bromomethane
11030	4.Bromonhenvi nhenvi ether
U031	n-Butyi alcohol (I)
11032	Calcium chromate
	Carbolic acid see U188
	Carbon tetrachloride see U211
U033	Carbonyl fluoride (R.T)
U034	Chloral
U035	Chlorambucil
U036	Chlordane
U037	Chlorobenzene
U038	Chlorobenzilate
U039	p-Chloro-m-cresol
U041	1-Chloro-2,3-epoxypropane
	CHLOROETHENE NU see U226
U042	Chlorcethyl vinyl ether
U043	Chloroethene
U044	Chloroform (T)
UÒ45	Chloromethane (I,T)
U046	Chloromethyl methyl ether
U047	2-Chloronaphthalene
U048	2-Chlorophenol
U049	4-Chloro-o-toluidine hydrochloride
U050	Chrysene
	C.I. 23060 see U073
U051	Creosote
U052	Cresols
U053	Crotonaldehyde
U054	Crysylic acid
U055	Cumene (I)
	Cyanomethane see U003
U056	Cychlohexane (I)
U057	Cyclohexanone (I)
U058	Cyclophosphamide
U059	Daunomycin
0060	ממע
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Supp. 20	

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HAZARDOUS	WASTE
NUMBE	R SUBSTANCE*
U061	DDT
U062	Diallate
U063	Dibenz(a,h)anthracene
	Dibenzo(a,h)anthracene see U063
U064	Dibenzo(a,i)pyrene
U065	Dibromochloromethane
U06 6	1,2-Dibromo-3-chloropropane
U067	1,2-Dibromoethane
U068	Dibromomethane
U069	Di-n-butyl phthalate
U070	1,2-Dichlorobenzene
U071	1,3-Dichlorobenzene
U072	1,4-Dichlorobenzene
U073	3,3'-Dichlorobenzidine
U074	1,4-Dichloro-2-butene (I,T)
•	3,3'-Dichloro-4,4'-diaminobiphenyl
	see U073
U075	Dichlorodifluoromethane
U076	1,1-Dichloroethane
U077	1,2-Dichloroethane
U078 .	1,1-Dichloroethylene
U079	1,2-trans-Dichloroethylene
U080	Dichloromethane
٠	Dichloromethylbenzene see U017
U081	2,4-Dichlorophenol
U082	2,6-Dichlorophenol
U083	1,2-Dichloropropane
U084 ·	1,3-Dichloropropene
U085	1,2:3,4-Diepoxybutane (I,T)
U08 6	1,2-Diethylhydrazine
U087	0,0-Diethyl-S-methyl ester of
	phosphorodithioic acid
U088	Diethyl phthalate
U089	Diethylstilbestrol
U090	Dihydrosafrole
U091	3,3'-Dimethoxybenzidine
U092	Dimethylamine (I)
U093	p-Dimethylaminoazobenzene
U094	7,12-Dimethylbenz(a)anthracene

2044

Supp. 10

77

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.02.17F

HAZARDOUS NUMBER	WASTE SUBSTANCE*
U095	3.3'-Dimethylbenzidine
U096	alpha.alpha-Dimethylbenzylhydroperoxide (R)
U097	Dimethylcarbamoyl chloride
U 098	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)
U 111	Di-n-propylnitrosamine
	EBDC see U114
	1,4-Epoxybutane see U213
U112	Ethyl acetate (I)
U113	Ethyl acrylate (I)
U114	Ethylenebisdithiocarbamate
U115	Ethylene oxide (I,T)
U116	Ethylene thiourea
U117	Ethyl ether (I)
U118	Ethylmethacrylate
U119	Ethyl methanesulfonate
	Ethylnitrile see U003
	Firemaster T23P see U235
U120	Fluoranthene
0121	Fluorotrichloromethane
U122	Formaldehyde
0123	Formic acid (C,T)
0124	Furan (I)
U125	Furtural (1)
U126 U126	Giyciaylaidehyde
U127 11109	
U128 11100	
U129 TI120	
U13U T191	
UI3I	nexachioroethane

Supp. 10

2045

HAZARDOUS WASTE	
NUMBER	SUBSTANCE*
U132	Hexachlorophene
U133	Hydrazine (R,T)
U134	Hydrofluoric acid (C,T)
U135	Hydrogen sulfide
	Hydroxybenzene sea U138
U136	Hydroxydimethyl arsine oxide
	4,4'-(Imidocarbonyl)bis(N,N-
	dimethyl)aniline
	see U014
U137	Indeno(1,2,3-cd)pyrene
U138	Iodomethane
U129	Iron Dextran
U140	Isobutyi alcohol (I,T)
U141	Isosafrole
U142	Керопе
U143	Lasiocarpine
U144	Lead acetate
U145	Lead phosphate
U146	Lead subacatate
U147	Maleic anhydride
U148	Maleic hydrazide
U149	Malononitrile
	MEK Perroxide see U160
U150 '	Melphalan
U151	Mercury
U152	Methacrylonitrile (I,T)
U153	Methanethiol (LT)
U154	Methanol (I)
U155	Methapyrilene
	Methyl alcohol see U154
U156	Methyl chlorocarbonate (I,T)
_	Methyl chloroform see U226
U157 ·	3-Methylcholanthrene
	Methyl chloroformate see U176
U158	4-4'-Methylene-bis-(2-chloroaniline)
U159	Methyl ethyl ketone (MEK) (I,T)
U160	Methyl ethyl ketone peroxide (R)
66 · · · ·	Methyl iodide see U138
U151 .	Methyl isobutyl ketone (I)

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10.51.02.17F DEPARTMENT OF HEALTH AND MENTAL HYGIENE

2046

Supp. 10

HAZARDOUS WASTE NUMBER	SUBSTANCE*
U162	Methyl methacrylate (R.I.T)
U163	N-Methyl-N'-nitro-N-nitrosoguanidine
U164	Methylthiouracil
V 2 V .	Mitomycin C see U010
II165	Naphthalene
U166	1 4 Naphthoquinone
JI167	1-Nanhthylamine
U168	2-Naphthylamine
U169	Nitrobenzene (LT)
	Nitrobenzol see U169
U170	4-Nitrophenol
U171	2-Nitropropane (I)
U172	N-Nitrosodi-n-butylamine
U173	N-Nitrosodiethanolamine
U174	N-Nitrosodiethylamine
U175	N-Nitroso-n-ethylurea
U177	N-Nitroso-n-methylurea
U178	N-Nitroso-n-methylurethane
U179	N-Nitrosopiperidine
U180	N-Nitrosopyrrolidine
U181	5-Nitro-o-toluidine
U182	Paraldehyde
_	PCNB see U185
U183	Pentachlorobenzene
U184	Pentachloroethane
U185	Pentachloronitrobenzene
U186	1,3-Pentadiene (I)
	Perc see U210
~	Perchlorethylene see U210
U187	Phenacetin
U188	Phenol
U189	Phosphorous sulfide (R)
U190	Phthalic anhydride
U191	2-Picoline
U192	Pronamide
U193	1,3-Propane sultone
U194	n-Propylamine (I,T)
U196	Pyridine
· U197	p-Benzoquinone

2047

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.02.17F

Supp. 10

10.51.02.17F

DEPARTMENT OF HEALTH AND MENTAL HYGIENE

HAZARDOUS WAST	E
NUMBER	SUBSTANCE"
17000	Decemination of the second sec
U200	Reserpine
U201	Resorcinoi
U202	Saccharin and salts
U203	Safroie
U204	Selenious.acid
U205	Selenium sulfide (R,T)
	Silvex see U233
U206	Streptozotocin .
	2,4,5-T see U232
U207	1,2,4,5-Tetrachiorobenzene
U208	1,1,1,2-Tetrachloroethane
U209	1,1,2,2-Tetrachloroethane
U210	Tetrachloroethene
	Tetrachioroethylene see U210
U211	Tetrachloromethane
U212	2,3,4,6-Tetrachlorophenol
U213	Tetrahydrofuran (I)
U214	Thallium (D acetate
U215	Thailium (I) carbonate
U216	Thallium (I) chloride
U217	Thallium (I) nitrate
U218	Thioacetamide
U219	- Thioursa
U220 .	Toluene
U221	Toluenediamine
U222	o-Toluidine hydrochloride
U223	Toluene diisocyanate (R.T)
U224	Toxanhene
	2.4.5-TP see U233
11225	Tribmomethane
U226	1.1.1-Trichloroethane
11727	1.1.2.Trichlomethana
11228	Trichlomethene
	Trichlomethylene see 11229
17230	2 4 5-Trichlomakezol
11731	24 & Trichlornhonol
11929	2, 3, Tricklowshesewastic said
	AAA'O-IIICIIIOLODIIGIIOYAGEIIC GCIG

2048

Supp. 10

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HAZAP	RDOUS WASTE		
2	NUMBER	SUBSTANCI	E *
U233	2,	4,5-Trichlorophenoxypropion	nic acid
	alpha,alpha,alp	pha-Trichlorotoluene see U02	23
		TRI-CLENE see U228	
U234	•	Trinitrobenzene (R,T)	
U235		Tris(2,3-dibromopropyl)p)	hosphate
U236		Trypan blue	
U237		Uracil mustard	
U238		Ethyl carbamate (uretha	n)
		Vinyl chloride see U043	
		Vinylidene chloride see	U078
U239		Xylene (I)	
U240		2, 4 Dichlorophenoxyace	tic acid and
		associated salts and es	ters
U242		Pentachlorophenol	
U243 -		Hexachloropropene	
U244		Thiram	
U245	r	1-(p-Chlorobenzoyl)-5-meth	o xy-2-
		methylindole-3-acetic a	acid
U246		Cyanogen Bromide	
U247		Methoxychlor	
U248		Polychlorinated Bipheny	ls (50 to
		500 ppm)	

DISPOSAL OF HAZARDOUS SUBSTANCES

10.51.02.17F

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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 similiar to the indicated materials, will be considered by the Department to be representative of the waste.

Extremely viscous liquid—ASTM Standard D140-70 Crushed or powdered material—ASTM Standard D346-75 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. 29460.

(Copies may be obtained from Solid Waste Information, U.S. Environmental Protection Agency, 26 W. St. Clair St., Cincinnati, Ohio 45268)

Liquid waste in pits, ponds. lagoons. and similar reservoirs.— "Pond Sampler" described in "Test Methods for the Evaluation of Solid Waste, Physical Chemical Methods"*

This appendix 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 method capable of yielding a representative

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

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.02.17F

sample within the meaning of COMAR 10.51.01 (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.")

(2) The sample should be separated into its component liquid and solid phases using the method described in "Separation Procedure" below. If the solid residue^{**} obtained using this method totals less than 0.5 percent 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 cm² 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 extraction fluid but also insure that all sample surfaces are continuously brought into contact with well mixed extraction fluid.

(5) After the solid material and deionized water are placed in the extractor, the operator should begin agitation and measure the pH of the solution in the extractor. If the pH is greater than 5.0, the pH of the solution should be decreased to 5.0 ± 0.2 by adding 0.5 N 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 be-

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* Copies may be obtained from Solid Waste Information, U.S. Environmental Protection Agency, 25 W. St. Clair Street, Cincinnati, Ohio 45268.

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

> (weight of pad - solid) - (tare weight of oad) × 100 = % solids initial weight of sample

10.51.02.17F DEPARTMENT OF HEALTH AND MENTAL HYGIENE

US EPA ARCHIVE DOCUMENT

low, 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 $20^{\circ} - 40^{\circ}$ C ($68^{\circ} - 104^{\circ}$ F) during this time. It is recommended that the operator monitor and adjust the pH during the course of the extraction with a device such as the Type 45-A pH Controller manufactured by Chemtrix, Inc., Hillsboro, Oregon 97123 or its equivalent, in conjunction with a metering pump and reservoir of 0.5N acetic acid. If such a system is not available, the following manual procedure shall be employed:

- (a) A pH meter should be calibrated in accordance with the manufacturer's specifications.
- (b) The pH of the solution should be checked and, if necessary, 0.5N acetic acid should be manually added to the extractor until the pH reaches 5.0 ± 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 of the 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 to 5.0 ± 0.2 and the extraction continued for an additional 4 hours, during which the pH should be adjusted at 1-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."

DESPOSAL OF HAZARDOUS SUBSTANCES 10.51.02.17F

(8) The liquids resulting from Steps (2) and (7) should be combined. This combined liquid (or the waste itself if it has less than $\frac{1}{2}$ 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 §261.24 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/cm³ (75 psi) hydrostatic pressure to the solution being filtered shall be used. For mixtures containing nonabsorptive solids, where separation can be affected without imposing a 5.3 kg/cm³ 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 Wasta, Physical/Chemical Methods.")

Procedure:*

(i) Following manufacturer's 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 cases.

• 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 contrifuged. 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.

10.51:02.17F DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(iv) 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 solid material removed and weighed and then transferred to the extraction apparatus, or, in the case of final filtration prior to analysis, discarded. Do not allow the material retained on the filter pad to dry prior to weighing.

(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 a 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.

Procedure:

(1) The sample holder should be filled with the material to be tested. If the sample of waste is a large monolithic block, a portion should be cut from the block having the dimensions of a 3.3 cm (1.3 in.) diameter x 7.1 cm (2.8 in.) cylinder. For a fixated waste, samples may be cast in the form of a 3.3 cm (1.3 in.) diameter x 7.1 cm (2.8 in.) cylinder for purposes of conducting this test. In these 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, or silver: "Methods for Analysis of Water and Wastes," Environmental Monitoring and Support Laboratory, Office of Research

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.02.17F

and Development, U.S. Environmental Protection Agency, Cincinnati, Ohio 45268 (EPA-600/4-79-020, March 1979).

(2) For Endrin; Lindane; Methoxychlor; Toxaphene; 2,4-D; 2,4.5-TP Silver: in "Methods for Benzidine, Chlorinated Organic Compounds, Pentachlorophenol and Pesticides in Water and Wastewater," September 1978, U.S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio 42568. This method appears as standardized in "Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods."

For all analyses, the method of standard addition shall be used for the quantification of species concentration. This method is described in "Test Methods for the Evaluation of Solid Waste." (It is also described in "Methods for Analysis of Water and Wastes.")



VELASTOMERIC SAMPLE HOLDER FABRICATED OF MATERIAL FIRM ENGUGH TO SUPPORT THE SAMPLE

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Figure 1 COMPACTION TESTER

10.51.02.17F DEPARTMENT OF HEALTH AND MENTAL HYGIENE

Appendix III

Chemical Analysis Test Methods

Tables 1, 2, and 3 specify the appropriate analytical procedures, described in "Test Methods for Evaluating Solid Waste" (SW-846), which should be used in determining whether the waste in question contains a given toxic constituent. Table 1 identifies the analytical class and the approved measurement techniques for each organic chemical listed in Appendix IV. Table 2 identifies the corresponding methods for the inorganic species. Table 3 identifies the specific sample preparation and measurement instrument introduction techniques which may be suitable for both the organic and inorganic species as well as the matrices of concern.

Before final selection of the analytical method, the operator should consult the specific method descriptions in SW-846 for additional guidance on which of the approved methods should be employed for a specific waste analysis situation.

(See following table)

·	Sample .	Mcasurement Techniques			
	Handling	Non-GC	GC/MS	Conv	entional
Compound	Class/Fraction	Methods		GC —Detector	
Acetonitrila	Volatile		8.24	8.03	NSD
Acrolein	Volatile	,	8.24	8.03	NSD
Acrylamido	Volatile		8.24	8.01	FID
Acrylonitrile	Volutile		8.24	8.03	NSD
Benzena	Volatilo		8.24	8.02	ાગ
Benz(a)anthraceno	Extractable/BN	8.10(IIPLC)	8.25	8.10	FID
Benzola)pyreno	Extractable/BN	8.10(HPLC)	8.25	8.10	FID
Benzatrichlorido	Extractable/BN		8.25	8.12	ECD
Benzyl chlorida	Volutilo or	•	8.24	8.01	HSD
	Extractable/HN		8.25	8.12	ECD
llenz(b)Auounthene	Extractable/HN	8.10(HPLC)	8.25	8.10	FID
Bis(2-chloroethoxymeikano)	Volatile		8.24	8.01	HSD
Bist2-chloroethyliother	Volutile		8.24	8.01	HSD
lis(2 chloroisopropyl)ether	Volatile		8.24	8.01	lisd
Carbon disaiffide	Volatile		8.24	8.01	HSD
Carbon tetrachloride	Volatile		8.24	8.01	HSD
Chlordane	Extractable/BN		8.25	8.08	lisd
Chlorinated dibenzodioxing	Extractable/BN		8.25	8.13	ECD
Chlorinated biphenyls	Extractable/BN		8.25	8.08	HSD
Chloroacetaldehyda ·	Volntilo		8.24	8.01	HSD
Chlorobenzeno	Valatila		8.24	8.01	HSD
				8.02	PID
Chloroform	Volatilo		8.24	8.01	lisd
Chloromethano	Volatile *		8.24	8.01	LISD
2-Chlorophenol	Extractable/BN		8.25	8.04	FID. ECD

TABLE 1 ANALYTICAL CHARACTERISTICS OF ORGANIC CHEMICALS

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DISPOSAL OF HAZARDOUS SUBSTANCES

10.51.02.17F

	Sample		Measurement Techniques			5
Compound	Handling Class/Fraction	Non-GC Methods	GC/MS	Conventional GC—Detector).51.0
Chrvaena	Extractable/BN	8.10(HPLC)	8.25	8.10	FID	Ň
Creosolo	Extractable/BN		8.25	8.10	ECD	17
Cresol(a)	Extractable/A		8.25	8.04	FID, ECD	1
Creavlic acid(a)	Extractable/A	•	8.25	8.04	FID, ECD	.
Dichlorobenzene(s)	Extractable/BN		8.25	8.01	HSĎ,	
				8.02	PID,	PA
				8.12	ECD	23
Dichloroethane(8)	Volatile		8.24	8.01	HSD	1
Dichloromethane	Volatile -		8.24	8.01	HSD	2
Dichlorophenoxy- acetic acid	Extractable/A		8.25	8.40	HSD	T OF
Dichloropropanol	Extractable/BN		8.25	8.12	ECD	. H
2.4-Dimethylphenol	Extractable/A		8.25	8.04	FID, ECD	E E
Dinitrobenzene	Extractable/BN		8.25	8.09	FID, ECD	- E
1.6-Dinitro-o-cresol	Extractable/A		8.25	8.04	FID, ECD	H
2,4-Dinitrotoluene	Extractable/BN		8.25	8.09	FID, ECD	2,
Endrin	Extractable/P		8.25	8.08	HSD .	Û
Ethyl ether	Volatile		8.24	8.01	FID	N
-			•	8.02	FID ·	- b
Formaldehyde	Volatilo		8.24	8.01	FID	્રસ
Formic acid	Extractable/BN		8.25	8.06	FID	- F
leptachlor	Extractable/P		8.25	8.06	HSD	H
lexachlorobenzene	Extractable/BN		8.25	8.12	ECD	ីត
lexachlorobutadiene	Extractable/BN		8.25	8.12	ECD	Ē
lexachloroethane	Extractable/BN		8.25	8.12	ECD	Z
lexachlorocyclopentadiene	Extractable/BN		8.25	8.12	ECD	•
Lindane	Extractable/P		8.25	8.08	HSD	
Maleic anhydride	Extractable/BN		8.25	8.06	ECD, FID	•
Methanol	Volatile		8.24	8.01	FID	

	Sample		Measurement Techniques		
Compound	Handling Class/Fraction	Non-GC Methods	<u>OC/MS</u>	Conventional AC—Detector	
Methomyl	Extractable/BN	8.32(HPLC)			
Methyl ethyl ketone	Volatilo		8.25	8.01	FID
•				8.02	FID
Methyl ischutyl ketone	Valatile	*	8.25	8.01	FID
			•	8.02	FID
Naphthalene	Extractable/BN	8.10(HPLC)	8.25	8.10	FID
Napthoquinone	Extractable/BN		8.25	8.06	ECD, FID
·				8.09	FID
Nitrobenzeno	Extractable/BN		8.25	8.09	ECD, FID
4-Nitrophenal	Extractuble/A		8.24	8.04	ECD, FID
Paraldehyde (trimer of acetaldehyde)	Volutilo		8.24	8.01	FID
Pentachlorophenol	Extractable/A		8.25	8.04	ECD
Phenol	Extractable/A		8.25	8.04	ECĎ, FID
Phorato	Extractable/BN		•	8.22	FPD
Phosphoradithlaic acid	Extractable/BN			8.06	ECD, FID
esters				8.09	ECD, FID
			•	8.22	FPD.
Phthalic anhydrido	Extractuble/DN		8.25	8.08	ECD, FID
				8.09	ECD, FID
2-Picolino	Extractable/BN		8.25	8.06	ECD, FID
				8.09	ECD, FID
Pyridine	Extractable/BN	•	8.25	8.08	ECD, FID
	L.		•	8.09	ECD, FID
Tetrachlorobenzene(a)	Extractable/HN		8.25	8.12	ECD
Tetrachloroethane(s)	Volatile .		8.24	8.01	lisd
• Tetrachloroethene	Volatile		8.24	8.01	lisd
Tetrachlorophenol	Extractable/A		8.24	8.04	ECD
Toluene	Volatilo		8.24	8.02	PID

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DISPOSAL OF HAZARDOUS SUBSTANCES

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	Sample		Measur	rement Tec	hniques
Compound	Handling Class/Fraction	Non-GC Methods	GC/MS	Conv GC—	entional Detector
Toluenediamino	Extractable/BN	8.05(fIPLC)	8.25		
Toluene diisocyanate(s)	Extractable/Nonag	ucous	8.25	8.06	FID
Toxaphene	Extractable/P	•	8.25	8.08	HSD
Trichloroethane	Volatile		8.24	8.01	HSD
Trichloroethene(B)	Volatile		8.24	8.01	HSD
Trichlorofluoromethane	Volatile		8.24	8.01	lisd
Trichlorophenol(s)	Extractable/A		8.25	8.04	HSD
2,4,5-TP(Silvex)	Extractable/A		8.25	8.40	HSD
Trichloropropane	, Volatile		8.24	8.01	HSD
Vinyl chloride	Volatile		8.24	8.01	HSD
Vinylidene chloride	Volatile		8.24	8.01	HSD
Xylene	Volatile		8.24	8.02	PID
ECD = Electron capture detector;	HPLC = Hi	gh pressure liquid cl	promatography;		
FID = Flame ionization detector;	NSD = Ni	rogen-specific detect	lor;		
FPD = Flame photometric detector;	PID = Ph	otaionization detecta	r.		

FPD = Flame photometric detector; HSD = Halide specific detector;

10.51.02.17F

DEPARTMENT OF HEALTH AND MENTAL HYGIENE

1: Analyze for phenanthrene and carbazole; if these are present in a ratio between 1.4:1 and 5:1, creesote should be considered present.

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TABLE 2

ANALYTICAL CHARACTERISTICS OF INORGANIC SPECIES

Species

Method #

8.60 8.61 8.52 8.53

	Atomic Absorption-Plane/Purnace	Atomic Absorption-Flame Atomic Absorption-Furnace/Flame	Atomic Absorption-Furnace/Plane	Atomic Absorption-Furnace/Flumo	Absurption Spectroscopy	Atomic Absorption-Purnace/Flame	Atomic Absorption	Atomic Absorption-Furnace/Flamo	Atomic Absorption-Furnace/Flame	Alomic Absorption-Furnuce/Flame
Sample Handling Class	Digestion	llydrida Digestion	Digestion	Digestion	llydrolysis	Digestion	Cold Vapor	Digestion	Hydride Digestion	Digestion

Antimony Arsenie Burium Cudmium Chromium Cynuidea Cynuidea Heud Mercury Nickel Solenium Silver

2061

DISPOSAL OF HAZARDOUS SUBSTANCES

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10.51.02.17F DEPARTMENT OF HEALTH AND MENTAL HYGIENE

TABLE 3

SAMPLE PREPARATION/SAMPLE INTRODUCTION TECHNIQUES

Physical Characteristics of Wastet

Sample Handling Class	Fluid	Paste	Solid
Volatile	Purge & Trap Direct Injection	Purge & Trap Headspace	Headspace
Semivolatile and Nonvolatile	Direct Injection Shake out	Shake out	Shake out Soxhlet Sonication
Inorganic	Direct injection Digestion Hydride	Digestion Hydride	Digestion Hydride
Procedure	Method Numb	er(s)	
Digestion	See appropriat interest.	e procedure for e	lement of
Direct injection	8.80		
Headspace	8.82		
Hydride	See appropriat interest.	e procedure for e	lement of
Purge & Trap	8.83		
Shake out	8.84		
Sonication	8.85		
Soxhlet	8.86		

⁺ For purposes of this Table, fluid refers to readily pourable liquids, which may or may not contain suspended particles. Paste-like materials, while fluid in the sense of flowobility, can be thought of as being thixotropic or plastic in nature, e.g. paints. Solid materials are those wastes which can be handled without a container (i.e., can be piled up without appreciable sagging).

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	Appendix IV	
	Basis for Listing Hazardous Wastes	
EPA Hazardous Waste Number	Hazardous Constituents for Which Listed	· · · · · · · · · · · · · · · · · · ·
F001	tatrachloroethylene, methylene chloride trichloroethylene, 1,1,1-trichloroethano chlorinated Auorocarbons, carbon tetra- chlorido	
F002	tetrachloroethylene, methylene chloride, trichloroethyleno, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-tri- fluoroethane, o-dichlorobenzene, trichloro- fluoromethane ⁽	· .
F003	N.A.	
F004	cressls and cresylic'acid, nitrobenzene	
F005	Tolucno, methyl ethyl ketone, carbon disulfide, isobutanol, pyridino,	
F006	Cadmium, hexavalent chromium, nickel, cyanide (complexed)	. <i>'</i>
F007	cyanide (sults)	,
F008	cyanide (salts)	
F009	cyanide (salts)	
F010	cyunide (salts)	
F011	cyanide (salts)	
F012	cyanide (complexed)	
F014	cyanide (complexed)	

10.51.02.17F

EPA Hazardous Waste Number	Hazardous Constituents for Which Listed
F015	cyanide (salts)
F019	Hexavalent chromium, cyanide (complexed)
F024	Chloromethane, dichloromethane, trichloromethane, carbon tetrachloride, chloroethylene, 1,1-dichloroethane, 1,2-dichloroethane, trans-1-2-dichloro- ethylene, 1,1-dichloroethylene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethylene, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, te- trachloroethylene, pentachloroethane, hexachloroethane, allyl chloride (3- chloropropene), dichloropropane, dichloropropene, 2-chloro-1,3-butadiene, hexachloro-1,3-butadiene, hexachlorocyclopentadiene, hexachlorocyclohex- ane, benzene, chlorbenzene, dichlorobenzenes, 1,2,4-trichloro benzene, te- trachlorobenzene, pentachlorobenzene, hexachlorobenzene, toluene, naph- thalene
K001	Pentachlorophenol, phenol, 2-chlorophenol, P-chloro-m-cresol, 2,4- dimethylphenol, 2,4-dinitrophenol, trichlorophenols, tetrachlorophenols, 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 K004	Hexavalent chromium, lead Hexavalent chromium
K005	Hexavalent chromium, lead
K006	Hexavalent chromium
K007	Cyanide (complexed), hexavalent chromium
K008	Hexavalent chromium
K009	chloroform, formaldehyde, methylene chloride, methyl chloride, paralde- hyde, formic acid
K010	chloroform, formaldehyde, methylene chloride, methyl chloride, paralde- hyde, formic acid, chlorpacetaldehyde
K011	acrylonitrile, acetonitrile, hydrocyanic acid
	F019 F024 K001 K002 K003 K004 K005 K006 K007 K008 K009 K010 K011

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Supp. 10

2063

EPA Hazardous Waste Number	Hazardous Constituents for Which Listed	
Kõlü	hydrocyanic acid, acrytonitrile, acetonitrile	
K014	acetonitrilo, acrylamide	
K015	benzyl chlaride, chlarabenzene, talueno, benzatrichlarido	
K016	hexachtorobenzene, hexachtorobutadione, carbon tetrachtorido, hexachtoroethano, perchtoroethytene	
K017	epichlorohydrin, chloroethers (bis(chloromethyl) ether and bis (2-chloroethyl) ethers), tri- chloropropano, dichloropropanols	• •
KOIB	1,2 dichloraethane, trichloraethylene, hexa- chlorabutadiene, hexachlorabenzene	•
K019	ethylene dichlarule, 1,1,1-trichlaraethana, 1,3,2-trichlaraethane, tatrachlaraethanaa (1,1,2,2-tetruchlaraethana and 1,1,1,2-tatra- chlaraethane), trichlaraethylene, tetrachlara- ethylene, carbon tetruchlaride, chlarafarm, vinyl chlaride, vinylidene chlarida	
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 tetrachlorido, chloroform, vinyl chlorido, vinylidene chloride	
K021	untimony, carbon tetrachloride, chloroform	

DISPOSAL OF HAZARDOUS SUBSTANCES

10.51.02.17F

EPA Hazardou s Waste Number	Hazardous Constituents for Which Listed	
K022	phenol, tars (polycyclic sromatic hydro- carbons)	1
K023	phthalic anhydride, maleic anhydride	
K024	Phthalic anhydride, 1,4-naphthoquinone.	•
K025	meta-dinitrobenzene, 2,4-dinitrotoluene	
K026	paraldeliyde, pyridines, 2-picoline	
K027	Tolucue diisocyanate, tolucue-2, 4-diamine,	
K028	1,1,1-trichloroethane, vinyl chloride	
K029	' 1,2-dichloroethane, 1,1,1-trichloroethane, vinyl chloride, vinylidene chloride, chloroform	
K030	hexachlorobenzene, hexachlorobutadiene, hexachloroethane, 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroethane, ethylene dichloride	,
K031	arsenic	
K032	hexachlorocyclopentadiene	
K033	hexachtorocyclopentadione	
K034	hexachlorocyclopentadiene	
K035	Creosote, chrysene, naphthalene, fluoran- thene, benzo(h)fluoranthene, benzo(a)- anthracene, benzo(a)pyrene, indeno (1,2,3,- cd) pyrene	
K036	toluene, phosphorodithioic and phosphorothioic acid esters	

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EPA Häzardous Waste Number	Hazardous Constituents for Which Listed	
K037	tolueno, phosphorodithioic and phosphoro- thioic acid estors	
K038	phorate, formaldchyde, phosphorodithioic and phosphorothioic acid esters	
K0.19	phosphorodithials and phosphorothials acid esters	
K040	phorate, formaldehyde, phosphorodithiole and phosphorothiole acid enters	
K041	toxaplieno	
K042	hexachlorobenzeno; ortho-dichlorobenzeno	
K043	2,4-dichtorophonol, 2,6-dichtorophonol, 2,4,6- trichtorophonot	
K044	N.A.	
K045	N.A.	•
K046	lead	
K047	N.A.	
K048	liexavalent chromium, lead	
K049	Hexavalent chromium, lead	1
K050	Noxavalent chromium	
K051	Hexavalent chromium, lead	
K052	lend	
K060	cyunide, nuphthalene, phenolic compounds, arsenic	

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EPA Hazardous Ilazardous Constituents for Which Listed Waste Number K061 Hexavalent chromium, lead, cadmium K062 Hexavalent chromium, lead K064 lead, cadmium K065 lead, cadmium K066 lead, cadmium K067 lead, cadmium K068 lead, cadmium K069 Hexavalent chromium, lead, cadmium K071 niercury K073 chloroform, carbon tetrachlorido, hexachloroethane, trichloroethane, tetrachloroethylene, dichlorethylene, 1,1,2,2-tetrachloroethane. K083 aniline, nitrobenzeno, diphenylamine, phenylenediamine. K084 arsenic K085 Benzene, dichlorobenzenes, trichlorobenzene, tetrachlorobenzene, pentachlorobenzene, hexachlorobenzene, benzyl chloride K086 Hexavalent chromium, lead K087 phenol, naphthalena K093 Phthalic anhydride, maleic anhydride K094 Phthalic anhydride

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Supp.	EPA Hazardou s Waste Number	Hozardous Constituents for Which Listed	
10	K095	1,1,2-trichloroethune, 1,1,1.2-tetrachloro- ethane 1,1,2,2-tetrachloroethane	
	K096	1,2-dichloroethane, 1,1,1-trichloroethane, 1,1,2-trichloroethane	н
	K097	Chiordane, heptachlor	III
	K098	Taxphène	Ŏ
	16090	2,4 dichlorophenol, 2,4,6 trichlorophenol	5
	K 100	Hexavalent chromium, lead, cadmium	07
•>	K101	Arsenic	· E
06	K103	Aníline; nitrobenzene, phenylenediamine	Ę.
Ψ	16104	Anitino, henzene, diphenytamino, nitroben- zene, phenytenediamino	20CLR
	K 105	Benzene, monochtarabenzeno, dichtoroben- zenes 2,4,6-trichtorophenol	. ທ ເ
	IC 106	Mercury	BSTANCES

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	EPA Hazardou s Waste Number	Hazardous Constituents for Which Listed	
5	K095	1,1,2-trichloroethane, 1,1,1.2-tetrachloro- ethane 1,1,2,2-tetrachloroethane	
	K096	1,2-dichloroethane, 1,1,1-trichloroethane, 1,1,2-trichloroethane	
	K097	Chlordane, heptachlor	
	K098	Toxphene	
	K099	2,4 dichlorophenol, 2,4,6 trichlorophenol	
	K100	Hexavalent chromium, lead, cadmium	
•	K101	Arsenic	•
06	K103	Aniline, nitrobenzene, phenylenediamine	
Û	K104	Aniline, henzene, diphenylamlne, nitroben- zene, phenylenediamine	·
	16308	Benzene, monochlorobenzeno, dichlotoben- zenes 2,4,6-trichlorøphenol	
	K 108	Mercury	

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10.51.02.17F DEPARTMENT OF HEALTH AND MENTAL HYGIENE

Appendix V

Hazardous Constituents

Acetaldehyde (Acetato) phenylmercury Acetonitrile 3-(alpha-Acetonylbenzyl)-4hydroxycoumarin and salts 2-Acetylaminofluorene Acetyl chloride 1-Acetyl-2-thiourea Acrolein Acrylamide Acrylonitrile Aflatoxins Aldrin Allyl alcohol Aluminum phosphide 4-Aminobiphenyl 6-Amino-1,1a,2,8,8a.8b-hexahydro-8-(hydroxymethyl)-8a-inethoxy-5methylcarbamate azirino (2',3':3,4) pyrrolo(1,2-a)indole-4,7-dione (ester) (Mitomycin C) 5-(Aminomethyl)-3-isoxazolol 4-Aminopyridine Amitrole Aniline Antimony and compounds, N.O.S.* Aramite Arsenic and compounds, N.O.S. Arsenic acid Arsenic pentoxide Arsenic trioxide Auramine Azaserine Barium and compounds, N.O.S. Barium cyanide Benz(c)acridine

i

* The abbreviation N.O.S. signifies those members of the general class "not otherwise specified" by name in this listing.

DEPOSAL OF HAZARDOUS SUBSTANCES

10.51.02.17F

Benz(a)anthracene Benzene Benzenearsonic acid Benzenethiol Benzidine Benzo(a)anthracene Benzo(b)fluoranthene Benzo(j)fluoranthene Benzo(a)pyrene Benzotrichloride Benzyl chloride Beryllium and compounds, N.O.S. Bis(2-chloroethoxy)methane Bis(2-chloroethyl) ether N,N-Bis(2-chloroethyl)-2-naphthylamine Bis(2-chloroisopropyl) ether Bis(chloromethyl) ether Bis(2-ethylhexyl) phthalate Bromoacetone Bromomethane 4-Bromophenyl phenyl ether Brucine 2-Butanone perozide Butyl benzyl phthalate 2-sec-Butyl-4,6-dinitrophenol (DNBP) Cadmium and compounds, N.O.S. Calcium chromate Calcium cyanide Carbon disulfide Chlorambucil Chlordane (alpha and gamma isomers) Chlorinated benzenes, N.O.S. Chlorinated ethane, N.O.S. Chlorinated naphthalene, N.O.S. Chlorinated phenol, N.O.S. Chloroacetaldehyde Chloroaikyl ethers p-Chloroaniline Chlorobenzene Chlorobenzilate 1-(p-Chlorobenzoyi)-5-methoxy-2-methylindole-3-acetic acid

2071

EPA ARCHIVE DOCUMENT

EPA ARCHIVE DOCUMENT

7F DEPARTMENT OF HEALTH AND MENTAL HYGIENE

p-Chloro-m-cresol

2-Chloro-1,3-butadiene (chloroprene)

1-Chloro-2,3-epoxybutane

2-Chloroethyl vinyl ether

Chloroform

Chloromethane

Chloromethyl methyl ether

2-Chloronaphthalene

2-Chlorophenol

1-(o-Chlorophenyl)thiourea

3-Chloropropene (allyl chloride)

3-Chloropropionitrile

alpha-Chlorotoluene

Chromium and compounds, N.O.S.

Chrysene

Citrus red No. 2

Copper cyanide

Crecsote

Crotonaldehyde

Cyanides

(soluble salts and complexes), N.O.S.

Cyanogen

Cyanogen bromide

Cyanogen chloride

Cycasin

2-Cyclohexyl-4,6-dinitrophenol

Cyclophosphamide

Daunomycin

DDD

DDE

DDT

Diallate

Dibenz(a,h)acridine

Dibenz(a,j)acridine

Dibenz(a,h)anthracene

(Dibenzo(a,h)anthracene)

7H-Dibenzo(c.g)carbazole

Dibenzo(a,e)pyrene

Dibenzo(a,h)pyrene

Dibenzo(a,i)pyrene

1.2-Dibromo-3-chloropropane

1,2-Dibromoethane

Dibromomethane Di-n-butyl phthalate

Supp. 20

Dichlorobenzene, N.O.S.

3,3'-Dichlorobenzidine

1.1-Dichloroethane

1,2-Dichloroethane

trans-1.2-Dichloroethene

Dichloroethylene, N.O.S.

1.1-Dichloroethylene

Dichloromethane

2.4-Dichlorophenol

2,6-Dichlorophenol

2,4-Dichlorophenoxyacetic acid (2,4-D)

Dichloropropane

Dichlorophenylarsine

1.2-Dichloropropane

Dichloropropanol, N.O.S.

Dictionatopropation, 14.0.0.

Dichloropropene, N.O.S.

1,3-Dichloropropene

Dieldrin

Diepoxybutane

Diethylarsine

0,0-Diethyl-S-(2-ethylthio)ethyl ester of phosporothioic acid

1.2-Diethylhydrazine

0,0-Diethyl-S-methylester phosphorodithioic acid

0,0-Diethylphosphoric acid, O-p-nitrophenyl ester Diethyl phthalare

0,0-Diethyl-O-2-pyrazinyi)phosphorothioate Diethylstilbestrol

Dihydrosafrole

3,4-Dihydroxy-alpha-(methylamino)methyl benzyl alcohol Di-isopropylfluorophosphate (DFP)

Dimethoate

EPA ARCHIVE DOCUMENT

3,3'-Dimethoxybenzidine

p-Dimethylaminoazobenzene

7,12-Dimethylbenz(a)anthracene

3,3'-Dimethylbenzidine

Dimethylcarbamoyl chloride

1,1-Dimethyihydruzine

1.2-Dimethylhydrazine

3.3-Dimethyl-1-(methylthio)-2-butanone-0-((methylamino) carbonyl)oxime

10.51.02.17F DEPARTMENT OF HEALTH AND MENTAL HYGIENE

Dimethylnitrosoamine alpha.alpha-Dimethylphenethylamine 2.4-Dimethylphenol Dimethyl phthalate Dimethyl sulfate Dinitrobenzene, N.O.S. 4.6-Dinitro-o-cresol and salts 2,4-Dinitrophenol 2,4-Dinitrotoluene 2.6-Dinitrotoluene Di-n-octyl phthalate 1.4-Dioxane Diphenylamine 1,2-Diphenylhydrazine Di-n-propylnitrosamine Disulfoton 2.4-Dithiobiuret Endosulfan Endrin and metabolites Epichlorohydrin Ethyl cyanide Ethylene diamine Ethylenebisdithiocarbamate (EBDC) Ethyleneimine Ethylene oxide Ethylenethiourea Ethyl methanesulfonate Fluoranthene Fluorine 2-Fluoroacetamide Fluoroacetic acid, sodium salt Formaldehyde Glycidyladehyde Halomethane, N.C.S. Heptachlor Heptachlor epoxide (alpha, beta, and gamma isomers) Hexachlorobenzene Hexachlorobutadiene Hexachlorocyclohexane (all isomers) Hexachlorocyclopentadiene Hexachioroethane

EPA ARCHIVE DOCUMENT

Disposal of Hazardous Substances

10.51:02.17F

1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,9a-hexahydro-

1,4:5,8-endo,endo-dimethanonaphthalene Hexachlorophene Hexachloropropene Hexaethyl tetraphosphate Hydrazine Hydrocyanic acid Hydrogen sulfide Indeno(1,2,3-c,d)pyrene Iodomethane Isocyanic acid, methyl ester Isosafrole Kepone Lasiocarpine Lead and compounds, N.O.S. Lead acetate Lead phosphate Lead subacetate Maleic anhydride Malononitrile Melphalan Mercury and compounds, N.O.S. Methaoyrilene Methomyl 2-Methylaziridine 3-Methylcholanthrene 4,4'-Methylene-bis-(2-chloroaniline) Methyl ethyl ketone (MEK) Methyl hydrazine 2-Methyllactonitrile Methyl methacrylate Methyl methanesulfonate 2-Methyl-2-(methylthio)propionaldehydeo-(methylcarbonyl) oxime N-Methyl-N-nitro-N-nitrosoguanidine Methyl parathion Methylthiouracil Mustard gas Naphthalene 1,4-Naphthoquinone 1-Naphthylamine 2-Naphthylamine

US EPA ARCHIVE DOCUMENT

1-Naphthyl-2-thiourea Nickel and compounds, N.O.S. Nickel carbonyl Nickel cyanide Nicotine and salts Nitric oxide p-Nitroaniline Nitrobenzene Nitrogen dioxide Nitrogen mustard and hydrochloride salt Nitrogen mustard N-oxide and hydrochloride salt Nitrogen peroxide Nitrogen tetroxide Nitroglycérine 4-Nitrophenol 4-Nitroquinoline-1-oxide Nitrosamine, N.O.S. N-Nitrosodi-N-butylamine N-Nitrosodiethanolamine N-Nitrosodiethylamine N-Nitrosodimethylamine N-Nitrosodiphenylamine N-Nitrosodi-N-propylamine N-Nitroso-N-ethylurea N-Nitrosomethylethylamine N-Nitroso-N-methylurea N-Nitroso-N-methylurethane N-Nitrosomethylvinylamine N-Nitrosomorpholine Nickel carbonyl Nickel cyanide Nicotine and salts Nitric oxide p-Nitroaniline Nitrobenzene Nitrogen dioxide Nitrogen mustard and hydrochloride salt Nitrogen mustard N-oxide and hydrochloride salt Nitrogen peroxide

Nitrogen tetroxide

DISPOSAL OF HAZARDOUS SUBSTANCES

Nitroglycerine 4-Nitrophenol 4-Nitroquinoline-1-oxide Nitrosamine, N.O.S. N-Nitrosodi-N-butylamine N-Nitroscdiethanolamine N-Nitrosodiethylamine N-Nitrosodimethylamine N-Nitrosodiphenylamine N-Nitrosodi-N-propylamine N-Nitroso-N-ethylurea N-Nitrosomethylethylamine N-Nitroso-N-methylures N-Nitroso-N-methylurethane N-Nitrosomethylvinylamine N-Nitrosomorpholine N-Nitrosonornicotine N-Nitrosopiperidine N-Nitrosopyrrolidine N-Nitrososarcosine 5-Nitro-o-toluidine Octamethylpyrophosphoramide Oleyl alcohol condensed with 2 moles ethylene oxide Osmium tetroxide 7-Oxabicyclo(2.2.1)heptane-2,3-dicarboxylic acid Parathion Pentachlorobenzene Pentachloroethane Pentachloronitrobenzene (PCNB) Pentachlorophenol Phenacetin Phenol Phenyl dichloroarsine Phenylenediamine Phenyimercury acetate N-Phenylthiourea Phosgene Phosphine

Phosphorothioic acid, 0,0-dimethyl ester, 0-ester with N,N-dimethyl benzene sulfonamide

2077

10.51.02.17F

Phthalic acid esters, N.O.S. Phthalic anhydride Polychlorinated biphenyl, N.O.S. Potassium cyanide Potassium silver cyanide Pronamide 1,2-Propanediol 1.3-Propane sultone Propionitrile Propylthiouracil 2-Propyn-1-ol Pryidine Reserpine Saccharin Safrole Selenious acid Selenium and compounds, N.O.S. Selenium sulfide Selenourea Silver and compounds, N.O.S. Silver cyanide Sodium cyanide Streptozotocin Strontium sulfide Strychnine and salts 1,2,4,5-Tetrachlorobenzene · 2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) Tetrachloroethane, N.O.S. 1.1.1.2-Tetrachloroethane 1,1,2,2-Tetrachloroethane Tetrachloroethene (Tetrachloroethylene) Tetrachloromethane 2,3,4,6-Tetrachlorophenol Tetraethyldithiopyrophosphate Tetraethyl lead Tetraethylpyrophosphate Thallium and compounds, N.O.S. Thallic oxide Thallium (I) acetate Thallium (I) carbonate Thallium (I) chloride Thallium (I) nitrate

US EPA ARCHIVE DOCUMENT

100

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.02.17F

- Thallium selenite
- Thallium (I) sulfate
- Thioacetamide
- Thiosemicarbazide
- Thiourea
- Thiuram
- Toluene
- Toluene diamine
- o-Toluidine hydrochloride
- Tolylene diisocyanate
- Toxaphene
- Tribromomethane
- 1,2,4-Trichlorobenzene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
 - Trichloroethene (Trichloroethylene) Trichloromethanethiol
- 2,4,5-Trichlorophenol
- 2,4,6-Trichlorophenol
- 2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)
- 2,4,5-Trichlorophenoxypropionic
 - acid (2,4,5-TP) (Silvex)
 - Trichloropropane, N.O.S.
- 1,2,3-Trichloropropane
- 0,0,0-Triethyi phosphorothioate
 - Trinitrobenzene
 - Tris(l-azridinyl)phosphine sulfide
 - Tris(2,3-dibromopropyl) phosphate
 - Trypan blue
 - Uracil mustard
 - Urethane

EPA ARCHIVE DOCUMENT

- Vanadic acid, ammonium salt
- Vanadium pentoxide (dust)
- Vinyl chloride
- Vinylidene chloride
- Zine cyanide
- Zinc phosphide

Administrative History

Regulations .01 - .17 adopted as an emergency provision effective November 18, 1980 (7:25 Md. E. S-1); adopted permanently effective April 3, 1981 (8:7 Md. R. 642)

Regulations .027, .04D, .07C, and .18-1 adopted effective January 31, 1983 (10:2 Md. R. 110)

Regulations .03A. .04A and B. .07A and B. .10A. .11A. .12A. and .17F amended effective January 31, 1963 (10-2 Md. R. 110)

Regulations .04, .05C, .06B, .15, .16, .17E, 7, and Appendix IV amended effective January 18, 1982 (9:1 Md, R. 20)

Title 10 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

Subtitle 51 DISPOSAL OF CONTROLLED HAZARDOUS SUBSTANCES

Chapter 03 Standards Applicable to Generators of Hazardous Waste

Authority: Health-Environmental Article, §2-206 et seq., Annotated Code of Maryland

.01 Purpose, Scope, and Applicability.

A. These regulations establish standards for generators of hazardous waste.

B. A generator who treats, stores, or disposes of hazardous wastes on-site shall only comply with the following sections of this chapter with regards to that waste:

(1) Regulation .02 for determining whether or not he has a hazardous waste;

(2) Regulation .03 for obtaining an identification number;

(3) Regulation .06A(3) and (4) for recordkeeping;

(4) Regulation .06D for additional reporting;

(5) If applicable, Regulation .07B for farmers; and

(6) Regulation .05E for accumulation time.

C. Any person who imports foreign hazardous waste into the State shall comply with the standards applicable to generators established in this chapter.

D. A farmer who generates waste pesticides which are hazardous wastes and who complies with all of the requirements of Regulation .07B is not required to comply with other standards in this chapter or COMAR 10.51.05 or COMAR 10.51.07 with respect to these pesticides.

E. A person who generates a hazardous waste as defined by COMAR 10.51.02 is subject to the compliance requirements and penalties prescribed in the Health-Environmental Article, §7-206 inclusive, Annotated Code of Maryland, if he does not comply with the requirements of this chapter.

Supp. 20

10.51.03.02 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

Agency Note: A generator who treats, stores, or disposes of hazardous waste on site shall comply with the applicable standards and permit requirements set forth in COMAR 10.51.05 and COMAR 10.51.07.

F. An owner or operator who initiates a shipment of hazardous waste from a treatment, storage, or disposal facility shall comply with the generator standards established in this chapter.

G. Regulation by Reference. Reference to 49 CFR is to 49 CFR as it has been adopted as of April 1, 1984.

.02 Hazardous Waste Determination.

A person who generates a solid waste, as defined in COMAR 10.51.02.02, shall determine if that waste is a hazardous waste using the following method:

A. He should first determine if the waste is excluded from regulation under COMAR 10.51.02.04.

B. He shall then determine if the waste is listed as a hazardous waste in COMAR 10.51.02.14 - .17.

Agency Note: Even if the waste is listed, the generator still has an opportunity under COMAR 10.51.02.08A(3) to demonstrate to the Secretary that the waste from his particular facility or operation is not a hexardous waste.

C. If the waste is not listed as a hazardous waste in COMAR 10.51.02.14 - .17, he shall determine whether the waste is identified by either:

(1) Testing the waste according to the methods set forth in COMAR 10.51.02.09 — .13, or according to an equivalent method approved by the Secretary under COMAR 10.51.01.04B;

(2) Applying knowledge of the hazard characteristic of the waste in light of the materials or the processes used.

.03 EPA Identification Numbers.

US EPA ARCHIVE DOCUMENT

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

B. A generator who has not received an EPA Identification number may obtain one by applying to the Secretary using EPA form 8700-12. Upon receiving the request the Secretary will assign an identification number to the generator.

2082

Supp. 20

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.03.04

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

.04 The Manifest.

A. General Requirements.

(1) A generator who transports, or offers for transportation, hazardous waste for off-site treatment, storage, or disposal shall prepare an approved manifest before transporting the waste off-site.

(2) A generator shall designate on the manifest one facility which is permitted to handle the waste described on the manifest.

(3) A generator may also designate on the manifest one alternate facility which is permitted to handle his waste if an emergency prevents delivery of the waste to the primary designated facility.

(4) A generator whose manifest for an interstate shipment has not been returned to the generator within the prescribed time (30 days) shall give notice of that to the State in which the designated facility is located, the State in which the shipment may have been delivered (or to the EPA in the case of an unauthorized State) and to the Department.

(5) If the transporter is unable to deliver the hazardous waste to the designated facility or the alternate facility, the generator shall either designate another facility or instruct the transporter to return the waste.

B. Required Information.

(1) The manifest shall contain all of the following information:

(a) A manifest document number;

(b) The generator's name, mailing address, telephone number, and EPA identification number;

(c) The name and EPA identification number of each transporter;

(d) The name, address, and EPA identification number of the designated facility and an alternate facility, if any;

(e) The description of the waste (for example, proper shipping name, etc.) required by regulations of the U.S. Department of Transportation in 49 CFR 172.101, 172.202, and 172.203, May 22, 1980;

Supp. 20

10.51.03.04 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(f) The total quantity of each hazardous waste by units of weight or volume, and the type and number of containers as loaded into or onto the transport vehicle.

(2) The following certification shall appear on the manifests: "This is to certify that the above named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation and the EPA and the Office of Environmental Programs."

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

D. Use of the Manifest.

US EPA ARCHIVE DOCUMENT

(1) The generator shall:

(a) Sign the manifest certification by hand;

(b) Obtain the handwritten signature of the initial transporter and date of acceptance on the manifest;

(c) Retain one copy, in accordance with Regulation .06A(1); and

(d) Provide to the Department a copy of that portion of the manifest describing the characteristics of the waste immediately upon shipment of all hazardous waste from a source within the state or which is destined for a facility within the State.

(2) The generator shall give the transporter the remaining copies of the manifest.

(3) For shipment of hazardous waste within the United States solely by water (bulk shipments only), the generator shall send three copies of the manifest dated and signed in accordance with this regulation 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.

(4) For rail shipments of hazardous waste within the United States which originate at the site of generation, the generator shall send at least three copies of the manifest dated and signed in accordance with this section to the:

2084

Supp. 20

DISPOSAL OF HAZARDOUS SUBSTANCES

10.51.03.04

(a) Next non-rail transporter, if any;

(b) Designated facility if transported solely by rail; or

(c) Last rail transporter to handle the waste in the United States if exported by rail.

E. Supplemental Information. When the following information is not included on the manifest a generator shall forward to the Department within 5 days the:

(1) Manifest document number;

(2) Generator's L D. number;

(3) Transporter's I. D. number (vehicle certification number);

(4) Transporter's telephone number;

(5) Second transporter's I. D. number (if applicable);

(6) Second transporter's telephone number;

(7) Facility's L D. number;

(8) Facility's telephone number;

(9) EPA or State hazardous waste number;

(10) EPA hazard codes;

(11) Physical state of waste;

(12) Constituent percentages;

(13) Chemical names;

EPA ARCHIVE DOCUMENT

(14) Handling codes; and

(15) Other information that may be required.

DISPOSAL OF HAZARDOUS SUBSTANCES

.05 Pre-Transport Requirements.

A. Packaging. Before transporting hazardous waste or offering hazardous waste for transportation off-site, a generator shall package the waste in accordance with the applicable Department of Transportation regulations on packaging under 49 CFR 173, 178, and 179.

B. Labeling. Before transporting or offering hazardous waste for transportation off-site, a generator shall label each package in accordance with the applicable Department of Transportation regulations on hazardous materials, under 49 CFR 172.

C. Marking.

(1) Before transporting or offering hazardous waste for transportation off-site, a generator shall mark each package of hazardous waste in accordance with the applicable Department of Transportation regulations on hazardous materials under 49 CFR 172.

Agency Note: See COMAR 10.51.04.02A(5) for special provisions for rail or water (bulk shipment) transporters who deliver hazardous waste by rail or water to the designated facility.

(2) Before transporting hazardous waste or offering hazardous waste for transportation off-site, a generator shall mark each container of 110 gallons or less used in the transportation with the following words and information displayed in accordance with the requirements of 49 CFR 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, or Maryland Office of Environmental Programs.

Generator's Name and Address______. Manifest Document Number______."

D. Placarding. Before transporting hazardous waste or offering huzardous waste for transportation off-site, a generator shall placard or offer the initial transporter the appropriate placards according to Department of Transportation regulations for hazardous materials under 48 CFR Part 172 Subpart F.

E. Accumulation Time.

(1) A generator may accumulate hazardous waste on-site without a permit for 90 days or less if:

Supp. 20

10.51.03.06 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(a) The waste is shipped off-site within 90 days to a permitted facility or placed in an on-site permitted facility;

(b) The waste is placed in containers which meet the standards of §A and are managed in accordance with COMAR 10.51.05.09 or in tanks, provided the generator complies with the requirements of COMAR 10.51.05.10 except for the requirements of COMAR 10.51.05.10C;

(c) The date upon which each period of accumulation begins is clearly marked and visible for inspection on each container;

(d) Each container is properly labeled and marked according to §§B and C;

(e) The generator complies with the requirements for owners or operators in COMAR 10.51.05.02G, .03, and .04.

(2) A generator who accumulates hazardous waste for more than 90 days is an operator of a storage facility and is subject to the requirements of COMAR 10.51.05.

.06 Recordkeeping And Reporting.

A. Recordkeeping.

(1) A generator shall keep a copy of each manifest signed in accordance with Regulation .04A(1) for 3 years or until he receives a signed copy from the designated facility which received the waste. This signed copy shall be retained as a record for at least 3 years from the date the waste was accepted by the initial transporter.

(2) A generator shall keep a copy of each Annual Report and Exception Report for a period of at least 3 years from the date of the report.

(3) A generator shall keep records of any test results, waste analyses, or other determinations made in accordance with Regulation .02 for at least 3 years from the date that the waste was last sent to onsite or off-site treatment, storage, or disposal.

(4) The periods of 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 Secretary.

B. Annual Reporting.

(1) A generator who ships his hazardous waste off-site shall submit Annual Reports:

2086

Supp. 20

(a) On State form 8700-13A according to the instructions on the form (see the Appendix of this chapter);

(b) To the Secretary of the Department;

(c) No later than March 1 for the preceding calendar year.

(2) 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 COMAR 10.51.05 and COMAR 10.51.07.

C. Exception Reporting.

(1) A generator who does not receive a copy of the manifest with the handwritten signature of the owner or operator of the designated facility within 20 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.

(2) A generator shall submit an Exception Report to the Secretary if he has not received a copy of the manifest with the handwritten signature of the owner or operator of the designated facility within 30 days of the date the waste was accepted by the initial transporter. The Exception Report shall include:

(a) A legible copy of the manifest for which the generator does not have confirmation of delivery;

(b) 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.

(3) If the designated facility is located out-of-State in a state which administers the federal program, the generator who does not receive a copy of the manifest as described in C(1), shall submit an Exception Report to that state's approving authority as specified in C(2). If that state's program is administered by the EPA, the Report shall be forwarded to the EPA Regional Administrator for the region in which the designated facility is located.

D. Additional Reporting. The Secretary, as he deems necessary, may require generators to furnish additional reports concerning the quantities and disposition of wastes identified or listed in COMAR 10.51.02.

Supp. 20

10.51.03.07 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

.07 Special Conditions.

A. International Shipments.

(1) Any person who exports hazardous waste to a foreign country or imports hazardous waste from a foreign country into the State shall comply with the requirements of this chapter and with the special requirements of this regulation.

(2) When shipping hazardous waste outside the United States the generator shall:

(a) Notify the Secretary and the EPA in writing 4 weeks before the initial shipment of hazardous waste to each country in each calendar year. The waste shall be identified by its EPA hazardous waste identification number and its DOT shipping description. The name and address of the foreign consignee shall be included in this notice, and these notices shall be sent to the Office of International Activities (A-106), United States Environmental Protection Agency, Washington, D.C. 20460.

(b) Require that the foreign consignee confirm 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.

(c) Meet the requirements under Regulation .04B for the manifest, except that:

(i) 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;

(ii) The generator shall identify the point of departure from the United States through which the waste must travel before entering a foreign country.

(3) A generator shall file an Exception Report, if:

(a) He has not received a copy of the manifest signed by the transporter stating the date and place of departure from the State within 30 days from the date it was accepted by the initial transporter; or

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

(4) When importing hazardous waste, a person shall meet all requirements of Regulation .04B for the manifest except that:

(a) 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.

(b) 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.

B. 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 regulation or other standards in COMAR 10.51.05 for those wastes provided he triple rinses each emptied pesticide container in accordance with COMAR 10.51.02.17C and disposes of the pesticide residues on his own farm in a manner consistent with the disposal instructions on the pesticide label.

DISPOSAL OF HAZARDOUS SUBSTANCES

10.51.03.07

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10.51.03.07 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

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DISPOSAL OF HAZARDOUS SUBSTANCES

GENERAL INSTRUCTIONS HAZARDOUS WASTE REPORT

IMPORTANT: READ ALL INSTRUCTIONS BEFORE COMPLET-ING THIS FORM

Section L

TYPE OF HAZARDOUS WASTE REPORT:

Type A: Generator-Off-site Shipments Only

For generators who ship their waste off-site, fill in the four boxes with the reporting year for this report (e.g., 1984)

Type B: (RESERVED)

Type C: (RESERVED)

Section п thru Section VL

INSTALLATION I.D. NUMBER. NAME OF IN-STALLATION. INSTALLATION MAILING AD-DRESS. LOCATION OF INSTALLATION and IN-STALLATION CONTACT:

If you received a preprinted label from EPA, attach it in the space provided and leave sections II through VI blank. If there is an error or omission on the label, cross out the incorrect information and fill in the appropriate item(s). If you did not receive a preprinted label, complete items I through VL

Section VII.

Section VIII.

TRANSPORTATION SERVICES USED For Type A reports ONLY: List the EPA identification Numbers for those transporters whose services were used during the reporting year represented by this report.

CERTIFICATION

The authorized representative of the installation completing this report must review the report, read the certification, and sign and date the certification where indicated. The printed or typed name of the authorized representative must also be included where indicated.

NOTE: Since more than one page is required for each report, indicate the number of each sheet in the lower right corner where indicated and indicate the total number of pages.

2091

10.51.03.07

10.51.03.07

7 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

TYPE-A REPORT INSTRUCTIONS

Hazardous Waste Annual Report for generators who ship their hazardous waste off-site.

IMPORTANT: READ ALL INSTRUCTIONS BEFORE COMPLET-ING THIS FORM

Section IX.	GENERATOR'S IDENTIFICATION NUMBER: Enter your EPA identification number.
Section X.	FACILITY IDENTIFICATION NUMBER: Enter the EPA identification number of the facility to which you sent the waste described below in sec- tion XIII (a separate sheet must be used for each fa- cility to which you sent hazardous waste.)
Section XI.	FACILITY NAME: Enter the name of the facility corresponding to the facility EPA identification number in Section X.
Section XII.	FACILITY ADDRESS: Enter the address of the facility corresponding to the facility EPA identification number in Section X.
Section XIII.	WASTE INFORMATION: All information in this section must be entered by line number. Each line entry will describe each waste as shipped to the facility identified in Section X above.
Section XIII-A-1	WASTE DESCRIPTION: GENERATOR'S DE- SCRIPTION: On each line, enter the description which you be- lieve best describes each waste. (The description may use the process or function which best describes the source of the hazardous waste).
Section XIII-A-2.	WASTE DESCRIPTION: DOT HAZARD CLASS Enter the two digit code from Table 1 which corres- ponds to the DOT hazard class of the waste de- scribed on this line in Section XIII-A-1. (If the waste described under XIII-A-1 has been shipped under more than one DOT hazard class, use a separate line for each DOT hazard class.

2092

US EPA ARCHIVE DOCUMENT

DISPOSAL OF HAZARDOUS SUBSTANCES

10.51.03.07

Section XIII-A-3. WASTE DESCRIPTION: EPA HAZARDOUS WASTE NUMBER:

For each line, enter the four digit EPA Hazardous Waste Number from Table 2 which identifies the waste.

If the waste has several EPA listed wastes, enter the four digit EPA Hazardous Waste Numbers which identify each listed waste included in that waste.

Four spaces are provided. If more are needed:

(1) enter the first three as described above;

- (2) enter 0000 in the lower right boxes of Section XIII-A-3 on this line:
- (3) enter additional EPA Hazardous Waste Numbers under Section XIV-Comments.

If the waste described on this line is not a listed waste in Table 2, but meets one or more of the characteristics determined by you as required by Regulations .01—.03 under the Standards Applicable to Generators enter the EPA Hazardous Waste Number(s) from Table 3 which identifies the waste described on this line. If more than four spaces are required, follow the same procedure described above.

Section XIII-B

AMOUNT OF WASTE:

Enter the amount of this waste you shipped to the facility identified in Section X and include the weight of containers if left at the treatment, storage, or disposal facility. If more than 999,999,999 units of the waste were shipped during the reporting period:

(1) enter 999999999 in the boxes provided:

(2) in Section XIV - Comments, enter the line number, "Section XIII-B", and the correct amount (including the unit of measure).

Section XIII-C.

UNIT OF MEASURE:

Enter the unit of measure code for the quantity of waste described on this line. Units of measure which must be used in this report and the appropriate codes are:

DEPARTMENT OF HEALTH AND MENTAL HYGIENE

Unit of Measure	Code
pounds	P
short tons	Т
kilograms	K
tonnes ·	Μ.

If shipments were made in any other units they must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

TABLE 1

DOT HAZARD CLASS	CODE
Combustible	01
Corrosive	02
Etiologic Agent	03
Explosive A	04
Explosive B	05
Flammable Gas	06
Flammable Liquid	07
Flammable Solid	· 08
Irritating Agent	09
Non-Flammable Gas	10
Organic Peroxide	11
ORM-E	12
Oxidizer	. 13
Poison A	14
Poison B	15
Radioactive	16

Administrative History

Regulations .01 \rightarrow .07 adopted as an emergency provision effective November 18, 1980 (7:25 Md. R. S-1); adopted permanently effective April 3, 1981 (8:7 Md. R. 642)

Regulations .01; .04A, D; .05D, E; .07B amended effective January 18, 1982 (9:1 Md. R. 20)

Regulations .01B; .02B; .04A, B, D; .05E; .06A — C; and .07A amended, and .01G and .04E adopted effective July 30, 1984 (11:15 Md. R. 1330)

Regulations .01E and .05E amended effective February 13, 1984 (11:3 Md. R. 202)

Regulations .01F. .04D, _06C, and .07A amended effective January 31, 1983 (10:2 Md. R. 110)

2094

Supp. 20
Title 10 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

Subtitle 51 DISPOSAL OF CONTROLLED HAZARDOUS SUBSTANCES

Chapter 04 Standards Applicable to Transporters of Hazardous Waste

Authority: Health-Environmental Article, §2-206 et seq., Annotated Code of Maryland

.01 General.

A. Scope.

(1) These regulations establish standards which apply to persons transporting hazardous waste within the State if the transportation requires a manifest under COMAR 10.51.03.

(2) These regulations do not apply to on-site transportation of hazardous waste by generators or by owners or operators of permitted hazardous waste management facilities.

(3) A transporter of hazardous waste shall also comply with COMAR 10.51.03, Standards Applicable to Generators of Hazardous Waste, if he:

(a) Transports hazardous waste into the United States from abroad; or

(b) Mixes hazardous waste of different DOT shipping descriptions by placing them into a single container.

B. EPA Identification Number.

(1) A transporter may not transport hazardous wastes without having received an EPA identification number from the Secretary.

(2) A transporter who has not received an EPA identification number may obtain one by applying to the Secretary using EPA Form 8700-12. Upon receiving the request, the Secretary shall assign an EPA identification number to the transporter.

C. Certificate.

(1) Except for CHS used for residential purposes or those regulated by the Department of Agriculture, a person may not transport a CHS to a facility within the State or from a source within the State

Supp. 20

10.51.04.01 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

unless the person obtains a certificate from the Department. For the purpose of these regulations, CHS used for residential purposes means those CHS used in a household or domestic situation, and normally discarded in small quantities in refuse and other household waste collected for disposal in conventional sanitary landfills. A CHS Hauler Certificate is required of persons engaged in transporting CHS. All vehicles or articulated transports, to a facility within the State or from a source within the State, shall display prominently the vehicle certificate or affix the vehicle certificate to the outside of the left door of the cab of the controlled hazardous substance vehicle.

(2) As a condition to the issuance of a certificate, the Department may require a person to do the following:

(a) Report periodically, on a form provided by the Department, on the source, disposal destination, volume, and nature of the CHS transported;

(b) Provide a copy of the manifest supplied by the waste generator to the operator of facilities;

(c) Secure a bond of not less than \$10,000 for the purpose of indemnifying the State for abatement of pollution resulting from the improper transportation or spill of CHS; and

(d) Pay a yearly fee for certification not to exceed \$50 per vehicle used for hauling CHS.

(3) A request for certification shall be submitted in writing and shall include information pertaining to the nature and quantity of the CHS to be transported, the source and destination, the method of transportation, specific information pertaining to the vehicles used to transport CHS, such as vehicle age and construction specifications, and the fee for certification. Failure to provide this information, the fee for certification or other information required by the Department shall constitute grounds for denial of certification. The certification shall be carried in the vehicle at all times and presented upon request.

(4) The State Fire Marshall, and other public safety agencies approved by him, are certified CHS transporters.

US EPA ARCHIVE DOCUMENT

(5) Utility maintenance crews are certified CHS transporters for CHS transported during the normal execution of their duties.

(6) This regulation does not apply to transportation within industrial plant sites such as transport of a CHS from an in-plant storage area to an in-plant wasts treatment facility.

2096

(7) Approved personnel of the Department of Health and Mental Hygiene are certified CHS transporters.

(8) Interstate Certificates.

(a) Interstate carriers with more than 10 trucks operating in or out of the State, and servicing more than three States, may apply for Interstate Certificates if the carrier:

(i) Has 5 vehicle certificates currently issued; and

(ii) Meets the insurance requirements of 49 CFR Part 387 — Minimum Levels of Financial Responsibility for Motor Carriers.

(b) Interstate certificates are transferable from one vehicle to another. The location of the certificate shall be registered with the Department.

(c) The carrier shall notify the Department 24 hours before use of the certificate. The notification will include information detailing the type of vehicle, serial number, make, model. State of registration, license destination, material transported, and other information as may be requested.

(d) The maximum number of transferable certificates issued may not exceed the number of permanent certificates issued to a carrier.

(e) Each certificate issued shall carry a fee of \$50.

D. Mixing.

(1) Except under the supervision of the Department during an emergency, a CHS hauler may not mix, as defined by this regulation, any CHS except in a CHS facility.

(2) Mixing includes any blending, mingling, combining, consolidating or putting together of CHS unless specifically excluded under §D(3).

(3) Mixing does not include the blending, mingling, combining, or putting together of waste within but not among the following categories of hazardous waste from the same or different sources provided the substances are chemically and physically compatible:

(a) Acids of less than 1 molar concentrations;

(b) Bases of less than 1 molar concentrations;

(c) Cyanides (with the following EPA Hazardous Waste Numbers) - F007, F008, F009, F010, F011, F013, F014, F015, F016;

Supp. 20

10.51.04.01 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(d) Halogenated solvents — contaminated with 1 percent or less of non-halogenated;

(e) Solvents non-halogenated — contaminated with 1 percent or less of halogenated.

E. Stoppage.

(1) Except under the supervision of the Department during an emergency, a CHS hauler may not store CHS except in a CHS facility. Storage in a CHS vehicle does not include periods of stoppage, as defined by $\xi E(2)$, if the conditions in $\xi E(3)$ are met.

(2) Stoppage is a period of time not to exceed 72 hours during which a CHS vehicle is at rest. The cumulative period of stoppage may not exceed 5 days for a particular shipment of CHS within the State. Any stoppage in excess of 12 hours shall be at a facility or other suitable site.

(3) During periods of stoppage, for instance, at truck stops or truck terminals, a CHS hauler shall comply with COMAR 10.51.05.02G and H; .03 E, F, G, and H; and .04; .05; .09; and .10.

F. Driver Certificate.

(1) Applicability. A person may not transport any CHS from any source in the State or to any CHS facility in the State unless a driver certificate has been issued for the vehicle driver. This section does not apply to persons transporting CHS generated and disposed of onsite.

(2) The driver certificate authorizes its holder to operate a vehicle transporting CHS. The driver certificate shall be effective for 3 years.

(3) Each CHS vehicle operator shall:

(a) Pay an annual driver certificate fee of \$20 to the Department;

(b) Carry the driver certificate in the cab of the CHS vehicle at all times when transporting CHS; and

(c) Submit evidence of satisfactory completion of an approved training program as described in F(4), below.

(4) Approved Training Program. At a minimum, an approved training program shall include the following:

(a) Training in the requirements necessary to transport hazardous waste. Emphasis should be placed on the ability to verify

2097-1

proper DOT shipping names, hazard class and EPA waste codes. Special attention should be directed to the Maryland Hazardous Waste Manifest, other state manifest requirements, and the proper disbursement of manifest copies.

(b) Training in the required labeling and marking of all containers of 110 gallons or less.

(c) Training in Placarding. All drivers of vehicles transporting hazardous waste shall be able to appropriately placard their truck according to the DOT regulations under COMAR 11.16.01 (49 CFR 172 Subpart F).

(d) Training in the Federal Motor Carrier Safety Administration regulations including proper maintenance of a driver's daily log.

(e) Training in emergency procedures to follow in case of an accident or spill.

(f) Training in Maryland's hazardous waste regulations and law (Disposal of CHS (COMAR 10.51)) — specifically, "Standards Applicable to Transporters of Hazardous Waste" and Health-Environmental Article, §§7-249 through 7-253, Annotated Code of Maryland.

(5) Instructors conducting an approved training program shall, at a minimum, have successfully completed an approved instruction training program, or have 5 years experience in the trucking industry with at least 2 years involvement in safe driving activities or training.

(6) Satisfactory completion of an approved written examination may be required by the Department.

.02 Compliance With the Manifest System and Recordkeeping.

A. The Manifest System.

(1) A transporter may not accept hazardous waste from a generator unless it is accompanied by a manifest, signed by the generator in accordance with the provisions of COMAR 10.51.03.

(2) Before transporting the hazardous waste, the transporter shall sign and date the manifest acknowledging acceptance of the hazardous waste from the generator. The transporter shall return a signed copy to the generator before leaving the generator's property.

(3) The transporter shall ensure that the manifest accompanies the hazardous waste.

2097-2

Supp. 20

US EPA ARCHIVE DOCUMENT

10.51.04.02 DEPARTMENT OF HEALTH AND MENTAL HYGIENE .

(4) A transporter who delivers a hazardous waste to another transporter or to the designated facility shall:

(a) Obtain the date of delivery and the handwritten signature of that transporter or of the owner or operator of the designated facility on the manifest;

(b) Retain one copy of the manifest in accordance with §C; and

(c) Give the remaining copies of the manifest to the accepting transporter or designated facility.

(5) The requirements of §A(3), (4), and (6) do not apply to water (bulk shipment) transporters if:

(a) The hazardous waste is delivered by water (bulk shipment) to the designated facility;

(b) A shipping paper containing all the information required on the manifest (excluding the EPA identification numbers, generator certification, and signatures) accompanies the hazardous waste;

(c) The delivering transporter obtains the date of delivery and handwritten signature of the owner or operator of the designated facility on either the manifest or the shipping paper,

(d) The person delivering the hazardous waste to the initial water (bulk shipment) transporter obtains the date of delivery and signature of the water (bulk shipment) transporter or the manifest and forwards it to the designated facility; and

(e) A copy of the shipping paper or manifest is retained by each water (bulk shipment) transporter in accordance with §C.

(6). Requirements. For shipments involving rail transportation, the requirements of SA(3) - (5) do not apply. The following requirements do apply:

(a) When accepting hazardous waste from a non-rail transporter, the initial rail transporter shall:

(i) Sign and date the manifest acknowledging acceptance of the hazardous waste;

JS EPA ARCHIVE DOCUMENT

(ii) Return a signed copy of the manifest to the non-rail transporter;

(See page 2098)

2097-3

10.51.04.02 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(iii) Forward at least three copies of the manifest to the next non-rail transporter, if any, the designated facility, if the shipment is delivered to that facility by rail, or the last rail transporter designated to handle the waste in the United States;

(iv) Retain one copy of the manifest and rail shipping paper in accordance with §C(3).

(b) Rail transporters shall ensure that a shipping paper containing all the information required on the manifest (excluding the EPA identification numbers, generator certification, and signatures) accompanies the hazardous waste at all times.

(c) Intermediate rail transporters are not required to sign either the manifest or shipping paper.

(d) When delivering hazardous waste to the designated facility, a rail transporter shall:

(i) Obtain the date of delivery and handwritten signature of the owner or operator of the designated facility on the manifest or the shipping paper (if the manifest has not been received by the facility); and

(ii) Retain a copy of the manifest or signed shipping paper in accordance with §C.

(e) When delivering hazardous waste to a non-rail transporter, a rail transporter shall:

(i) Obtain the date of delivery and the handwritten signature of the next non-rail transporter on the manifest; and

(ii) Retain a copy of the manifest in accordance with §C.

(f) Before accepting hazardous waste from a rail transporter, a non-rail transporter shall sign and date the manifest and provide a copy to the rail transporter.

(7) Transporters who transport hazardous waste out of the State to a foreign destination shall:

JS EPA ARCHIVE DOCUMENT

(a) Indicate on the manifest the date the hazardous waste left the United States;

(b) Sign the manifest and retain one copy in accordance with §C; and

(c) Return a signed copy of the manifest to the generator.

2098

B. Compliance with the Manifest.

(1) The transporter shall deliver the entire quantity of hazardous waste which he has accepted from a generator or a transporter to the:

(a) Designated facility listed on the manifest;

(b) Alternate designated facility, if the hazardous waste cannot be delivered to the designated facility because an emergency prevents delivery;

(c) Next designated transporter; or

(d) Place outside the United States designated by the generator.

(2) If the hazardous waste cannot be delivered in accordance with $\frac{5}{2}E(1)$, the transporter shall contact the generator for further directions and shall revise the manifest according to the generator's instructions.

C. Recordkeeping.

(1) A transporter of hazardous waste shall keep a copy of the manifest signed by the generator, himself, and the next designated transporter or the owner or operator of the designated facility for a period of 3 years from the date the hazardous waste was accepted by the initial transporter.

(2) For shipments delivered to the designated facility by water (bulk shipment), each water (bulk shipment) transporter shall retain a copy of a shipping paper containing all the information required in $\frac{1}{2}A(5)(b)$ for a period of 3 years.

(3) For shipments of hezardous waste by rail within the State the following apply:

(a) The initial rail transporter shall keep a copy of the manifest and shipping paper with all the information required in A(6) for a period of 3 years from the date the hazardous waste was accepted by the initial transporter;

(b) The final rail transporter shall keep a copy of the signed manifest, or the shipping paper if signed by the designated facility instead of the manifest, for a period of 3 years from the date the hazardous waste was accepted by the initial transporter;

(c) Intermediate rail transporters are not required to keep records pursuant to these regulations.

Supp. 20

US EPA ARCHIVE DOCUMENT

2098-1

10.51.04.03 DEPARTMENT OF HEALTH AND MENTAL HYGENE.

(4) A transporter who transports hazardous waste internationally out of the State shall keep a copy of the manifest, for a period of 3 years from the date the hazardous waste was accepted by the initial transporter, indicating that the hazardous waste left the United States.

(5) The periods of 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 Secretary.

.03 Hazardous Waste Discharged.

A. Immediate Action.

(1) In the event of a discharge of hazardous waste during transportation, the transporter shall take appropriate immediate action to protect human health and the environment (for example, notify local authorities, dike the discharge area), and shall notify the Department and local authorities, if any within 1 hour of the incident, or, if not immediately discovered, within 1 hour of discovery of the incident, by calling (301) 243-8700.

(2) If a discharge of hazardous waste occurs during transportation, and an official (State or local government or a federal agency) acting within the scope of his official responsibilities determines that immediate removal of the waste is necessary to protect human health or the environment, that official may authorize the removal of the waste by transporters who do not have EPA identification numbers and without the preparation of a manifest.

(3) An air, rail, highway or water transporter who has discharged hazardous waste shall:

(a) Give notice if required by 40 CFR 171.15, to the National Response Center (800-424-8802);

(b) Submit a report in writing as required by 49 CFR 171.16 to the Chief Information Systems Division, Transportation Programs Bureau, Department of Transportation, Washington, DC. 20590; and

(c) Submit a report in writing within 30 days to the Director of the Waste Management Administration, Office of Environmental Programs, 201 W. Preston Street, Baltimore, Maryland 21201.

2098-2

DISPOSAL OF HAZARDOUS SUBSTANCES

10.51.04.04

(4) A water (bulk shipment) transporter who has discharged hazardous waste shall give notice by 33 CFR 153.203 to the National Response Center (800-424-8802 or in the District of Columbia 426-2675) and to the State (301-243-8700).

B. Discharge CleanUp. A transporter shall clean up any hazardous waste discharge that occurs during transportation or take such action as may be required or approved by federal. State, or local officials so that the hazardous waste discharge no longer presents a hazard to human health or the environment.

C. All references to 49 CFR in this regulation mean 49 CFR as it has been adopted as of April 1, 1984.

.04 Bonding.

A. The Department as a condition to the issuance of a CHS Hauler Certificate shall require a person to secure a bond of not less than \$50,000 for the purpose of indemnifying the State for abatement of pollution from the improper transportation or spill of CHS.

B. Execution of Bond.

(1) The bond shall be executed by the permittee and corporate surety licensed to do business in the State.

(2) Instead of a corporate surety, either of the following shall be acceptable:

(a) Deposits of cash or negotiable bonds of the United States Government. The cash deposit or market value of the securities shall be equal at least to the required sum of the bond. The Department, on receipt of any deposit of cash or securities, immediately shall forward it to the State Treasurer, who shall receive and hold the bond in the name of the State, in trust, for the purposes for which the deposit is made. The State Treasurer at all times is responsible for the custody and safekeeping of these deposits. The person making the deposit may demand and receive from the State Treasurer the whole or any portion of any securities so deposited, on depositing with the State Treasurer other negotiable securities of the classes specified in this section having a market value at least equal to the sum of the bond.

(b) A certificate of deposit, if it is equivalent to the required bond, issued by a bank within the State, and accompanied by written agreement of the bank to pay on demand to the State upon a finding of forfeit by the Secretary.

Supp. 20

2098-3

C. Upon expiration of the time limitations specified in the certification, the Department shall release the bond, provided that all provisions of the certificate and the Health-Environmental Article, §§7-210 through 7-268, inclusive, have been satisfactorily met. Failure to fully comply with the provisions set forth above, or revocation of the certificate, shall constitute grounds for the Department to initiate forfeiture proceedings.

D. Forfeiture Proceedings. The Department shall notify the permittee by registered mail of its intent to initiate forfeiture proceedings. The permittee has 30 days to show cause why the bond or cash deposit should not be forfeited.

Administrative History

Regulations .01 - .03 adopted as an emergency provision effective November 18, 1980 (7:25 Md. R. S-1); adopted permanently effective April 3, 1981 (8:7 Md. R. - 642)

Regulations .01A -- C, .02A, C amended, and .03C adopted effective July 30, 1984 (11:15 Md. R. 1330)

Regulation .01C adopted effective January 18, 1982 (9:1 Md. R. 20)

Regulations .01C and .02A and C amended effective January 31, 1983 (10:2 Md. R. 110)

Regulations .01C, .02A, .04A and C amended, and .01D — F adopted effective February 13, 1984 (11:3 Md. R. 202)

Regulations .02C and .03A amended effective January 18, 1982 (9:1 Md. R. 20) Regulation .04 adopted effective January 18, 1982 (9:1 Md. R. 20)

Title 10 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

Subtitle 51 DISPOSAL OF CONTROLLED HAZARDOUS SUBSTANCES

Chapter 05 Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

Authority: Health-Environmental Article, §2-206 et seq., Annotated Code of Maryland

.01 General

A. Purpose, Scope, and Applicability.

(1) The purpose of this regulation is to establish minimum State standards which define the acceptable management of hazardous waste.

(2) The standards in this chapter apply to owners and operators of facilities which treat, store, or dispose of hazardous waste. These standards apply to all treatment, storage, or disposal of hazardous waste at these facilities or at inactive facilities after the effective date of these regulations, except as specifically provided otherwise in this chapter or COMAR 10.51.02. These standards apply to inactive disposal facilities when the Department determines that a substantial present or potential hazard to human health or the environment exists.

(3) The requirements of this chapter do not apply to:

(a) A person disposing of hazardous waste by means of ocean disposal subject to a permit issued under the Marine Protection. Research, and Sanctuaries Act and complying with the following regulations:

(i) .02B, and

(ii) .05B, C, D(1),(2)(a), and F and G;

(b) The owner or operator of a facility permitted, licensed, or registered by the State to manage municipal or industrial solid waste, if the only hazardous waste the facility treats, stores, or disposes of is, excluded from regulation under this chapter by COMAR 10.51.02.05;

Supp. 20

10.51.05.01B DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(c) The owner or operator of a facility which treats or stores hazardous waste, which treatment or storage meets the criteria in COMAR 10.51.02.06A, except to the extent that COMAR 10.51.02.06B provides otherwise;

(d) A generator accumulating waste on-site in compliance with COMAR 10.51.03.05E, except to the extent the requirements are included in COMAR 10.51.03.05E;

(e) A farmer disposing of waste pesticides from his own use in compliance with COMAR 10.51.03.078;

(f) The owner or operator of a totally enclosed treatment facility as defined in COMAR 10.51.01.03B(68);

(g) The owner or operator of an elementary neutralization unit or a wastewater treatment unit;

(h) Persons with respect to those activities which are carried out to immediately contain or treat a spill of hazardous waste or material which, when spilled, becomes a hazardous waste, except that, with respect to these activities, the appropriate requirements of Regulations .03 and .04 are applicable to owners and operators of treatment, storage, and disposal facilities otherwise subject to this part. (Comment. This paragraph only applies to activities taken in response to a spill. After the immediate response activities are completed, the applicable regulations of this chapter apply fully to the management of any spill residue or debris which is a hazardous waste under COMAR 10.51.02);

(i) The owner or operator of a publicly owned treatment works (POTW's) complying with the following regulations in this chapter:

(i) .02B, and

(ii) .05B, C, D(1) and (2)(a), F, and G.

B. Imminent Hazard Action. Notwithstanding any other provisions of these regulations, enforcement actions may be brought pursuant to Health-Environmental Article, §7-206, inclusive.

C. Regulation by Reference.

US EPA ARCHIVE DOCUMENT

(1) Reference to Regulation .08 of this chapter is as of February 3, 1984.

(2) Reference to 40 CFR 264.140 - .151 is as of April 16, 1982.

(3) Reference to 40 CFR 265 is as of April 1, 1984.

2100

.02 General Facility Standards.

A. Applicability. This regulation applies to owners and operators of all hazardous waste facilities, except as Regulation .01A provides otherwise.

B. Identification Number. Every facility owner or operator shall apply to the State for an EPA identification number.

C. Required Notices.

(1) The owner or operator of a facility that has arranged to receive hazardous waste from a foreign source shall notify the Secretary in writing at least 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 same foreign source is not required.

(2) 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 shall notify the new owner or operator in writing of the requirements of this chapter and COMAR 10.51.07.

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

D. General Waste Analysis.

(1) Chemical and Physical Analysis.

(a) Before an owner or operator treats, stores, or disposes of any hazardous waste, he shall obtain a detailed chemical and physical analysis of a representative sample of the waste. At a minimum, this analysis shall contain all the information which shall be known, to treat, store, or dispose of the waste in accordance with the requirements of this chapter or with the conditions of a permit issued pursuant to COMAR 10.51.07.

(b) The analysis may include data developed under COMAR 10.51.02, existing published or documented data on the hazardous waste or on waste generated from similar processes.

(c) The analysis shall be repeated to ensure that it is accurate and up to date. At a minimum, the analysis shall be repeated:

Supp. 20

(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

(ii) For off-site facilities, when the results of the inspection required in D(1)(d), below, indicate that the hazardous waste received at the facility does not match the waste designated on the accompanying manifest or shipping paper.

(d) The owner or operator of an off-site facility shall 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.

(2) Written Analysis.

(a) The owner or operator shall develop and follow a written waste analysis plan which describes the procedures which he will carry out to comply with §D(1), above. He shall keep this plan at the facility. At a minimum, the plan shall specify:

(i) The parameters for which each hazardous waste will be analyzed and the rationale for the selection of these parameters that is, how analysis for these parameters will provide sufficient information on the waste's properties to comply with D(1), above.

(ii) The test methods which will be used to test for these parameters.

(iii) 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:

(aa) One of the sampling methods described in Appendix I of COMAR 10.51.02; or

(bb) An equivalent sampling method.

(iv) The frequency with which the initial analysis of the waste will be reviewed or repeated to ensure that the analysis is accurate and up to date.

(v) For off-site facilities, the waste analyses that hazardous waste generators have agreed to supply.

(vi) When applicable, the methods which will be used to meet the additional waste analysis requirements for specific waste management methods as specified in §H of this regulation and Regulation .15.

(b) For off-site facilities, the waste analysis plan required in §D(2Xa), above, shall 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 shall describe?

(i) The procedures which will be used to determine the identity of each movement of waste managed at the facility; and

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.05.02E

(ii) The sampling method which will be used to obtain a representative sample of the waste to be identified, if the identification method includes sampling.

E. Security.

(1) The owner or operator shall prevent the unknowing entry, and minimize the possibility for the unauthorized entry, of persons or livestock onto the active portion of his facility, unless it can be demonstrated to the Secretary that:

(a) Physical contact with the waste, structures, or equipment within the active portion of the facility does not injure unknowing or unauthorized persons or livestock which may enter the active portion of a facility; and

(b) Disturbance of the waste or equipment, by the unknowing or unauthorized entry of persons or livestock onto the active portion of a facility, does not cause a violation of the requirements of this chapter.

(2) Unless exempt under E(1)(a) and (b), above, a facility shall have:

(a) A 24-hour surveillance system (for example, television monitoring or surveillance by guards or facility personnel) which continuously monitors and controls entry onto the active portion of the facility; or

(b) An artificial or natural barrier (for example, a fence in good repair or a fence combined with a cliff), which completely surrounds the active portion of the facility; and

(c) A means to control entry, at all times, through the gates or other entrances to the active portion of the facility (for example, an attendant, television monitors, locked entrance, or controlled roadway access to the facility).

(3) Unless exempt under E(1)(a) and (b), above, a sign with the legend, "Danger - Unauthorized Personnel Keep Out", shall be posted at every 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 shall 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 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

Supp. 15

10.51.05.02F DEPARTMENT OF HEALTH AND MENTAL HYGIENE

personnel are allowed to enter the active portion, and that entry onto the active portion can be dangerous.

F. General Inspection Requirements.

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

(2) Development of Written Schedule.

JS EPA ARCHIVE DOCUMENT

(a) The owner or operator shall develop and follow a written schedule for inspecting all 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.

(b) The owner shall keep this schedule at the facility.

(c) The schedule shall identify the types of problems (for example, malfunctions or deterioration) which are to be looked for during the inspection (for example, inoperative sump pump, leaking fitting, eroding dike, etc.).

(d) The frequency of inspection may vary for the items on the schedule. However, it should be based on the rate of possible deterioration of the equipment and the probability of an environmental or human health incident if the deterioration or malfunction or any operator error goes undetected between inspections. Areas subject to spills, such as loading and unloading areas, shall be inspected daily when in use. At a minimum, the inspection schedule shall include the items and frequencies called for in Regulations .09E, .10D, .11E, .12D-1, .14C, .15D, and .15-1L

(3) The owner or operator shall remedy any deterioration or malfunction of equipment or structures which the inspection reveals on a schedule which ensures that the problem does not lead to an environmental or human health hazard. When a hazard is imminent or has already occurred, remedial action shall be taken immediately.

(4) The owner or operator shall record inspections in an inspection log or summary. He shall keep these records for at least 3 years

2104

from the date of inspection. At a minimum, these records shall 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.

G. Personnel Training.

(1) Program of Instruction or Training.

(a) Facility personnel shall 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 chapter. The owner or operator shall ensure that this program includes all the elements described in the document required under G(4)(c), below.

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

(c) At a minimum the training program shall be designed to ensure that facility personnel are able to respond effectively to emergencies by familiarizing them with emergency procedures, emergency equipment, and emergency systems, including, when applicable:

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

(ii) Key parameters for automatic waste feed cutoff systems;

(iii) Communications or alarm systems;

(iv) Response to fires or explosions;

(v) Response to ground water contamination incidents; and

(vi) Shutdown of operations.

(2) Facility personnel shall successfully complete the program required in §G(1), above, within 6 months after the effective date of these regulations or 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 may not work in unsupervised positions until they have completed the training requirements of §G(1), above.

(3) Facility personnel shall take part in an annual review of the initial training required in SG(1), above.

Supp. 15

10.51.05.02H DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(4) The owner or operator shall maintain the following documents and records at the facility:

(a) The job title for each position at the facility related to hazardous waste management, and the name of the employee filling each job.

(b) A written job description for each position listed under G(4), above. This description may be consistent in its decree of specificity with descriptions for other similar positions in the same company location or bargaining unit, but shall include the requisite skill, education, or other qualifications, and duties of employees assigned to each position.

(c) 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 G(4Xa), above.

(d) Records that document that the training or job experience required under G(1), (2), and (3) has been given to, and completed by, facility personnel.

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

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

(1) The owner or operator shall take precautions to prevent accidental ignition or reaction of ignitable or reactive waste. This waste shall be separated and protected from the 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 (for example, fop, heat-producing chemical reactions), and radiant heat. While ignitable or reactivewaste is being handled, the owner or operator shall confine smoking and open flame to specially designated locations. "No smoking" signs shall be conspicuously placed wherever there is a hazard from ignitable or reactive waste.

EPA ARCHIVE DOCUMENT

(2) When specifically required by this subtitle, the treatment, storage, or disposal of ignitable or reactive waste, and the mixture or commingling of incompatible wastes, or incompatible wastes and materials, shall be conducted so that it does not:

2106

(a) Generate extreme heat or pressure, fire or explosion, or violent reaction;

(b) Produce uncontrolled toxic mists, fumes, dusts, or gasses in sufficient quantities to threaten human health or the environment;

(c) Produce uncontrolled flammable fumes or gasses in sufficient quantities to pose a risk of fire or explosions;

(d) Damage the structural integrity of the device or facility containing the waste; or

(e) Through other like means threaten human health or the environment.

(3) When required to comply with \S H(1) or (2), the owner or operator shall document that compliance. This documentation may be based on references to published scientific or engineering literature, data from trial tests (for example, bench scale or pilot scale tests), waste analysis according to \S D of this regulation, or the results of the treatment of similar wastes by similar treatment processes and under similar operating conditions.

.03 Preparedness and Prevention.

A. Applicability. This regulation applies to owners and operators of all hazardous waste facilities, except as Regulation .01A otherwise provides.

B. 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 surface water which could threaten human health or the environment.

C. Required Equipment. All facilities shall be equipped with the following, unless it can be demonstrated to the Secretary that none of the hazards posed by waste handled at the facility could require a particular kind of equipment specified below:

(1) An internal communications or alarm system capable of providing immediate emergency instruction (voice or signal) to facility personnel;

(2) 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;

Supp. 15

10.51.05.03 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(3) Portable fire extinguishers, fire control equipment (including special extinguishing equipment, such as that using foam, inert gas, or dry chemicals), spill control equipment, and decontamination equipment; and

(4) Water at adequate volume and pressure to supply water hose streams, or foam producing equipment, or automatic sprinklers, or water spray systems.

D. Testing and Maintenance of Equipment. All facility communications or alarm systems, fire protection equipment, spill control equipment, and decontamination equipment, where required, shall be tested and maintained as necessary to assure its proper operation in time of emergency.

E. Access to Communications or Alarm System.

EPA ARCHIVE DOCUMENT

(1) 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 communications device, either directly or through visual or voice contact with another employee, unless the Secretary has ruled that such a device is not required under §C of this regulation.

(2) If there is ever just one employee on the premises while the facility is operating, he shall have 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 Secretary has ruled that such a device is not required under §C of this regulation.

F. 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 facility operation in an emergency, unless it can be demonstrated to the Secretary that aisle space is not needed for any of these purposes.

G. Special Handling for Ignitable or Reactive Waste. The owner or operator shall take precutions to prevent accidental ignition or reaction of ignitable or reactive waste. This waste shall 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 (for example, from heat-producing chemical reactions), and radiant heat. While ignitable or reactive waste is being handled, the owner or operator shall confine smoking and open flame to specially

2108

DISPOSAL OF HAZARDOUS SUBSTANCES

 designated locations. "No Smoking" signs shall be conspicuously placed wherever there is a hazard from ignitable or reactive waste.

H. Arrangements With Local Authorities.

(1) The owner or operator shall attempt to make the following arrangements, as appropriate for the type of waste handled at his facility and the potential need for the services of these organizations:

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

(b) When 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. Agreements with State emergency response teams, emergency response contractors, and equipment suppliers; and

(c) Arrangements to familiarize local hospitals with the properties of hazardous waste handled at the facility and the types of injuries or illnesses which could result from fires, explosions, or releases at the facility.

(2) When State or local authorities decline to enter into these arrangements, the owner or operator shall document the refusal in the operating record.

.04 Contingency Plan and Emergency Procedures.

A. Applicability. This regulation applies to owners and operators of all hazardous waste facilities, except as Regulation .01 otherwise provides.

B. Purpose and Implementation of Contingency Plan.

(1) Every owner or operator shall have a contingency plan for his 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 surface water.

(2) The provisions of the plan shall be carried out immediately whenever there is a fire, explosion, or release of hazardous waste or

Supp. 15

10.51.05.04C DEPARTMENT OF HEALTH AND MENTAL HYCIENE

hezardous waste constituents which could threaten human health or the environment.

C. Content of Contingency Plan.

EPA ARCHIVE DOCUMENT

(1) The contingency plan shall describe the actions facility personnel shall take to comply with §§B and G in response to fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water at the facility.

(2) If the owner or operator has already prepared a Spill Prevention. Control. and Countermeasures (SPCC) Flan in accordance with 40 CFR Part 112 or Part 1510, or some other emergency or contingency plan, he need only amend that plan to incorporate hazardous waste management provisions that are sufficient to comply with the requirements of this chapter.

(3) 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, pursuant to Regulation .03H.

(4) The plan shall list names, addresses, and phone numbers (office and home) of all persons qualified to act as emergency coordinator (see §F), and this list shall be kept up to date. When more than one person is listed, one shall be named as primary emergency coordinator and others shall be listed in the order in which they will assume responsibility as alternates. For new facilities, this information shall be supplied to the Secretary at the time of certification, rather than at the time of permit application.

(5) The plan shall include a list of all emergency equipment at the facility (such as fire extinguishing systems, spill control equipment, communications and alarm systems (internal and external), and decontamination equipment), where this equipment is required. 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.

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

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.05.04G

D. Copies of Contingency Plan. A copy of the contingency plan and all revisions to the plan shall be:

(1) Maintained at the facility; and

(2) 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.

E. Amendments of Contingency Plan. The contingency plan shall be reviewed, and immediately amended, if necessary, whenever the:

(1) Facility permit is revised;

(2) Plan fails in an emergency;

(3) 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;

(4) List of emergency coordinators changes; or

(5) List of emergency equipment changes.

F. Emergency Coordinator. At all times, there shall be at least one employee either on the facility premises or on call (that is, available to respond to an emergency by reaching the facility within a short period of time) with the responsibility for coordinating all emergency response measures. This emergency coordinator shall be thoroughly familiar with all aspects of the facility's 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, this person shall have the authority to commit the resources needed to carry out the contingency plan.

G. Emergency Procedures.

(1) Whenever there is an imminent or actual emergency situation, the emergency coordinator (or his designee when the emergency coordinator is on call) shall immediately:

(a) Activate internal facility alarms or communication systems, where applicable, to notify all facility personnel; and

(b) Notify appropriate State or local agencies with designated response roles if their help is needed.

(2) Whenever there is a release, fire, or explosion, the emergency coordinator shall immediately identify the character, exact source,

10.51.05.04G DEPARTMENT OF HEALTH AND MENTAL HYGIENE

amount, and real extent of any released materials. He may do this by observation or review of facility records or manifests, and, if necessary, by chemical analysis.

(3) 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 (for example, the effects of any toxic, irritating, or asphyxiating gases that are generated, or the effects of any hazardous surface water runoff from water or chemical agents used to control fire and heat-induced explosions).

(4) If the emergency coordinator determines that the facility has had a release, fire, or explosion which could threaten human health, or the environment, outside the facility, he shall report his findings as follows:

(a) If his assessment indicates that evacuation of local areas may be advisable, he shall immediately notify appropriate local authorities. He shall be available to help appropriate officials decide whether local areas should be evacuated.

(b) He shall immediately notify either the government official designated as the on-scene coordinator for that geographical area, (in the applicable regional contingency plan under 40 CFR Part 1510) or the National Response Center (using their 24-hour toll free number 800/424-8802, and the State's number 301/243-3700). The report shall include:

(i) Name and telephone number of reporter;

(ii) Name and address of facility;

US EPA ARCHIVE DOCUMENT

(iii) Time and type of incident (for example, release, fire);

(iv) Name and quantity of materials involved, to the extent known;

(v) The extent of injuries, if any; and

(vi) The possible hazards to human health, or the environment, outside the facility.

(5) 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

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.05.04G

at the facility. These measures shall include, where applicable, stopping processes and operations, collecting and containing released waste, and removing or isolating containers.

(6) 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.

(7) Immediately after an emergency, the emergency coordinator shall provide for treating, storing, or disposing recovered waste, contaminated soil or surface water, or any other material that results from a release, fire, or explosion at the facility.

(8) The emergency coordinator shall ensure that, in the affected areas of the facility:

(a) Waste that may be incompatible with the released material is not treated, stored, or disposed of until cleanup procedures are completed; and

(b) All emergency equipment listed in the contingency plan is cleaned and fit for its intended use before operations are resumed.

(9) The owner or operator shall notify the Secretary, and appropriate other State and local authorities, that the facility is in compliance with G(8) before operations are resumed in the affected areas of the facility.

(10) The owner or operator shall note in the operating record the time, date, and details of any incident that required implementing the contingency plan. Within 15 days after the incident, he shall submit a written report on the incident to the Secretary. The report shall include:

(a) Name, address, and telephone number of the owner or operator;

(b) Name, address, and telephone number of the facility;

(c) Date, time, and type of incident (for example, fire, explosion);

(d) Name and quantity of materials involved;

(e) The extent of injuries, if any;

(f) An assessment of actual or potential hazards to human health or the environment, where this is applicable; and

Supp. 15

10.51.05.05 DEPARTMENT OF HEALTH AND MENTAL HYCIENE

(g) Estimated quantity and disposition of recovered material that resulted from the incident.

.05 Manifest System, Recordkeeping, and Reporting.

A. Applicability. This regulation applies to owners and operators of both on-site and off-site facilities, except as Regulation .01 otherwise provides. Sections B, C, and G do not apply to owners and operators of on-site facilities that do not receive hazardous waste from offsite sources.

B. Use of Manifest System.

EPA ARCHIVE DOCUMENT

(1) If a facility receives hazardous waste accompanied by a manifest, the owner or operator, or his agent, shall:

(a) Sign and date each copy of the manifest to certify that the hazardous waste covered by the manifest was received.

(b) Note any significant discrepancies in the manifest as defined in C(1) on each copy of the manifest;

(c) Immediately give the transporter at least one copy of the signed manifest;

(d) Within 30 days after the delivery, send a copy of the manifest to the generator; and

(e) Send a completed copy of the manifest to the Department within 10 days after receipt of the hazardous waste.

(2) If a facility receives, from a rail or water (bulk shipment) transporter, hazardous wasts 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, shall:

(a) Sign and date each copy of the shipping paper to certify that the hazardous waste covered by the shipping paper was received;

(b) Note any significant discrepancies in the shipping paper (as defined in §B(1)) on each copy of the shipping paper;

(c) Immediately give the rail or water (bulk shipment) transporter at least one copy of the shipping paper;

(d) Within 30 days after the delivery, send a copy of the shipping paper to the generator; however, if the manifest is received within 30 days after the delivery, the owner or operator, or his agent,

2114

DISPOSAL OF HAZARDOUS SUBSTANCES

shall sign and date the manifest and return it to the generator instead of the shipping paper; and

(e) Retain at the facility a copy of each shipping paper and manifest for at least 3 years from the date of delivery.

(3) Whenever a shipment of hazardous waste is initiated from a facility, the owner or operator of that facility shall comply with the requirements of COMAR 10.51.03.

C. Manifest Discrepancies.

(1) 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:

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

(b) For batch waste, any variation in piece count, such as 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.

(2) Upon discovering a significant discrepancy, the owner or operator shall attempt to reconcile the discrepancy with the waste generator or transporter (for example, with telephone conversations). If the discrepancy is not resolved within 15 days after receiving the waste, the owner or operator shall immediately submit to the Secretary a letter describing the discrepancy and attempts to reconcile it, and a copy of the manifest or shipping paper at issue.

D. Operating Record.

(1) The owner or operator shall keep a written operating record at his facility.

(2) The following information shall be recorded as it becomes available, and maintained in the operating record until closure of the facility:

(a) A description and the quantity of each hazardous waste received, and the methods and dates of its treatment, storage, or disposal at the facility as required by Appendix L

(b) The location of each hazardous waste within the facility and the quantity at each location. For disposal facilities, the location and quantity of each hazardous waste shall be recorded on a map or

Supp. 15

diagram of each cell or disposal area. For all facilities, this information shall include cross-references to specific manifest document numbers, if the waste was accompanied by a manifest.

(c) Records and results of waste analysis performed as specified in Regulations .02D and H. and .15C.

(d) Summary reports and details of all incidents that require implementing the contingency plan as specified in Regulation .04G(10).

(e) Records and results of inspections as required by Regulation .02F(4) (except these data need be kept only 3 years).

(f) For off-site facilities, notices to generators as specified in Regulation .02C(3).

(g) All closure cost estimates under Regulation .08 and for disposal facilities all post-closure cost estimates under Regulation .08.

(h) Monitoring, testing, or analytical data where required by Regulations .06, .12D-1, .13G,I,K, .14D,J, and .15L

E. Availability, Retention, and Disposition of Records.

(1) All records, including plans, required under this chapter shall be furnished upon request, and made available at all reasonable times for inspection by any officer, employee, or representative of the Department who is duly designated by the Secretary.

(2) The retention period for all records required under this chapter is extended automatically during the course of any unresolved enforcement action regarding the facility or as requested by the Secretary.

(3) A copy of records of waste disposal locations and quantities under §D(2Xb) shall be submitted to the Secretary and local land authority upon closure of the facility.

F. Annual Report. The owner or operator shall prepare and submit a single copy of an annual report to the Secretary by March 1 of each year. The report form and instructions in Appendix II shall be used for this report. The annual report shall cover facility activities during the previous calendar year and shall include the following information:

(1) The EPA identification number, name, and address of the fadlity.

(2) The calendar year covered by the report.

2116

Supp. 20

10.51.05.05

DISPOSAL OF HAZARDOUS SUBSTANCES

(3) For off-site facilities, the EPA identification number of each hazardous waste generator from which the facility received a hazardous waste during the year. For imported shipments, the report shall give the name and address of the foreign generator.

(4) 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 EPA identification number of each generator.

(5) The method of treatment, storage, or disposal for each hazardous waste.

(6) The certification signed by the owner or operator of the facility or his authorized representative.

(7) The most recent closure cost estimate under Regulation .08C and, for disposal facilities, the most recent post-closure cost estimate under Regulation .08E.

G. 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 without an accompanying shipping paper as described in COMAR 10.51.04.02A(5)(b), and if the waste is not excluded from the manifest requirement by COMAR 10.51.02.05 then the owner or operator shall prepare and submit a single copy of a report to the Secretary within 15 days after receiving the waste. The report form and instructions in Appendix II shall be used for this report. The report shall include the following information:

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

(2) The date the facility received the waste;

(3) The EPA identification number, name, and address of the generator and the transporter, if available;

(4) A description and the quantity of each unmanifested hazardous waste the facility received;

(5) The method of treatment, storage, or disposal for each hazardous waste;

(6) The certification signed by the owner or operator of the facility or his authorized representative; and

(7) A brief explanation of why the waste was unmanifested, if known.

Supp. 20

10.51.05.06A DEPARTMENT OF HEALTH AND MENTAL HYGIENE

H. Additional Reports. In addition to submitting the annual report and unmanifested waste reports described in Regulation .05F and G, the owner or operator shall also report to the Secretary:

(1) Releases, fires, and explosions as specified in Regulation .04G(10);

(2) Groundwater contamination and monitoring data as specified in Regulation .06D and E;

(3) Facility closure as specified in Regulation .07F; and

(4) As otherwise required by Regulations .06 and .11 - .14.

.06 Ground Water Protection

A. Applicability.

US EPA ARCHIVE DOCUMENT

(1) Except as provided in A(2), this regulation applies 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 shall satisfy the requirements of this regulation for all wastes (or constituents thereof) contained in any waste management unit at the facility that receives hazardous waste after January 26, 1983 (hereinafter referred to as a "regulated unit"). Any waste or waste constituent migrating beyond the waste management area under F(2) is assumed to originate from a regulated unit unless the Secretary finds that the waste or waste constituent originated from another source.

(2) The owner or operator is not subject to this regulation if:

(a) He is exempted under Regulation .01.

(b) The Secretary finds, pursuant to Regulation .13K(4), that the treatment zone of a land treatment unit does not contain levels 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 Regulation .13I 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 this chapter during the post-closure care period.

(c) The Secretary finds that there is no potential for migration of liquid from a regulated unit to the uppermost aquifer during the active life of the regulated unit (including the closure period) and the

2118

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.05.06A

post-closure care period specified under Regulation .07G. This demonstration shall be certified by a qualified geologist or geotechnical engineer. In order to provide an adequate margin of safety in the prediction of potential migration of liquid, the owner or operator shall base any predictions made under this paragraph on assumptions that maximize the rate of liquid migration.

(3) The regulations under this chapter apply during the active life of the regulated unit, including the closure period. After closure of the regulated unit, the regulations in this chapter:

(a) Do not apply if all waste, waste residues, contaminated containment system components, and contaminated subsoils are removed or decontaminated at closure;

(b) Apply during the post-closure care period under Regulation .07G if the owner or operator is conducting a detection monitoring program under §I;

(c) Apply during the compliance period under §G if the owner or operator is conducting a compliance monitoring program under §J or a corrective action program under §K; or

(d) Apply if specified by the Secretary in a permit issued under COMAR 10.51.07.01B.

(4) Except as provided for in A(4)(a) - (c), below, the Department adopts as its requirements for facilities that are excluded from this regulation the federal regulations at 40 CFR 265.90 - .94, 265.110 - .120, 265.220 - .230, 265.250 - .257, and 265.300 - .325, adopted as of April 1, 1984. This will include all hazardous waste landfills, land treatment facilities, surface impoundments and waste piles that received the last volume of hazardous waste before January 26, 1983. The following shall also apply:

(a) Substitute "Secretary" for "Regional Administrator";

(b) Substitute "Department" for "Environmental Protection Agency" or "Agency";

(c) The Department may add additional requirements under this regulation if the Secretary determines that these requirements are necessary to protect public health and the environment.

(5) For purposes of this regulation, "regulated unit" means a facility that received hazardous waste after January 26, 1983.

Supp. 20

JS EPA ARCHIVE DOCUMENT

10.51.05.06B DEPARTMENT OF HEALTH AND MENTAL HYGIENE

B. Required Program.

US EPA ARCHIVE DOCUMENT

(1) Owners and operators subject to this chapter shall conduct a monitoring and response program as follows:

(a) Whenever hazardous constituents under §D from a regulated unit are detected at the compliance point under §F, the owner or operator shall institute a compliance monitoring program approved by the Secretary under §J;

(b) Whenever the ground water protection standard under SC is exceeded, the owner or operator shall institute a corrective action program approved by the Secretary under SK;

(c) Whenever hazardous constituents under §D from a regulated unit exceed concentration limits under §E in ground water between the compliance point under §F and the downgradient facility property boundary, the owner or operator shall institute a corrective action program approved by the Secretary under §K; or

(d) In all other cases, the owner or operator shall institute a detection monitoring program approved by the Secretary under §I.

(2) The Secretary will specify in the facility permit the specific elements of the monitoring and response program. The Secretary may include one or more of the programs identified in §B(1) in the facility permit as may be necessary to protect human health and the environment and will specify the circumstances under which each of the programs will be required. In deciding whether to require the owner or operator to be prepared to institute a particular program, the Secretary will consider the 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.

C. Ground Water Protection Standard. The owner or operator shall comply with conditions specified in the facility permit that are designed to ensure that hazardous constituents under §D entering the ground water from a regulated unit do not exceed the concentration limits under §E in the uppermost aquifer underlying the waste management area beyond the point of compliance under §F during the compliance period under §G. The Secretary will establish this ground water protection standard in the facility permit when hazardous constituents have entered the ground water from a regulated unit.

2120

DISPOSAL OF HAZARDOUS SUBSTANCES

D. Hazardous Constituents.

(1) The Secretary will specify in the facility permit the hazardous constituents to which the ground water protection standard of §C applies. Hazardous constituents are constituents identified in Appendix V of COMAR 10.51.02 that have been detected in ground water in the uppermost aquifer underlying a regulated unit and that are reasonably expected to be in or derived from waste contained in a regulated unit, unless the Secretary has excluded them under §D(2).

(2) The Secretary will exclude an Appendix V constituent from the list of hazardous constituents specified in the facility permit if he finds that the constituent is not capable of posing a substantial present or potential hazard to human health or the environment. In deciding whether to grant an exemption, the Secretary will consider the following:

(a) Potential adverse effects on ground water quality considering:

(i) The physical and chemical characteristics of the waste in the regulated unit, including its potential for migration,

(ii) The hydrogeological characteristics of the facility and surrounding land,

(iii) The quantity of ground water and the direction of ground water flow, -

(iv) The proximity and withdrawal rates of ground water users,

(v) The current and future uses of ground water in the area,

(vi) The existing quality of ground water, including other sources of contamination and their cumulative impact on the ground water quality,

(vii) The potential for health risks caused by human exposure to waste constituents,

(viii) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents,

(ix) The persistence and permanence of the potential adverse effects; and

(b) Potential adverse effects on hydraulically-connected surface water quality, considering:

10.51.05.06E DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(i) The volume and physical and chemical characteristics of the waste in the regulated unit,

(ii) The hydrogeological characteristics of the facility and surrounding land,

(iii) The quantity and quality of ground water, and the direction of ground water flow,

(iv) The patterns of rainfall in the region,

(v) The proximity of the regulated unit to surface waters,

(vi) The current and future uses of surface waters in the area and any water quality standards established for those surface waters,

(vii) The existing quality of surface water, including other sources of contamination and the cumulative impact on surface water quality,

(viii) The potential for health risks caused by human exposure to waste constituents,

(ix) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents, and

(x) The persistence and permanence of the potential adverse effects.

(3) In making any determination under D(2) about the use of ground water in the area around the facility, the Secretary will consider any identification of underground sources of drinking water and exempted aquifers made by the Approving Authority for the State's Underground Injection. Control Program.

E. Concentration Limits.

US EPA ARCHIVE DOCUMENT

(1) The Secretary will specify in the facility permit concentration limits in the ground water for hazardous constituents established under §D. The concentration of a hazardous constituent:

(a) May not exceed the background level of that constituent in the ground water at the time that limit is specified in the permit;

(b) For any of the constituents listed in Table 1, may not exceed the respective value given in that table if the background level of the constituent is below the value given in Table 1; or

(c) May not exceed an alternate limit established by the Secretary under $\xi E(2)$.

2122

DISPOSAL OF HAZARDOUS SUBSTANCES - 10.51.05.06E

(2) The Secretary will establish an alternate concentration limit for a hazardous constituent if he finds that the constituent does not pose a substantial present or potential hazard to human health or the environment as long as the alternate concentration limit is not exceeded. In establishing alternate concentration limits, the Secretary will consider the following factors:

(a) Potential adverse effects on ground water quality, considering:

(i) The physical and chemical characteristics of the waste in the regulated unit, including it's potential for migration,

(ii) The hydrogeological characteristics of the facility and surrounding land,

(iii) The quantity of ground water and the direction of ground water flow,

(iv) The proximity and withdrawal rates of ground water users,

(v) The current and future uses of ground water in the areas,

(vi) The existing quality of ground water, including other sources of contamination and their cumulative impact on the ground water quality,

(vii) The potential for health risks caused by human exposure to waste constituents,

(viii) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents,

(ix) The persistence and permanence of the potential adverse effects; and

(b) Potential adverse effects on hydraulically-connected surface water quality, considering:

(i) The volume and physical and chemical characteristics of the waste in the regulated unit,

(ii) The hydrogeological characteristics of the facility and surrounding land,

(iii) The quantity and quality of ground water, and the direction of ground water flow,

(iv) The patterns of rainfall in the region,

(v) The proximity of the regulated unit to surface waters,

2123

Supp. 20

US EPA ARCHIVE DOCUMENT
10.51.05.06E DEPARTMENT OF HEALTH AND MENTAL HYGENE

(vi) The current and future uses of surface waters in the area and any water quality standards established for those surface waters,

(vii) The existing quality of surface water, including other sources of contamination and the cumulative impact on surface water quality,

(viii) The potential for health risks caused by human exposure to waste constituents,

(iz) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents, and

(x) The persistence and permanence of the potential adverse effects.

(3) In making any determination under $\S E(2)$ about the use of ground water in the area around the facility, the Secretary will consider any identification of underground sources of drinking water and exempted aquifers made by the Approving Authority for the State's Underground Injection Control Program.

(See next page for Table 1)

US EPA ARCHIVE DOCUMENT



DISPOSAL OF HAZARDOUS SUBSTANCES

10.51.05.06F

Constituent	Maximum Concentration (Milligrams per liter)
Arsenic	0.05
Barium	1.0
Cadmium	0.01
Chromium	0.05
Lead	0.05
Mercury	.0.002
Selenium	0.01
Silver	0.05
Endrin (1, 2, 3, 4, 10-hexachloro-1,7-1 epoxy-1, 4, 4a, 5, 6, 7, 8, 9a-octahydro-1, 4-endo-5, 8-dimethano naphthalene)	0.0002
Lindane (1, 2, 3, 4, 5, 6-hexachlorocyclohexane, gamma isomer)	0.004 _
Methoxychlor (1, 1, 1-Trichloro-2, 2-bis (p-methoxyphenylethane)	0.1
Tozaphene (C ₁₀ H ₁₀ C1 ₆ , Technical chlorinated camphene, 67-69 percent chlorine)	0.005
2, 4-D (2, 4, Dichlorophenoxyacetic acid)	0.1
2, 4, 5-TP Silvex (2, 4, 5- Trichlorophenoxypropionic acid)	0.01

Table 1 Maximum Concentration of Constituents for Ground Water Protection

F. Point of Compliance.

(1) The Secretary will specify in the facility permit the point of compliance at which the ground water protection standard of §C applies and at which monitoring shall be conducted. The point of compliance is a vertical surface located at the hydraulically downgradient limit of the waste management area that extends down into the uppermost aquifer underlying the regulated units.

(2) Waste Management Area.

(a) The waste management area is the limit projected in the horizontal plane of the area on which waste will be placed during the active life of a regulated unit.

2123-2

Supp. 20

1:1

10.51.05.06G DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(b) The waste management area includes horizontal space taken up by any liner, dike, or other barrier designed to contain waste in a regulated unit.

(c) If the facility contains more than one regulated unit, the waste management area is described by an imaginary line circumscribing the several regulated units.

G. Compliance Period.

US EPA ARCHIVE DOCUMENT

(1) The Secretary will specify in the facility permit the compliance period during which the ground water protection standard of §C applies. The compliance period is the number of years equal to the active life of the waste management area (including any waste management activity before permitting, and the closure period), unless extended by Order of the Secretary.

(2) The compliance period begins when the owner or operator initiates a compliance monitoring program meeting the requirements of §J.

(3) If the owner or operator is engaged in a corrective action program at the end of the compliance period specified in G(1), the compliance period is extended until the owner or operator can demonstrate that the ground water protection standard of G has not been exceeded for a period of 3 consecutive years.

H. General Ground Water Monitoring Requirements. The owner or operator shall comply with the following requirements for any ground water monitoring program developed to satisfy §§I, J, or K:

(1) Obtain approval of the Secretary before installation.

(2) The ground water monitoring system shall consist of a sufficient number of wells, installed at appropriate locations and depths to yield ground water samples from the uppermost aquifer that represent the quality of:

(a) Background ground water that has not been affected by leakage from a regulated unit; and

(b) Ground water passing the point of compliance.

(3) If a facility contains more than one regulated unit, separate ground water monitoring systems are not required for each regulated unit provided that provisions for sampling the ground water in the uppermost aquifer will enable detection and measurement at the compliance point of hazardous constituents from the regulated units that have entered the ground water in the uppermost aquifer.

2122-2

10.51.05.06H DISPOSAL OF HAZARDOUS SUBSTANCES

(4) Installation shall be approved by a qualified geologist, as defined by COMAR 10.17.11.04B(2). Installation shall be done according to COMAR 10.17.13.

(5) All monitoring wells shall be cased in a manner that maintains the integrity of the monitoring well bore hole. This casing shall be screened or perforated and packed with gravel or sand, where necessary, to enable collection of ground water samples. The annular space, (that is, the space between the bore hole and well casing) above the sampling depth shall be sealed to prevent contamination of samples and the ground water.

(6) The ground water monitoring program shall include consistent sampling and analysis procedures that are designed to ensure monitoring results that provide a reliable indication of ground water quality below the waste management area. At a minimum the program shall include procedures and techniques for:

- (a) Sample collection;
- (b) Sample preservation and shipment:
- (c) Analytical procedures; and
- (d) Chain of custody control.

(7) The ground water monitoring program shall include sampling and analytical methods that are appropriate for ground water sampling and that accurately measure hazardous constituents inground water samples.

(8) The ground water monitoring program shall include a determination of the ground water surface elevation each time ground water is sampled.

(9) When appropriate, the ground water monitoring program shall establish background ground water quality for each of the hazardous constituents or monitoring parameters or constituents specified in the permit.

(10) Background Ground Water Quality.

(a) In the detection monitoring program under §I, background ground water quality for a monitoring parameter or constituent shall be based on data from quarterly sampling of wells upgradient from the waste management area for 1 year.

(b) In the compliance monitoring program under §J, background ground water quality for hazardous constituents shall be based on data from upgradient wells that:

2123-4

Supp. 20

JS EPA ARCHIVE DOCUMENT

10.51.05.06H DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(i) Is available before the permit is issued;

(ii) Accounts for measurement errors in sampling and analysis; and

(iii) Accounts, to the extent feasible, for seasonal fluctuations in background ground water quality if the fluctuations are expected to affect the concentration of the hazardous constituent.

(c) Background quality may be based on sampling of wells that are not upgradient from the waste management area when:

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

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

(d) In developing the data base used to determine a background value for each parameter or constituent, the owner or operator shall take a minimum of one sample from each well and a minimum of four samples from the entire system used to determine background ground water quality, each time the system is sampled.

(11) The owner or operator shall use the following statistical procedure in determining whether background values or concentration limits have been exceeded:

(a) If, in a detection monitoring program, the level of a constituent at the compliance point is to be compared to the constituent's background value and that background value has a sample coefficient of variation less than 1.00, the owner or operator:

(i) Shall take at least four portions from a sample at each well at the compliance point and determine whether the difference between the mean of the constituent at each well (using all portions taken) and the background 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 IV. If the test indicates that the difference is significant, the owner or operator shall repeat the same procedure (with at least the same number of portions as used in the first test) with a fresh sample from the monitoring well. If this second round of analyses indicates that the difference is significant, the owner or operator must; conclude that a statistically significant change has occurred.

US EPA ARCHIVE DOCUMENT

(ii) May use an equivalent statistical procedure for determining whether a statistically significant change has occurred. The

2123-5

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.05.061

Secretary will specify this procedure in the facility 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 H(11)(a).

(b) In all other situations in a detection monitoring program and in a compliance monitoring program, the owner or operator shall use a statistical procedure providing reasonable confidence that the migration of hazardous constituents from a regulated unit into and through the aquifer will be indicated. The Secretary will specify a statistical procedure in the facility permit that he finds:

(i) Is appropriate for the distribution of the data used to establish background values or concentration limits; and

(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.

I. Detection Monitoring Program. An owner or operator required to establish a detection monitoring program under this section shall, _ at a minimum, discharge the following responsibilities:

(1) The owner or operator shall monitor for indicator parameters (for example, specific conductance, total organic carbon, or total organic halogen), waste constituents, or reaction products that provide a reliable indication of the presence of hazardous constituents in ground water. The Secretary will specify the parameters or constituents to be monitored in the facility permit, after considering the following factors:

(a) The types, quantities, and concentrations of constituents in wastes managed at the regulated unit;

(b) The mobility, stability, and persistence of waste constituents or their reaction products in the unsaturated zone beneath the waste management area;

(c) The detectability of indicator parameters, waste constituents, and reaction products in ground water; and

(d) The concentrations or values and coefficients of variation of proposed monitoring parameters or constituents in the ground water background.

Supp. 20

2123-6

10.51.05.06I DEPARTMENT OF HEALTH AND MENTAL HYGENE

(2) The owner or operator shall install a ground water monitoring system at the compliance point as specified under §F. The ground water monitoring system shall comply with H(2Xb), (3), and (5).

(3) Background Values.

(a) The owner or operator shall establish a background value for each monitoring parameter or constituent specified in the permit pursuant to SI(1). The permit will specify the background values for each parameter or specify the procedures to be used to calculate the background values.

(b) The owner or operator shall comply with $\frac{10}{10}$ and (10) in developing the data base used to determine background values.

(c) The owner or operator shall express background values in a form necessary for the determination of statistically significant increase under $\frac{1}{2}$

(d) In taking samples used in the determination of background values, the owner or operator shall use a ground water monitoring system that complies with $\frac{1}{2}H(2Xa)$, (3), and (5).

(4) The owner or operator shall determine ground water quality at each monitoring well at the compliance point at least quarterly during the active life of a regulated unit (including the closure period) and the post-closure care period. The owner or operator shall express the ground water quality at each monitoring well in a form necessary for the determination of statistically significant increases under §H(11).

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

(6) The owner or operator shall use procedures and methods for sampling and analysis that meet the requirements of $\frac{1}{5}H(6)$ and (7).

(7) Statistically Significant Increase.

JS EPA ARCHIVE DOCUMENT

(a) The owner or operator shall determine whether there is a statistically significant increase over background values for any parameter or constituent specified in the permit pursuant to $\S[I(1)]$ each time he determines ground water quality at the compliance point under $\S[I(4)]$.

(b) In determining whether a statistically significant increase has occurred, the owner or operator shall compare the ground water quality at each monitoring well at the compliance point for each parameter or constituent to the background value for that parameter

2123-7

or constituent, according to the statistical procedure specified in the permit under H(11).

(c) The owner or operator shall determine whether there has been a statistically significant increase at each monitoring well at the compliance point within a reasonable time period after completion of sampling. The Secretary will specify that time period in the facility permit, after considering the complexity of the statistical test and the availability of the laboratory facilities to perform the analysis of ground water samples.

(8) If the owner or operator determines, pursuant to I(7), that there is a statistically significant increase for parameters or constituents specified pursuant to I(1) at any monitoring well at the compliance point, he shall:

(a) Notify the Secretary of this finding in writing within 7 days. The notification shall indicate what parameters or constituents have shown statistically significant increases.

(b) Immediately sample the ground water in all monitoring wells and determine the concentration of all constituents identified in Appendix V of COMAR 10.51.02 that are present in ground water.

(c) Establish a background value for each Appendix V constituent that has been found at the compliance point under I(8) as follows:

(i) The owner or operator shall comply with H(9) and (10) in developing the data base used to determine background values;

(ii) The owner or operator shall express background values in a form necessary for the determination of statistically significant increases under H(11); and

(iii) In taking samples used in the determination of background values, the owner or operator shall use a ground water monitoring system that complies with SH(2Xa), (3), and (5).

(d) Within 90 days, submit to the Secretary an application for a permit modification to establish a compliance monitoring programmeeting the requirements of §J. The application shall include the following information:

(i) An identification of the concentration of any Appendix V constituents found in the ground water at each monitoring well at the compliance point;

Supp. 20

2123-8

10.51.05.06I DEPARTMENT OF HEALTH AND MENTAL HYGENE

(ii) Any proposed changes to the ground water monitoring system at the facility necessary to meet the requirements of §J;

(iii) 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 §J;

(iv) For each hazardous constituent found at the compliance point, a proposed concentration limit under SE(1Xa) or (b), or a notice of intent to seek a variance under SE(2).

(e) Within 180 days, submit to the Secretary:

(i) All data necessary to justify any variance sought under $\S E(2)$; and

(ii) An engineering feasibility plan for a corrective action program necessary to meet the requirements of K, unless all hazardous constituents identified under I(8) are listed in Table 1 of E and their concentrations do not exceed the respective values given in that table, or the owner or operator has sought a variance under E(2) for every hazardous constituent identified under I(8).

(9) If the owner or operator determines pursuant to \$I(7) that there is a statistically significant increase of parameters or constituents specified pursuant to \$I(1) at any monitoring well at the compliance point, 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. While the owner or operator may make a demonstration under this subsection in addition to, or instead of, submitting a permit modification application under \$I(8)(d), he is not relieved of the requirement to submit a permit modification application within the time specified in \$I(8)(d) unless the demonstration made under this subsection successfully shows 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 subsection, the owner or operator shall:

(a) Notify the Secretary in writing within 7 days of determining a statistically significant increase at the compliance point that he intends to make a demonstration under this subsection:

US EPA ARCHIVE DOCUMENT

(b) Within 90 days, submit a report to the Secretary which demonstrates that a source other than a regulated unit caused the increase, or that the increase resulted from error in sampling, analysis, or evaluation;

(c) Within 90 days, submit to the Secretary an application for a permit modification to make any appropriate changes to the detection monitoring program at the facility; and

(d) Continue to monitor in accordance with the detection monitoring program established under this section.

(10) If the owner or operator determines that the detection monitoring program no longer satisfies the requirements of this section, he shall, within 90 days, submit an application for a permit modification to make any appropriate changes to the program.

(11) The owner or operator shall assure that monitoring and corrective action measures necessary to achieve compliance with the ground water protection standard under §C are taken during the term of the permit.

J. Compliance Monitoring Program. An owner or operator required to establish a compliance monitoring program under this section shall, at a minimum, discharge the following responsibilities:

(1) The owner or operator shall monitor the ground water to determine whether regulated units are in compliance with the ground water protection standard under §C. The Secretary will specify the ground water protection standard in the facility permit including: ~

(a) A list of the hazardous constituents identified under §D;

(b) Concentration limits under §E for each of those hazardous constituents;

(c) The compliance point under §F; and

(d) The compliance period of §G.

(2) The owner or operator shall install a ground water monitoring system at the compliance point as specified under §F. The ground water monitoring system shall comply with H(2)(b), (3), and (5).

(3) If a concentration limit established under J(1) is based on background ground water quality, the Secretary will specify the concentration limit in the permit as follows:

(a) If there is a high temporal correlation between upgradient and compliance point concentrations of the hazardous constituents, the owner or operator may establish the concentration limit through sampling at upgradient wells each time ground water is sampled at the compliance point. The Secretary will specify the procedures used

Supp. 20

2123-10

10.51.05.06J DEPARTMENT OF HEALTH AND MENTAL HYGIENE

for determining the concentration limit in this manner in the permit. In all other cases, the concentration limit will be the mean of the pooled data on the concentration of the hazardous constituent.

(b) If a hazardous constituent is identified on Table 1 under $\S E$ and the difference between the respective concentration limit in Table 1 and the background value of that constituent under $\S H(9)$ and (10) is not statistically significant, the owner or operator shall use the background value of the constituent as the concentration limit. In determining whether this difference is statistically significant, the owner or operator shall use a statistical procedure providing reasonable confidence that a real difference will be indicated. The statistical procedure shall:

(i) Be appropriate for the distribution of the data used to establish background values; and

(ii) Frovide a reasonable balance between the probability of falsely identifying a significant difference and the probability of failing to identify a significant difference.

(c) The owner or operator shall:

(i) Comply with §H(9) and (10) in developing the data base used to determine background values;

(ii) Express background values in a form necessary for the determination of statistically significant increases under §H(11); and

(iii) Use a ground water monitoring system that complies with $\frac{1}{2}H(2Xa)$, (3), and (5).

(4) The owner or operator shall determine the concentration of hazardous constituents in ground water at each monitoring well at the compliance point at least quarterly during the compliance period. The owner or operator shall express the concentration at each monitoring well in a form necessary for the determination of statistically significant increases under §H(11).

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

(6) The owner or operator shall analyze samples from all monitoring wells at the compliance point for all constituents contained in Appendix V of COMAR 10.51.02 at least annually to determine whether additional hazardous constituents are present in the uppermost aquifer. If the owner or operator finds Appendix V constituents

2123-11

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.05.06J

in the ground water that are not identified in the permit as hazardous constituents, the owner or operator shall report the concentrations of these additional constituents to the Secretary within 7 days after completion of the analysis.

(7) The owner or operator shall use procedures and methods for sampling and analysis that meet the requirements of §H(6) and (7).

(8) Statistically Significant Increase.

(a) The owner or operator shall determine whether there is a statistically significant increase over the concentration limits for any hazardous constituents specified in the permit pursuant to J(1) each time he determines the concentration of hazardous constituents in ground water at the compliance point.

(b) In determining whether a statistically significant increase has occurred, the owner or operator shall compare the ground water quality at each monitoring well at the compliance point for each hazardous constituent to the concentration limit for that constituent according to the statistical procedures specified in the permit under §H(11).

(c) The owner or operator shall determine whether there has been a statistically significant increase at each monitoring well at the compliance point, within a reasonable time period after completion of sampling. The Secretary will specify that time period in the facility permit, after considering the complexity of the statistical test and the availability of laboratory facilities to perform the analysis of ground water samples.

(9) If the owner or operator determines, pursuant to §H, that the ground water protection standard is being exceeded at any monitoring well at the point of compliance, he shall:

(a) Notify the Secretary of this finding in writing within 7 days. The notification shall indicate what concentration limits have been exceeded.

(b) Submit to the Secretary an application for a permit modification to establish a corrective action program meeting the requirements of K within 180 days, or within 90 days if an engineering feasibility study has been previously submitted to the Secretary under I(8)(e). The application shall at a minimum include the following information:

Supp. 20

2123-12

JS EPA ARCHIVE DOCUMENT

DEPARTMENT OF HEALTH AND MENTAL HYGIENE

. (i) A detailed description of corrective actions that will achieve compliance with the ground water protection standard specified in the permit under J(1); and

(ii) A plan for a ground water monitoring program that will demonstrate the effectiveness of the corrective action. This ground water monitoring program may be based on a compliance monitoring program developed to meet the requirements of this section.

(10) If the owner or operator determines, pursuant to \$J(8), that the ground water protection standard is 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. While the owner or operator may make a demonstration under this subsection in addition to, or in lieu of, submitting a permit modification application under \$J(9)(b), he is not relieved of the requirement to submit a permit modification application within the time specified in \$J(9)(b) unless the demonstration made under this subsection successfully shows 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 subsection, the owner or operator shall:

(a) Notify the Secretary in writing within 7 days that he intends to make a demonstration under this subsection;

(b) Within 90 days, submit a report to the Secretary which demonstrates what source other than a regulated unit caused the standards to be exceeded or that the apparent noncompliance with the standards resulted from error in sampling, analysis, or evaluation;

(c) Within 90 days, submit to the Secretary an application for a permit modification to make any appropriate changes to the compliance monitoring program at the facility; and

(d) Continue to monitor in accord with the compliance monitoring program established under this section.

(11) If the owner or operator determines that the compliance monitoring program no longer satisfies the requirements of this section, he shall, within 90 days, submit an application for a permit modification to make any appropriate changes to the program.

(12) The owner or operator shall assure that monitoring and corrective action measures necessary to achieve compliance with the

2123-13

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.05.06K

ground water protection standard under §C are taken during the term of the permit.

K. Corrective Action Program. An owner or operator required to establish a corrective action program under this chapter shall, at a minimum, discharge the following responsibilities:

(1) The owner or operator shall take corrective action to ensure that regulated units are in compliance with the ground water protection standard under §C. The Secretary will specify the ground water protection standard in the facility permit, including:

(a) A list of the hazardous constituents identified under §D;

(b) Concentration limits under §E for each of those hazardous constituents;

(c) The compliance point under §F; and

(d) The compliance period under §G.

(2) The owner or operator shall implement a corrective action program that prevents hazardous constituents from exceeding their respective concentration limits at the compliance point by removing the hazardous waste constituents or treating them in place. The permit will specify the specific measures that will be taken.

(3) The owner or operator shall begin corrective action within a reasonable time period after the ground water protection standard is exceeded. The Secretary will specify that time period in the facility permit. If a facility permit includes a corrective action program in addition to a compliance monitoring program, the permit will specify when the corrective action will begin and such a requirement will operate instead of §J(9)(b).

(4) In conjunction with a corrective action program, the owner or operator shall establish and implement a ground water monitoring program to demonstrate the effectiveness of the corrective action program. This monitoring program may be based on the requirements for a compliance monitoring program under §J and shall be as effective as that program in determining compliance with the ground water protection standard under §C and in determining the success of a corrective action program under §J(5), when appropriate.

Supp. 20

2123-14

10.51.05.06K DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(5) Corrective Action Program.

(a) In addition to the other requirements of this section, the owner or operator shall conduct a corrective action program to remove or treat in place any hazardous constituents under §D that exceed concentration limits under §E in ground water between the compliance point under §F and the downgradient facility property boundary. The permit will specify the measures to be taken.

(b) Corrective action measures under this subsection shall be initiated and completed within a reasonable period of time considering the extent of contamination.

(c) Corrective action measures under this subsection may be terminated once the concentration of hazardous constituents under §D is reduced to levels below their respective concentration limits under §E.

(6) The owner or operator shall continue corrective action measures during the compliance period to the extent necessary to ensure that the ground water protection standard is not exceeded. If the owner or operator is conducting corrective action at the end of the compliance period, he shall continue that corrective action for as long as necessary to achieve compliance with the ground water protection standard. The owner or operator may terminate corrective action measures taken beyond the period equal to the active life of the waste management area (including the closure period) if he can demonstrate, based on data from the ground water monitoring program under §J(4) that the ground water protection standard of §C has not been exceeded for a period of 3 consecutive years.

(7) The owner or operator shall report in writing to the Secretary on the effectiveness of the corrective action program. The owner or operator shall submit these reports quarterly.

(8) If the owner or operator determines that the corrective action program no longer satisfies the requirements of this section, he shall, within 90 days, submit an application for a permit modification to make any appropriate changes to the program.

(See page 2124)

2123-15

10.51.05.07A DEPARTMENT OF HEALTH AND MENTAL HYGIENE

.07 Closure and Post-closure.

A. Applicability. Except as Regulation .01 otherwise provides:

(1) Sections B — F (which concern closure) apply to the owners and operators of all hazardous waste facilities; and

(2) Sections G - J (which concern post-closure care) apply to the owners and operators of all disposal facilities, including piles and surface impoundments from which the owner or operator intends to remove the waste at closure, to the extent that these sections are applicable.

B. Closure Performance Standard. The owner or operator shall close his facility in a manner that minimizes the need for further maintenance, and controls, minimizes, or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous waste constituents, leachate, contaminated rainfall, or waste decomposition products to the groundwater, or surface waters, or to the atmosphere.

C. Closure Plan; Amendment of Plan.

(1) The owner or operator of a hazardous waste management facility shall have a written closure plan. The plan shall be submitted with the permit application, in accordance with COMAR 10.51.07 and approved by the Secretary as part of the permit issuance proceeding. The approved closure plan will become a condition of the permit. The plan shall be considered with §§B, D, E, and F of this regulation and the applicable closure requirements of Regulations .09 — .17 of this chapter. A copy of the approved plan and all revisions to the plan shall be kept at the facility until closure is completed and certified in accordance with §F. The plan shall 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 operating life. The closure plan shall include at least:

(a) A description of how and when the facility will be partially closed, if applicable, and ultimately closed. The description shall identify the maximum extent of the operation which will be unclosed during the life of the facility, and how the requirements of \S B, D, E, and F and the applicable closure requirements of Regulations .09 — .17 will be met;

(b) An estimate of the maximum inventory of wastes in storage and in treatment at any given time during the life of the facility;

2124

(c) A description of the steps needed to decontaminate facility equipment during closure; and

(d) A schedule for final closure which shall include, as a minimum, the anticipated date when wastes will no longer be received, the date when completion of final closure is anticipated, and intervening milestone dates which will allow tracking of the progress of closure. (For example, the expected date for completing treatment or disposal of waste inventory shall be included, as shall the planned date for removing any residual wastes from storage facilities and treatment processes).

(2) The owner or operator may amend his closure plan at any time during the active life of the facility. (The active life of the facility is that period during which wastes are periodically received). The owner or operator shall amend his plan at any time changes in operating plans or facility design affect the closure plan, or whenever there is a change in the expected year of closure of the facility. The plan shall be amended within 60 days of the changes.

(3) The owner or operator shall submit his closure plan to the Secretary at least 180 days before the date he expects to begin closure. The owner or operator shall submit his closure plan to the Secretary not later than 15 days after:

(a) Termination of interim status (except when a permit is issued to the facility simultaneously with termination of interim status; or

(b) Issuance of a judicial decree or compliance order to cease receiving wastes or close.

(4) The Secretary will provide the owner or operator and the public, through a newspaper notice, the opportunity to submit written comments on the plan and request modifications of the plan within 30 days of the date of the notice. He will also, in response to a request or at his own discretion, hold a public hearing whenever a hearing might clarify one or more issues concerning a closure plan. The Secretary will give public notice of the hearing may be given at the same time as notice of the opportunity for the public to submit written comments, and the two notices may be combined.) The Secretary will approve, modify, or disapprove the plan within 180 days of its recsipt. If the Secretury does not approve the plan, the owner or operator shall modify the plan or submit a new plan for approval within 30 days. The Secretary will approve or modify this plan in writing

Supp. 20

10.51.05.07D DEPARTMENT OF HEALTH AND MENTAL HYGIENE

within 60 days. If the Secretary modifies this plan, this modified plan becomes the approved closure plan. The Secretary's decision shall assure that the approved closure plan is consistent with §§B, D, E, F and closure requirements of Regulations .09 - .17. A copy of this modified plan shall be mailed to this owner or operator.

D. Time Allowed for Closure.

(1) Within 90 days after receiving the final volume of hazardous wastes, the owner or operator shall treat all hazardous wastes in storage or in treatment, or remove them from the site, or dispose of them on-site, in accordance with the approved closure plan. The Secretary may approve a longer period if the owner or operator demonstrates that:

(a) The activities required to comply with this section will, of necessity, take longer than 90 days to complete, or the facility has the capacity to receive additional wastes, or there is a reasonable likelihood that a person other than the owner or operator will recommence operation of the site; and

(b) He has taken and will continue to take all steps to prevent threats to human health and the environment; and

(c) Closure of the facility would be incompatible with continued operation of the site.

(2) The owner or operator shall complete closure activities in accordance with the approved closure plan and within 6 months after receiving the final volume of wastes. The Secretary may approve a longer closure period if the owner or operator can demonstrate that:

(a) The required or planned closure activities will, of necessity, take him longer than 90 days to complete;

(b) The closure of activities will, of necessity, take longer than 90 days to complete, or the facility has the capacity to receive additional wastes, or there is a reasonable likelihood that a person other than the owner or operator will recommence operation of the site, closure of the facility would be incompatible with continued operation of the site; and

(c) He has taken and will continue to take all steps to prevent threats to human health and the environment.

E. Disposal or Decontamination of Equipment. When closure is completed, all facility equipment and structures shall have been properly disposed of, or decontaminated by removing all hazardous waste and residues.

2126

DESPOSAL OF HAZABDOUS SUBSTANCES

10.51.05.07G

F. Certification of Closure. When closure is completed, the owner or operator shall submit to the Secretary 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.

G. Post-Closure Care and Use of Property; Period of Care.

(1) Post-closure care shall continue for 30 years after the date of completing closure and shall consist of at least the following:

(a) Ground water monitoring and reporting, as applicable;

(b) Maintenance of monitoring and waste containment systems, as applicable.

(2) Altered Post-Closure Care Period.

(a) During the 130-day period preceding closure or at any time after that, the Secretary may reduce the post-closure care period to less than 30 years if he finds that the reduced period is sufficient to protect human health and the environment (for example, leachate or groundwater monitoring results, characteristics of the waste, application of advanced technology, or alternative disposal, treatment, or reuse techniques indicate that the facility is secure).

(b) Before the time that the post-closure care period is due to expire, the Secretary may extend the post-closure care period if he finds that the extended period is necessary to protect human health and the environment (for example, leachate or groundwater monitoring results indicate a potential for migration of waste at levels which may be harmful to human health and the environment.

(3) The Secretary may require maintenance of any or all of the security requirements of Regulation .02E during the post-closure period, when:

(a) Wastes may remain exposed after completion of closure; or

(b) Short tarm, incidental access by the public or domestic livestock may pose a hazard to human health.

(4) Post-closure use of property on or in which hazardous waste remains after closure may not be allowed to disturb the integrity of the final cover, liners, or any other components of any containment system, or the function of the facility's monitoring systems, unless the owner or operator can demonstrate to the Secretary, either in the post-closure plan or by petition, that the disturbance is necessary to:

Supp. 20

10.51.05.07H DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(a) The proposed use of the property, and does not increase the potential hazard to human health or the environment; or

(b) Reduce a threat to human health or the environment.

(5) All post-closure activities shall be in accordance with provisions of the approved post-closure plan as specified in §H, below.

H. Post-Closure Plan: Amendment of Plan.

(1) The owner or operator of a disposal facility shall have a postclosure plan. In addition, all piles and all surface impoundments from which the owner or operator intends to remove the wastes at closure are required by Regulations .11 and .12 to have post-closure plans. The plan shall be submitted with the permit application, and approved by the Secretary as part of the permit issuance. The approved post-closure plan will become a condition of any permit issued. A copy of the approved plan and all revisions to the plan shall be kept at the facility until the post-closure care period begins. This plan shall identify the activities that will be carried on after closure and the frequency of these activities, and include at least:

(a) A description of the planned monitoring activities and frequencies at which they will be performed to comply with Regulations .06 and .11 - .14 during the post-closure care period;

(b) A description of the planned maintenance activities and frequencies at which they will be performed to insure the:

(i) Integrity of the cap and final cover or other containment systems in accordance with the requirements of Regulations .11 - .14; and

(ii) Function of the facility monitoring equipment in accordance with the requirements of Regulations .06 and .11 - .14;

(c) The names, addresses, and phone number of the person or office to contact about the disposal facility during the post-closure period. This person or office shall keep an up-dated post-closure plan during the post-closure period.

JS EPA ARCHIVE DOCUMENT

(2) The owner or operator may amend his 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 shall amend his plan any time changes in operating plans or facility design or events which occur during the active life of the facility or during the postclosure period affect his post-closure plan. He shall also amend his plan whenever there is a change in the expected year of closure.

2128

DISPOSAL OF HAZARDOUS SUBSTANCES

10.51.05.07J

(3) 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 shall be requested at the same time (see COMAR 10.51.07.02J). In all other cases, the request for modification of the post-closure plan shall be made within 60 days after the change in operating plans or facility design or the svents which affect his post-closure plan occur.

L Notice to Local Land Authority. Within 90 days after closure is completed, the owner or operator of a disposal facility shall submit to the local land authority and to the Secretary a survey plat indicating the location and dimensions of landfill cells or other disposal areas with respect to permanently surveyed benchmarks. This plat shall be prepared and certified by a professional land surveyor. The plat filed with the local land authority shall contain a note, prominently displayed, which states the owner's or operator's obligation to restrict disturbance of the site as specified in G(4). In addition, the owner or operator shall submit to the Secretary and to the local land authority 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 shall 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 waste disposed of within each cell or area of the facility that occur after the survey plat and record of wastes have been filed shall be reported within 30 days to the local land authority and to the Secretary.

J. Notice in Deed to Property.

(1) The owner of the property on which a disposal facility is located shall record, in accordance with State law, a notation on the deed to the facility property, or on some other instrument which is normally examined during title search, that will in perpetuity notify any potential purchaser of the property that:

(a) The land has been used to manage hazardous wastes;

(b) Its use is restricted under SG(4); and

(c) The survey plat and record of the type, location, and quantity of hazardous waste disposed of within each cell or area of the facility required in §I have been filed with the local land authority and with the Secretary.

Supp. 20

10.51.05.08 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(2) If, at any time, the owner or operator or any subsequent owner of the land upon which a hazardous waste facility was located removes the waste and waste residues, the liner, if any, and all contaminated underlying and surrounding land, he may remove the notation on the deed to the facility property or other instrument normally examined during title search.

(3) On removing the waste and waste residues, the liner, if any, and the contaminated cell, the owner or operator, unless he demonstrates, in accordance with COMAR 10.51.02.03 of this subtitle, that any solid waste removed is not a bazardous waste, becomes a generator of hazardous waste and shall manage it in accordance with all applicable requirements of COMAR 10.51.03 — 10.51.09.

.08 Financial Requirements.

EPA ARCHIVE DOCUMENT

A. Except as provided in §B, the Department adopts as its regulations the federal regulations at 40 CFR 264.140 — .148, and 264.151 as amended through the Federal Register of April 16, 1982 (Volume 47, No. 74).

B. For purposes of this regulation:

(1) Substitute "Secretary" for "Regional Administrator";

(2) Substitute "Department" for "Environmental Protection Agency" or "Agency";

(3) Section 264.140 (c) is not applicable.

.09 Use and Management of Containers.

A. Applicability. This regulation applies to owners and operators of all hazardous waste facilities that store containers of hazardous waste, except as Regulation .01 otherwise provides.

B. Condition of Containers. If a container holding hazardous waste is not in good condition, or if it begins to leak, the owner or operator shall transfer the hazardous waste from this container to a container that is in good condition, or manage the waste in some other way that complies with the requirements of this chapter.

C. Compatibility of Waste with Container. The owner or operator shall use a container made of or lined with materials which do 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.

2130

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.05.09

D. Management of Containers. A container holding hazardous waste shall always be closed during storage, except when it is necessary to add or remove waste, and the container may not be opened, handled, or stored in a manner which may rupture the container or cause it to leak.

E. Inspections. The owner or operator shall inspect areas where containers are stored, at least weekly, looking for leaks and for deterioration of containers and the containment system caused by corrosion or other factors.

F. Special Requirements for Ignitable or Reactive Waste. Containers holding ignitable or reactive waste shall be located at least 15 meters (50 feet) from the facility's property line.

G. Special Requirements for Incompatible Wastes.

(1) Incompatible wastes, or incompatible wastes and materials, (see Appendix V for examples) may not be placed in the same container, unless Regulation .02H(2) is complied with.

(2) Hazardous waste may not be placed in an unwashed container that previously held an incompatible waste or material (see Appendix V for examples).

(3) 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 shall be separated from the other materials or protected from them by means of a dike, berm, wall, or other device.

H. Containment.

(1) Container storage areas shall have a containment system that is capable of collecting and holding spills, leaks, and precipitation. The containment system shall:

(a) Have a base underlying the containers which is free of cracks or gaps and is sufficiently impervious to contain leaks, spills, and accumulated rainfall until the collected material is detected and removed;

(b) Be designed for efficient drainage so that standing liquid does not remain on the base longer than 1 hour after a leakage or precipitation event unless the containers are elevated, or in some other mannes: are protected from contact with accumulated liquids; and

Supp. 20

(c) Have sufficient capacity to contain 10 percent of the volume of containers or the volume of the largest container, whichever is greater.

(2) Run-on into the containment system shall be prevented, unless the Secretary waives this requirement in the permit after determining that the collection system has sufficient excess capacity in addition to that required in $\SH(1)(c)$, above, to accommodate any run-on which might enter the system.

(3) Spilled or leaked waste and accumulated precipitation shall be removed from the sump or collection area in as timely a manner as is necessary to prevent overflow of the collection system.

L Closure. At closure, all hazardous waste and hazardous waste residues shall be removed from the containment system. Remaining containers, liners, bases, and soil containing or contaminated with hazardous waste or hazardous waste residues shall be decontaminated or removed.

.10 Tanks.

A. Applicability.

(1) This regulation applies to owners and operators of facilities that use tanks to treat or store hazardous waste, except as Regulation .01 and $\S A(2)$ of this regulation otherwise provide.

(2) This regulation does not apply to facilities that treat or store hazardous waste in covered underground tanks that cannot be entered for inspection.

B. Design of Tanks.

(1) Tanks shall have sufficient shell strength and, for closed tanks, pressure controls (for example, vents) to assure that they do not collapse or rupture. The Secretary will review the design of the tanks, including the foundation, structural support, seams, and pressure controls. The Secretary 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:

- (a) Width;
- (b) Height;

(c) Materials of construction of the tank:

2132

(d) Specific gravity of the waste which will be placed in the tank;

(e) Other factors established by the Department.

(2) The Secretary, in reviewing the design of the tank and establishing a minimum thickness, shall rely upon appropriate industrial design standards and other available information.

C. Waste Analysis and Trial Tests. In addition to the waste analysis required by Regulation .02D, whenever a tank is to be used to chemically treat or store a hazardous waste which is substantially different from waste previously treated or stored in that tank, or chemically treat hazardous waste with a substantially different process than any previously used in that tank, the owner or operator shall, before treating or storing the different waste or using the different process:

(1) Conduct waste analysis and trial treatment or storage tests (for example, bench scale or pilot plant scale tests); or

(2) Obtain written, documented information on similar storage or treatment of similar waste under similar operating conditions, to show that this proposed treatment or storage will meet all applicable requirements of $\S{E}(1)$ and (2).

C-1. General Operating Requirements.

(1) Wastes and other materials (for example, treatment reagents), which are incompatible with the material of construction of the tank, may not be placed in the tank unless the tank is protected from accelerated corrosion, erosion, or abrasion with the use of:

(a) An inner liner or coating which is compatible with the weste or material and which is free of leaks, cracks, holes, or other deterioration; or

(b) Alternative means of protection (for example, cathodic protection or corresion inhibitors).

(2) Overfilling. The owner or operator shall use appropriate controls and practices to prevent overfilling. These shall include:

(a) Controls to prevent overfilling (for example, waste feed cutoff system or by-pass system to a standby tank); and

(b) For uncovered tanks, maintenance of sufficient freeboard to prevent overtopping by wave or wind action or by precipitation.

Supp. 20

10.51.05.10 DEPARTMENT OF HEALTH AND MENTAL HYCIENE

D. Inspections.

US EPA ARCHIVE DOCUMENT

(1) The owner or operator of a tank shall inspect, where present:

(a) Overfilling control equipment (for example, waste feed cutoff systems, by-pass systems, and drainage systems), at least once each operating day, to ensure that it is in good working order;

(b) Data gathered from monitoring equipment (for example, pressure and temperature gauges), at least once each operating day, to ensure that the tank is being operated according to its design;

(c) For uncovered tanks, the level of waste in the tank, at least once each operating day, to ensure compliance with §C-1(2)(b);

(d) The construction materials of the tank, at least weekly, to detect corrosion or erosion at leaking fixtures or seams; and

(e) The construction materials of, and the area immediately surrounding the tank, discharge confinement structures (for example, dikes), at least weekly, to detect erosion or obvious signs of leakage (for example, wet spots or dead vegetation).

(2) As part of the inspection schedule required in Regulation .02F and in addition to the specific requirements of $\S E(1)$ of this regulation, the owner or operator shall develop a schedule and procedures for assessing the condition of the tank. The schedule and procedure shall be adequate to detect cracks, leaks, corrosion, or erosion which may lead to cracks or leaks, or wall thinning to less than the thickness required under Regulation .10B. Procedures for emptying a tank to allow entry and inspection of the interior shall be established when necessary to detect corrosion or erosion of the tank sides and bottom. The frequency of these assessments shall be based on the material of construction of the tank, type of corrosion or erosion protection used, rate of corrosion or erosion observed during the previous inspections, and the characteristics of the waste being treated or stored.

(3) As part of the contingency plan required under Regulation .04, the owner or operator shall specify the procedures he intends to use to respond to tank spills or leakage, including procedures and timing for expeditious removal of leaked or spilled waste and repair of the tank.

E. Closure. At closure, all hazardous waste and hazardous waste residues shall be removed from tanks, discharge control equipment, and discharge confinement structures.

2134

F. Special Requirements for Ignitable or Reactive Waste.

(1) Ignitable or reactive waste may not be placed in a tank, unless the:

(a) 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 of ignitable or reactive waste under COMAR 10.51.02.10 and .12, and Regulation .02H(2) is complied with:

(b) 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

(c) Tank is used solely for emergencies.

(2) The owner or operator of a facility which treats or stores ignitable or reactive waste in covered tanks shall 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 Code - 1977."

G. Special Requirements for Incompatible Wastes.

(1) Incompatible wastes, or incompatible wastes and materials, (see Appendix V for examples) may not be placed in the same tank, unless Regulation .02H(2) is complied with.

(2) Hazardous waste may not be placed in an unwashed tank, which previously held an incompatible waste or material, unless Regulation .02H(2) is complied with.

H. Air Emissions. All tanks shall have such treatment process controls, emission controls, and safety or emergency procedures as are necessary to protect human health and the environment from toxic or otherwise harmful fumes, mists, or gases resulting from:

(1) Volatilization of wastes stored or treated in the tank;

(2) Chemical reactions in the tank, either routine or resulting from process upsets; or

(3) Physical agitation or other forms of treatment conducted in the tank.

.11 Surface Impoundments.

A. Applicability. This regulation applies to owners and operators of facilities that use surface impoundments to treat, store, or dispose of hazardous waste, except as Regulation .01 otherwise provides.

Supp. 20

10.51.05.11A-1 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

A-1. General Design Requirements.

(1) A surface impoundment shall be designed to provide:

(a) At least 60 centimeters (2 feet) of freeboard; or

(b) An amount of freeboard other than 60 centimeters based on documentation acceptable to the Secretary that the specified amount of the freeboard will prevent overtopping. The amount of freeboard approved by the Secretary shall be specified in the permit.

(2) A surface impoundment shall be designed so that any flow of waste into the impoundment can be immediately shut off in the event of overtopping or liner failure.

(3) A surface impoundment shall be designed to prevent discharge into the land and groundwater, and to surface water (except discharges authorized by a State discharge permit) during the life of the impoundment by use of a containment system which complies with §C. The Secretary shall include the design of the containment system as a term and condition of the permit.

(4) Dikes shall be designed with sufficient structural integrity to prevent massive failure without dependence on any liner system included in the surface impoundment design.

(5) A leachate detection, collection, and removal system shall be designed 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.

(6) The owner or operator would be exempted from the requirements of §A-1(3) if the Secretary finds, based on a demonstration by the owner or operator, the alternate design and operating practices, together with location characteristics, will prevent the migration of the hazardous constituents (see COMAR 10.51.05.06D) into the ground water or surface water at any future time. In deciding whether to grant an exemption, the Secretary will consider:

(a) The nature and quantity of the wastes;

JS EPA ARCHIVE DOCUMENT

(b) The proposed alternate design and operation;

(c) The hydrogeologic setting of the facility, including the attenuative capacity and thickness of the liners and soils present between the impoundment and ground water or surface water; and

(d) All other factors which would influence the quality and mobility of the leachate produced and the potential for it to migrate to ground water or surface water.

2136

(7) Any facility or facility unit subject to this regulation shall be constructed and installed as designed.

B. General Operating Requirements.

(1) A surface impoundment shall be operated to prevent any overtopping due to wind and wave action, overfilling precipitation, or normal or abnormal operations, malfunction of level controllers, alarms, and other equipment, or human error.

(2) A surface impoundment shall maintain enough freeboard to prevent any overtopping of the dyke by overfilling, wave action, malfunctions of level controllers, alarms, and other equipment, human error, or a storm. There shall be at least 60 centimeters (2 feet) of freeboard.

(3) A surface impoundment shall be operated to maintain at least the amount of freeboard specified by the Secretary in the permit.

(4) A leachate detection, collection, and removal system installed to comply with §C shall 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.

(5) Earthen dikes shall be kept free of.

(a) Perennial woody plants with root systems which could displace the earthen materials upon which the structural integrity of the dike is dependent; and

(b) Burrowing mammals which could remove earthen materials upon which the structural integrity of the dike is dependent or create leaks through burrows in the dike.

(6) Run-on shall be diverted away from a surface impoundment.

C. Containment Systems.

(1) Earthen dikes shall have a protective cover, such as grass, shale, or rock, to minimize wind and water erosion and to preserve the structural integrity of the dike.

(2) A liner system designed to prevent discharge into the land during the life of the surface impoundment shall be constructed:

(a) With a highly impermeable liner system in contact with the waste which will prevent discharge of the waste or leachate into the liner or liners during the life of the surface impoundment based on the liner or liners thickness, the saturated permeability of the

2137

10.51.05.11C DEPARTMENT OF HEALTH AND MENTAL HYGIENE

liner or liners and the pressure head of waste or leachate to which the liner or liners will be exposed, and a leachate detection, collection, and removal system beneath the liner or liners in contact with the waste to detect, contain, collect, and remove any discharge from the liner system in contact with the waste; and

(b) Above the water table to ensure the detection of any discharge of waste or leachate through the liner system in contact with the waste, prevent the discharge of groundwater to the leachate detection, collection, and removal system, and to prevent the structural integrity of the liner or liners. (The groundwater table may be controlled to comply with this requirement.)

(3) A highly impermeable liner beneath the drainage layer (for example, the bottom liner) is a necessary part of a leachate detection, collection, and removal system.

(4) A containment system shall have a containment life equal to or greater than the life of the surface impoundment. (See "Landfill and Surface Impoundment Performance Evaluation," EPA, SW/869, September 1980 for methods to evaluate the containment life and effectiveness of a containment system.)

(5) Liner systems shall be:

JS EPA ARCHIVE DOCUMENT

(a) Constructed of materials which have appropriate chemical properties and strength and of sufficient thickness to prevent failure due to pressure head, physical contact with the waste or leachate to which they are exposed, climatic conditions, and the stress of the installation and daily operations;

(b) Constructed on a foundation capable of providing support to the liner or liners and resistance to the pressure head above the liner or liners to prevent failure of the liner or liners due to settlement, compression, or uplift (see "Lining of Water Impoundment and Disposal Facilities," EPA/870, September 1980 for data and discussions of liner system materials, design, construction, operation, and maintenance);

(c) Installed to cover all surrounding earth likely to be in contact with the waste or leachate.

(6) The sides and bottom of the impoundment shall be constructed of a material which prohibits the discharge of contaminants to ground water unless specifically authorized by a State discharge permit.

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.05.11E

D. Waste Analysis and Trial Test. In addition to the waste analyses required by Regulation .02D, whenever a surface impoundment is to be used to chemically treat a hazardous waste which is substantially different from waste previously treated in that impoundment, or chemically treat hazardous waste with a substantially different process than any previously used in that impoundment, the owner or operator shall, before treating the different waste or using the different process:

(1) Conduct waste analyses and trial treatment tests (for example, bench scale or pilot plant scale tests); or

(2) Obtain written documented information on similar treatment of similar waste under similar operation conditions to show that this treatment will comply with Regulation .02H(2).

E. Inspections and Testing.

(1) Liners.

(a) For purposes of this section, liners shall include all cover systems, membranes, sheets, and/or coatings.

(b) During construction or installation, liner systems shall be inspected for uniformity, damage, and imperfections (for example, holes, cracks, thin spots, and foreign materials).

(c) Earth material liner systems shall be tested for compaction density, moisture content, and permeability after placement.

(d) Manufactured liner materials (for example, membranes, sheets, and coatings) shall be inspected to ensure tight seams and joints and the absence of tears or blisters.

(2) The owner or operator shall inspect:

(a) A surface impoundment which contains free liquids at least once each operating day to ensure compliance with SB(1) = (3) and to detect any leaks or other failures of the impoundment.

(b) 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 $\S E(4)$.

(3) The structural integrity of any dike, including that portion of that dike which provides any freeboard, shall be certified against massive failure by a qualified engineer before the issuance or reissuance of a permit, or if the impoundment is not in service before being placed in service and after construction or before being returned to

2139

10.51.05.11F DEPARTMENT OF HEALTH AND MENTAL HYGIENE

service. In certifying the structural integrity of the dike it shall be established that the dike will withstand the following:

(a) The stress of the pressure head of liquids placed into the impoundment;

(b) The weakening effect of earth materials being scoured due to leakage from the impoundment through and under the dike without relying on any liner system; and

(c) The weakening effect of earth materials being scoured due to leakage from the impoundment through and under the dike assuming leaks develop in the liner system.

(4) The requirements of $\frac{5}{5}$ (3) shall be followed, at a minimum, at 6-month intervals after the initial certification.

F. Closure and Post-Closure Care.

US EPA ARCHIVE DOCUMENT

(1) At closure, the owner or operator shall:

(a) Remove or decontaminate all waste residues, contaminated containment system components (liner, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leachate, and manage them as hazardous waste unless COMAR 10.51.02.03 applies; or he shall do F(1)(b) - (e) if all hazardous waste is not removed or decontaminated;

(b) Eliminate free liquids by removing liquid wastes or solidifying the remaining wastes and waste residues;

(c) Stabilize remaining wastes to a bearing capacity sufficient to support final cover;

(d) Cover the surface impoundment with a final cover designed and constructed to at a minimum:

(i) Provide long-term minimization of the migration of liquids through the closed impoundment,

(ii) Function with minimum maintenance,

(iii) Promote drainage and minimize erosion or abrasion of the final cover,

(iv) Accommodate settling and subsidence so that the cover's integrity is maintained, and

(v) Have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present; and any other requirements established by the Secretary; and

2140

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.05.11F

(e) Apply for a permit pursuant to Regulation .14 and COMAR 10.51.07.

(2) If some waste residues or contaminated materials are left in place at final closure, the owner or operator shall comply with all post-closure requirements contained in Regulation .07 including maintenance and monitoring throughout the post-closure care period. The owner or operator shall:

(a) Maintain the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, or other events;

(b) Maintain and monitor the leak detection system, where such a system is present between double liner systems;

(c) Maintain and monitor the ground water monitoring system and comply with all applicable requirements of Regulation .06;

(d) Prevent run-on and run-off from eroding or otherwise damaging the final cover.

(3) If an owner or operator plans to close a surface impoundment in accordance with F(1Xa), and the impoundment does not comply with the liner requirements of C(2) - (5), then:

(a) The closure plan for the impoundment under Regulation .07C shall include both a plan for complying with F(1)(a) and a contingency plan for complying with F(1)(b) — (e) if not all contaminated subsoils can be practicably removed at closure.

(b) The owner or operator shall prepare a contingency postclosure plan under Regulation .07G for complying with F(2) if not all contaminated subsoils can be practicably removed at closure.

(c) The cost estimates calculated under Regulation .08 for closure and post-closure care of an impoundment subject to this paragraph shall include the cost of complying with the contingent closure plan and the contingent post-closure plan, but are not required to include the cost of expected closure under F(I).

(4) During the post-closure care period, if liquids leak into a leak detection system the owner or operator shall notify the Secretary of the leak within 24 hours after detecting the leak. The Secretary will modify the permit to require compliance with the requirements of Regulation .06.

Supp. 20

10.51.05.11F-1 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

F-1. Containment System Repairs; Contingency Plans.

(1) Whenever there is any indication of a possible failure of the containment system, the system shall be inspected in accordance with the provisions of the containment system evaluation and repair plan required by this section. Indications of possible failure of the containment system include at least an unplanned and non-sudden drop in the liquid level in the impoundment, liquid detected 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 or liners based on observation or test samples of the liner materials, any mishandling of wastes placed in the impoundment.

(2) Whenever there is a positive indication of failure of the containment system, the impoundment shall be removed from service. Indications of positive failure of the containment system include an unplanned sudden drop in the liquid level in the impoundment, waste detected in the leachate detection system, active leakage through the dike, or a breach (for example, a hole, tear, crack, or separation) in the liner system.

(3) If the surface impoundment must be removed from service as required by F-1(2), the owner or operator shall:

(a) Immediately shut off flow of or stop the addition of wastes into the impoundment;

(b) Immediately contain any leakage which occurred or is occurring;

(c) Immediately cause the leak to be stopped;

US EPA ARCHIVE DOCUMENT

(d) If the leak cannot be stopped by any other means, empty the impoundment;

(e) Take any other necessary steps to stop or prevent catastrophic failure; and

(f) Notify the Secretary of the problems within 24 hours after detecting the problem.

(4) As part of the contingency plan required in Regulation .04, the owner or operator shall specify:

(a) A procedure for complying with the requirements of §F-1(3);

(b) A containment system evaluation and repair plan describing testing and monitoring techniques, procedures to be followed to

2142

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.05.12A

evaluate the integrity of the containment system in the event of 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 containment system failure or deterioration which does not require the impoundment to be removed from service.

(5) A surface impoundment that has been removed from service in accordance with F-1(2) may not be restored to service unless the containment system has been:

(a) Repaired; and

(b) Certified by a qualified engineer as meeting the design specifications approved in the permit.

(6) A surface impoundment that has been removed from service in accordance with F-1(2) and that is not being repaired shall be closed in accordance with F.

G. Special Requirements for Ignitable or Reactive Waste. Ignitable or reactive waste may not be placed in a surface impoundment, unless the:

(1) Waste is treated, rendered, or mixed before or immediately after placement in the impoundment so that the resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive wastes under COMAR 10.51.02.10, .12, and Regulation .02H(2) is complied with; or

(2) Surface impoundment is used solely for emergencies.

H. Special Requirements for Incompatible Waste. Incompatible wastes, or incompatible wastes and materials, (see Appendix V for examples), may not be placed in the same surface impoundment, unless Regulation .02H(2) is complied with.

.12 Waste Piles.

A. Applicability.

(1) These regulations apply to owners and operators of facilities that store or treat hazardous waste in piles, except as Regulation .01 provides otherwise.

(2) The owner or operator of any waste pile that is inside or under a structure that provides protection from precipitation so that neither run-off nor leachate is generated is not subject to regulation under §§B and C-1 and Regulation .06 provided that:

Supp. 20

(a) Liquids or materials containing free liquids are not placed in the pile;

(b) The pile is protected from surface water run-on by the structure or in some other manner;

(c) The pile is designed and operated to control dispersal of the waste by wind, when necessary, by means other than wetting; and

(d) The pile does not generate leachate through decomposition or other reactions.

B. Design and Operating Requirements.

(1) A waste pile shall have:

US EPA ARCHIVE DOCUMENT

(a) A liner that is designed, constructed, and installed to prevent any migration of wastes out of the pile into the adjacent subsurface soil or ground water or surface water at any time during the active life (including the closure period) of the waste pile. The liner may be constructed of materials that may allow waste to migrate into the liner itself (but not into the adjacent subsurface soil or ground water or surface water) during the active life of the facility. The liner shall be:

(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;

(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

(iii) Installed to cover all surrounding earth likely to be in contact with the waste or leachate.

(b) 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 Secretary will specify design and operating conditions in the permit to ensure that the leachate depth over the liner does not exceed 30 cm (1 foot). The leachate collection and removal system shall be:

2144
DISPOSAL OF HAZARDOUS SUBSTANCES

(i) Constructed of materials that are chemically resistant to the waste managed in the pile and the leachate expected to be generated, and of sufficient strength and thickness to prevent collapse under pressures exerted by overlaying wastes, waste cover materials, and by any equipment used at the pile; and

(ii) Designed and operated to function without clogging through the scheduled closure of the waste pile.

(2) The owner or operator will be exempted from the requirements of $\S B(1)$ if the Secretary finds, based on a demonstration by the owner or operator, that alternate design and operating practices together with location characteristics, will prevent the migration of any hazardous constituents (see Regulation .06D) into the ground water or surface water at any future time. In deciding whether to grant an exemption, the Secretary will consider:

(a) The nature and quantity of the wastes;

(b) The proposed alternate design and operation;

(c) The hydrogeologic setting of the facility, including attenuative capacity and thickness of the liners and soils present between the pile and ground water or surface water; and

(d) All other factors which would influence the quality and mobility of the leachate produced and the potential for it to migrate to ground water or surface water.

(3) The owner or operator shall 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.

(4) The owner or operator shall 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.

(5) Collection and holding facilities (for example, tanks or basins) associated with run-on and run-off control systems shall be emptied or otherwise managed expeditiously after storms to maintain design capacity of the system.

(6) If the pile contains any particulate matter which may be subject to wind dispersal, the owner or operator shall cover or otherwise manage the pile to control wind dispersal.

Supp. 20

10.51.05.12B DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(7) The Secretary will specify in the permit all design and operating practices that are necessary to ensure that the requirements of this section are satisfied.

(8) Double-Lined Piles - Exemption from Regulation .06.

(a) The owner or operator of a double-lined waste pile is not subject to regulation under Regulation .06 if the following conditions are met:

(i) The pile, including its underlying liners, shall be located entirely above the seasonal high water table.

(ii) The pile shall 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 shall meet the specifications of $\S B(1)(a)$.

(iii) A leak detection system shall be designed, constructed, maintained, and operated between the liners to detect any migration of liquids into the space between the liners.

(iv) The pile shall have a leachate collection and removal system above the top liner that is designed, constructed, maintained, and operated in accordance with SP(1).

(b) If liquid leaks into the leak detection system, the owner or operator shall:

(i) Notify the Secretary of the leak in writing within 7 days after detecting the leak; and

(ii) 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 qualified engineer that, to the best of his knowledge and opinion, the leak has been stopped; or

(iii) If a detection monitoring program pursuant to Regulation .06I has already been established in the permit (to be complied with only if a leak occurs), begin to comply with that program and any other applicable requirements of Regulation .06 within a period of time specified in the permit.

(c) The Secretary will specify in the permit all design and operating practices that are necessary to ensure that the requirements of this section are satisfied.

JS EPA ARCHIVE DOCUMENT

2146

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.05.12D

C. Waste Analysis. In addition to the waste analysis required by Regulation .02D, the owner or operator shall analyze a representative sample of waste from each incoming movement before adding the waste to any existing pile, unless the only wastes the facility receives which are amenable to piling are compatible with each other, or the waste received is compatible with the waste in the pile to which it is to be added. The analysis conducted shall be capable of differentiating between the types of hazardous waste the owner or operator places in piles, so that mixing of incompatible waste does not inadvertently occur. The analysis shall include a visual comparison of color and texture.

D. Containment Systems.

(1) A containment system shall be designed, constructed, maintained, and operated to prevent discharge into the land, surface water, or ground water during the life of the waste pile. This includes the following:

(a) The system shall consist of a leachate and run-off collection and control system, and either:

(i) A base underlying and in contact with the waste pile that is made of a liner or liners which will prevent discharge into the land, surface water, or groundwater during the life of the pile based on the liner or liner's thickness, the permeability of the liner or liners and the characteristics of the waste or leachate to which the liner or liners will be exposed. The liner or liners shall 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.

(ii) A base as in D(1Xa), except that the liner or liners need not be of sufficient strength and thickness to prevent failure due to physical damage from equipment used to clean and expose the liner surface for inspection, and a leachate detection, collection, and removal system beneath the base to detect, contain, collect, and remove any discharge from the base. The leachate detection, collection, and removal system shall be placed above the water table to ensure the detection of any discharge through the base, to prevent any discharge of groundwater into the leachate detection, collection, and removal system, and to protect the structural integrity of the base.

(b) A highly impermeable liner beneath the drainage layer is a necessary part of the leachate detection, collection, and removal

Supp. 20

10.51.05.12D-1 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

system. The groundwater table may be controlled to comply with this requirement.

(2) A waste pile base shall be constructed:

(a) Of materials that have appropriate chemical properties and strength and of sufficient thickness to prevent failure due to pressure of and physical contact with the waste to which they are exposed, climatic conditions, and the stress of installation; and

(b) On a foundation capable of providing support to the liner or liners and to loads placed or moving above the liner or liners to prevent failure of the liner or liners due to settlement or compression.

(3) A containment system shall be protected from plant growth which could puncture any component of the system.

(4) A containment system shall have a containment life equal to or greater than the life of the pile.

D-1. Inspections and Testing.

(1) During construction or installation and immediately after installation:

(a) Liner systems and covers shall be inspected for uniformity, damage, and imperfections (for example, holes, cracks, thin spots, and foreign materials);

(b) Manufactured liner materials and covers (for example, membranes, sheets, and coatings) shall be inspected to ensure tight seams and joints and the absence of tears or blisters; and

(c) Soil-based and admixed liners and covers shall be inspected for imperfections including lenses, cracks, channels, root holes, or other structural non-uniformities that may cause an increase in the permeability of the liner or cover.

(2) Except as otherwise provided in §D-1(3), the owner or operator of a waste pile shall include in the inspection plan required under Regulation .02 a schedule or inspection of the devices controlling wind dispersal (if required) and run-on, and the waste pile containment system under §D. The inspection schedule shall include periodic removal of the waste pile and testing of the underlying base to ensure that is has not deteriorated to the point where it is no longer capable of containment, is already leaking, or is otherwise in disrepair.

(3) If it is impractical to remove the waste pile and test the underlying base periodically because of the size of the pile or the type of

base used (for example, a synthetic membrane which could be damaged during waste removal), the owner or operator may omit the pile base inspection from his inspection plan, provided that the pile has a leachate detection collection, and removal system as specified in §D(1XaXii).

(4) While a waste pile is in operation, it shall be inspected weekly and after storms to detect evidence of any of the following:

(a) Deterioration, malfunctions, or improper operation of runon and run-off control systems;

(b) The presence of liquids in leak detection systems, if installed;

(c) Proper functioning of wind dispersal control systems, if present; and

(d) The presence of leachate in and proper functioning of leachate collection and removal systems, if present.

D-2. Containment System Repairs, Contingency Plans.

(1) Whenever there is an indication of a possible failure of the containment system, the system shall be inspected in accordance with the provisions of the containment system evaluation and repair plan required by §D-2(4). Indications of possible failure of the containment system include liquid detected in the leachate detection system (when applicable), evidence of leakage or the potential for leakage in the base, erosion of the base, or apparent or potential deterioration of the liner and liners based on observation or test samples of the liner materials.

(2) Whenever there is a positive indication of a failure of the containment system, the waste pile shall be removed from service. Indications of positive failure of containment system include waste detected in the leachate detection system (when applicable), or a breach (for example, a hole, tear, crack, or separation) in the base.

(3) If the waste pile must be removed from service as required by §D-2(2), the owner or operator shall:

(a) Immediately stop adding wastes to the pile;

(b) Immediately contain any leakage which has or is occurring;

(c) Immediately cause the leak to be stopped; and

(d) If the leak cannot be stopped by another means, remove the waste from the base.

2149

10.51.05.12E DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(4) As a part of the contingency plan required in Regulation .04, the owner or operator shall specify:

(a) A procedure for complying with the requirements of \$D-2(3); and

(b) A containment system evaluation and repair plan describing:

(i) Testing and monitoring techniques,

(ii) Procedures to be followed to evaluate the integrity of the containment system in the event of a possible failure,

(iii) A schedule of actions to be taken in the event of a possible failure, and

(iv) A description of the repair techniques to be used in the event of leakage due to containment system failure or deterioration which does not require the waste pile to be removed from service.

(5) A waste pile that has been removed from service in accordance with §D-2(2) may not be restored to service unless the containment system has been:

(a) Repaired; and

US EPA ARCHIVE DOCUMENT

(b) Certified by a qualified engineer as meeting the design specifications approved in the permit.

(6) A waste pile that has been removed from service in accordance with $D^2(2)$ and that is not being repaired shall be closed in accordance with G.

E. Special Requirements for Ignitable or Reactive Waste. Ignitable or reactive waste may not be placed in a pile unless:

(1) The waste is treated, rendered, or mixed before or immediately after placement in the pile so that:

(a) The resulting waste, mixture, or dissolution of materials no longer meets the definition of ignitable or reactive waste under COMAR 10.51.02.10 and .12, and

(b) Regulation .02H of this chapter is complied with; or

(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.

DISPOSAL OF HAZARDOUS SUBSTANCES

10.51.05.12G

F. Special Requirements for Incompatible Wastes.

(1) Incompatible wastes, or incompatible wastes and materials, (see Appendix V for examples) may not be placed in the same pile, unless Regulation .02H(2) is complied with.

(2) A pile of hazardous waste that is incompatible with any waste or other material stored nearby in other containers, piles, open tanks, or surfaces impoundments shall be separated from the other materials, or protected from them by means of a dike, berm, wall, or other device.

(3) Hazardous waste may not be piled on the same area where incompatible wastes or materials were previously piled, unless the area has been decontaminated sufficiently to ensure compliance with Regulation .02H(2).

G. Closure and Post-Closure Care.

(1) At closure, the owner or operator shall remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leachate, and manage them as hazardous waste unless COMAR 10.51.02.03D applies.

(2) If, after removing or decontaminating all residues and making all reasonable efforts to effect removal or decontamination of contaminated components, subsoils, structures, and equipment as required in G(1), the owner or operator finds that not all contaminated subsoils can be practicably removed or decontaminated, he shall close the facility and perform post-closure care in accordance with the closure and post-closure care requirements that apply to landfills.

(3) The owner or operator of a waste pile that does not comply with the liner requirements of SE(1)(a) and is not exempt from them in accordance with SA(2) or B(2) shall:

(a) Include in the closure plan for the pile under Regulation .07C both a plan for complying with G(1) and a contingency plan for complying with G(2) if not all contaminated subsoils can be practicably removed at closure; and

(b) Prepare a contingency post-closure plan under Regulation .07H for complying with G(2) if not all contaminated subsoils can be practicably removed at closure.

(4) The cost estimates calculated under Regulation .08 for closure and post-closure care of a pile subject to G(3) shall include the

2151

Supp. 20

US EPA ARCHIVE DOCUMENT

10.51.05.13 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

cost of complying with the contingent closure plan and the contingency post-closure plan, but are not required to include the cost of expected closure under G(1).

.13 Land Treatment.

JS EPA ARCHIVE DOCUMENT

A. Applicability. This regulation applies to owners and operators of facilities that treat or dispose of hazardous waste in land treatment units, except as Regulation .01 provides otherwise.

B. Treatment Program.

(1) An owner or operator subject to this regulation shall 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 Secretary will specify in the facility permit the elements of the treatment program, including:

(a) The wastes that are capable of being treated at the unit based on a demonstration under C;

(b) Design measures and operating practices necessary to maximize the success of degradation, transformation, and immobilization processes in the treatment zone in accordance with §D(1); and

(c) Unsaturated zone monitoring provisions meeting the requirements of §I.

(2) The Secretary will specify in the facility permit the hazardous constituents that shall be degraded, transformed, or immobilized under this regulation. Hazardous constituents are constituents identified in Appendix V of COMAR 10.51.02 that are reasonably expected to be in, or derived from, waste placed in or on the treatment zone.

(3) The Secretary 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 shall be:

(a) Not more than 1.5 meters (5 feet) from the initial soil surface; and

(b) More than 1 meter (3 feet) above the seasonal high water table.

2152

C. Treatment Demonstration.

(1) For each waste that will be applied to the treatment zone, the owner or operator shall demonstrate, before application of the waste, that hazardous constituents in the waste can be completely degraded, transformed, or immobilized in the treatment zone.

(2) 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 COMAR 10.51.07.02. The Secretary 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 SC(3).

(3) Any field test or laboratory analysis conducted in order to make a demonstration under §C(1) shall:

(a) Accurately simulate the characteristics and operating conditions for the proposed land treatment unit including the:

(i) Characteristics of the waste (including the presence of Appendix V constituents in COMAR 10.51.02),

(ii) Climate in the area,

(iii) Topography of the surrounding area,

(iv) Characteristics of the soil in the treatment zone (including depth), and

(v) Operating practices to be used at the unit;

(b) 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

(c) Be conducted in a manner that protects human health and the environment considering:

(i) The characteristics of the waste to be tested,

(ii) The operating and monitoring measures taken during the course of the test,

(iii) The duration of the test,

(iv) The volume of waste used in the test,

Supp. 20

10.51.05.13D DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(v) In the case of field tests, the potential for migration of hazardous constituents to ground water or surface water.

D. Design and Operating Requirements.

(1) The Secretary 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.

(2) The owner and operator shall 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 shall design, construct, operate, and maintain the unit in accord with all design and operating conditions that were used in the treatment demonstration under §C. At a minimum, the Secretary will specify the following in the facility permit:

(a) The rate and method of waste application to the treatment zone:

(b) Measures to control soil pH;

US EPA ARCHIVE DOCUMENT

(c) Measures to enhance microbial or chemical reactions (for example, fertilization, tilling); and

(d) Measures to control the moisture content of the treatment zone.

(3) The owner or operator shall design, construct, operate, and maintain the treatment zone to minimize run-off of hazardous constituents during the active life of the land treatment unit.

(4) The owner or operator shall 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 storm.

(5) The owner or operator shall 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.

(6) Collection and holding facilities (for example, tanks or basins) associated with run-on and run-off control systems shall be emptied or otherwise managed expeditiously after storms to maintain the design capacity of the system.

(7) If the treatment zone contains particulate matter which may be subject to wind dispersal, the owner or operator shall manage the unit to control wind dispersal.

(8) The owner or operator shall inspect the unit weekly and after storms to detect evidence of:

2154

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.05.13G

(a) Deterioration, malfunctions, or improper operation of runon and run-off control systems; and

(b) Improper functioning of wind dispersal control measures.

E - F. (Reserved)

G. Food-Chain Crops.

(1) The Secretary may allow the growth of food-chain crops in or on the treatment zone only if the owner or operator satisfies the condition of this section. The Secretary will specify in the facility permit the specific food-chain crops which may be grown.

(2) The owner or operator shall demonstrate that there is no substantial risk to human health caused by the growth of these crops in or on the treatment zone by demonstrating, before the planting of the crops, that hazardous constituents other than cadmium will not:

(a) 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 (for example, by grazing); or

(b) Occur in greater concentrations in or on the food or feed portions of crops grown on the treatment zone than in or on identical portions of the same crops grown on untreated soils under similar conditions in the same region.

(3) The owner or operator shall make the demonstration required under G(2) before the planting of crops at the facility for all constituents identified in Appendix V of COMAR 10.51.02 that are reasonably expected to be in, or derived from, waste placed in or on the treatment zone.

(4) In making a demonstration under G(2), the owner or operator may use field tests, greenhouse studies available data, or, in the case of existing units, operating data, and shall:

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

(b) Describe the procedures used in conducting any tests, including the sample selection criteria, sample size, analytical methods, and statistical procedures.

(5) If the owner or operator intends to conduct field tests or greenhouse studies in order to mak: the demonstration required under G(2), he shall obtain a permit for conducting these activities.

Supp. 20

(6) The owner or operator shall comply with the following conditions if cadmium is contained in wastes applied to the treatment zone:

(a) The pH of the waste and soil mixture shall 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;

(b) The annual application of cadmium from waste may not exceed 0.5 kilograms per hectare (kg/ha) 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 may not exceed:

Time Period	Annual Ca Application Rate (kg/ha)
Descent to June 30 1984	20

Present to June 30, 1984	2.0
July 1, 1984 to Dec. 31, 1986	1.25
Beginning Jan. 1, 1987	0.5

(c) The cumulative application of cadmium from waste may not exceed 5 kg/ha if the waste and soil mixture has a pH of less than 6.5; and

(d) 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 may not exceed:

(i) 5 kg/ha if soil cation exchange capacity (CEC) is less than 5 meg/100g,

(ii) 10 kg/ha if soil CEC is 5-15 meg/100g, and

(iii) 20 kg/ha if soil CEC is greater than 15 meg/100g; or .

(e) Animal feed shall be the only food-chain crop produced:

(i) The pH of the waste and soil mixture shall 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 shall be maintained whenever food-chain crops are grown.

(ii) There shall be an operating plan which demonstrates how the animal feed will be distributed to preclude ingestion by humans. The operating plan shall 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.

DISPOSAL OF HAZARDOUS SUBSTANCES

(iii) Future property owners shall 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 may not be grown except in compliance with G(5)(e).

H. (Reserved)

I. Unsaturated Zone Monitoring. An owner or operator subject to this regulation shall establish an unsaturated zone monitoring program to discharge the following responsibilities:

(1) Monitoring.

(a) The owner or operator shall monitor the soil and soil-pore liquid to determine whether hazardous constituents migrate out of the treatment zone.

(b) The Secretary will specify the hazardous constituents to be monitored in the facility permit. The hazardous constituents to be monitored are those specified under $\S E(2)$.

(c) The Secretary may require monitoring for principal hazardous constituents (PHCs) instead of the constituents specified under B(2). 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 Secretary 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 at, at least, equivalent levels for the other hazardous constituents in the wastes.

(2) Installation of System. The owner or operator shall install an unsaturated zone monitoring system that includes soil monitoring using soil cores and soil-pore liquid monitoring using devices such as lysimeters. The unsaturated zone monitoring system shall consist of a sufficient number of sampling points at appropriate locations and depths to yield samples that:

(a) 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

(b) Indicate the quality of soil-pore liquid and the chemical make-up of the soil below the treatment zone.

Supp. 20

10.51.05.13I DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(3) Establishment of Background Value.

- - - 1

US EPA ARCHIVE DOCUMENT

(a) The owner or operator shall establish a background value for each hazardous constituent to be monitored under \$I(1). The permit will specify the background values for each constituent or specify the procedures to be used to calculate the background values.

(b) Background soil values may be based on a one-time sampling at a background plot having characteristics similar to those of the treatment zone.

(c) Background soil-pore liquid values shall be based on at least quarterly sampling for 1 year at a background plot having characteristics similar to those of the treatment zone.

(d) The owner or operator shall express all background values in a form necessary for the determination of statistically significant increases under $\SI(6)$.

(e) In taking samples used in the determination of all background values, the owner or operator shall use an unsaturated zone monitoring system that complies with I(2Xa).

(4) The owner or operator shall conduct soil monitoring and soilpore liquid monitoring immediately below the treatment zone. The Secretary 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 shall express the results of soil and soil-pore liquid monitoring in a form necessary for the determination of statistically significant increases under $\SI(6)$.

(5) The owner or operator shall 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 shall implement procedures and techniques for:

- (a) Sample collection;
- (b) Sample preservation and shipment;
- (c) Analytical procedures; and
- (d) Chain of custody control.

(6) Background Values.

(a) The owner or operator shall determine whether there is a statistically significant change over background values for any hazardous constituent to be monitored under §I(1) below the treatment

2158

zone each time he conducts soil monitoring and soil-pore liquid monitoring under §I(4).

(b) In determining whether a statistically significant increase has occurred, the owner or operator shall compare the value of each constituent, as determined under SI(4), to the background value for that constituent according to the statistical procedure specified in the facility permit under this paragraph.

(c) The owner or operator shall determine whether there has been a statistically significant increase below the treatment zone within a reasonable time period after completion of sampling. The Secretary will specify that time period in the facility permit after considering the complexity of the statistical test and the availability of laboratory facilities to perform the analysis of soil and soil-pore liquid samples.

(d) The owner or operator shall 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 Secretary will specify a statistical procedure in the facility permit that he finds:

(i) is appropriate for the distribution of the data used to establish background values; and

(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.

(7) If the owner or operator determines, pursuant to $\Im(6)$, that there is a statistically significant increase of hazardous constituents below the treatment zone, he shall:

(a) Notify the Secretary of this finding in writing within 7 days. The notification shall indicate what constituents have shown statistically significant increases.

(b) Within 90 days, submit to the Secretary 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) If the owner or operator determines, pursuant to \$I(6), that there is a statistically significant increase of hazardous constituents below the treatment zone, he may demonstrate that a source other

Supp. 20

10.51.05.13J DEPARTMENT OF HEALTH AND MENTAL HYGIENE

than regulated units caused the increase or that the increase resulted from an error in sampling, analysis, or evaluation. While the owner or operator may make a demonstration under this subsection in addition to, or instead of, submitting a permit modification application under $\Im(7\chi)$, he is not relieved of the requirement to submit a permit modification application within the time specified in $\Im(7\chi)$ unless the demonstration made under this subsection successfully shows that a source other than the regulated units caused the increase or that the increase resulted from an error in sampling, analysis, or evaluation. In making a demonstration under this subsection, the owner or operator shall:

(a) Notify the Secretary in writing within 7 days of determining a statistically significant increase below the treatment zone that he intends to make a determination under this subsection;

(b) Within 90 days, submit a report to the Secretary demonstrating that a source other than the regulated units caused the increase or that the increase resulted from error in sampling, analysis, or evaluation;

(c) Within 90 days, submit to the Secretary an application for a permit modification to make any appropriate changes to the unsaturated zone monitoring program at the facility; and

(d) Continue to monitor in accord with the unsaturated zone monitoring program established under this section.

J. Recordkeeping. The owner or operator shall include hazardous waste application dates and rates in the operating record required under Regulation .05D.

K. Closure and Post-closure Care.

US EPA ARCHIVE DOCUMENT

(1) During the closure period the owner or operator shall:

(a) Continue all operations (including pH control) necessary to maximize degradation, transformation, or immobilization of hazardous constituents within the treatment zone as required under D(1), except to the extent these measures are inconsistent with K(1(h));

(b) Continue all operations in the treatment zone to minimize run-off of hazardous constituents as required under $\frac{3}{2}D(2)$;

(c) Maintain the run-on control system required under §D(3);

(d) Maintain the run-off management system required under D(4);

2160

10.51.05.13K

(f) Continue to comply with any prohibition or conditions concerning growth of food-chain crops under §G;

(g) Continue unsaturated zone monitoring in compliance with §I, except that soil-pore liquid monitoring may be terminated 90 days after the last application of wasts to the treatment zone; and

(h) Establish z vegetative cover on the portion of the facility being closed at such time that the cover does not substantially impede degradation; transformation, or immobilization of hazardous constituents in the treatment zone. The vegetative cover shall be capable of maintaining growth without extensive maintenance.

(2) For the purpose of complying with Regulation .07F, when closure is completed the owner or operator may submit to the Secretary certification by an independent qualified soil scientist, instead of an independent registered professional engineer, that the facility has been closed in accordance with the specifications in the approved closure plan.

(3) During the post-closure care period the owner or operator shall:

(a) 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 these measures are consistent with other post-closure care activities;

(b) Maintain a vegetative cover over closed portions of the facility;

(c) Maintain the run-on control system required under §D(3);

(d) Maintain the run-off management system required under §D(4);

(e) Control wind dispersal of hazardous waste if required under §D(6);

(f) Continue to comply with any prohibitions or conditions concerning growth of food chain crops under §G; and

(g) Continue unsaturated zone monitoring in compliance with §I except that soil-pore liquid monitoring may be terminated 90 days after the last application of waste to the treatment zone.

Supp. 20

§D(6):

10.51.05.13K DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(4) The owner or operator is not subject to regulation under $\xi K(1)(h)$ and (3) if the Secretary 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 $\xi K(4)(c)$. The owner or operator may submit a demonstration to the Secretary at any time during the closure or post-closure periods. For the purposes of this subsection:

(a) The owner or operator shall 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 $\S B(2)$. This includes the following:

(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;

(ii) The owner or operator shall express background values and values for hazardous constituents in the treatment zone in a form necessary for the determination of statistically significant increases under $\frac{1}{5}K(4Xc)$.

(b) In taking samples used in the determination of background and treatment zone values, the owner or operator shall take samples at a sufficient number of sampling points and at appropriate locations and depths to yield samples that represent the chemical makeup of soil that has not been affected by leakage from the treatment zone and the soil within the treatment zone, respectively.

(c) In determining whether a statistically significant increase has occurred, the owner or operator shall 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 shall use a statistical procedure that:

EPA ARCHIVE DOCUMENT

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

(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.

(5) The owner or operator is not subject to regulation under Regulation .06 if the Secretary finds that the owner or operator satisfied

2162

L. Special Requirements for Ignitable or Reactive Waste. The owner or operator may not apply ignitable or reactive waste to the treatment zone unless the waste is:

(1) Immediately incorporated into the soil so that:

(a) The resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive waste under COMAR 10.51.02.10 or .12, and

(b) Regulation .02H(2) is complied with; or

(2) Managed in such a way that it is protected from any material or conditions which may cause it to ignite or react.

M. Special Requirements for Incompatible Wastes. The owner or operator may not place incompatible wastes, or incompatible wastes and materials (see Appendix V for examples), in or on the same treatment zone, unless Regulation .02H(2) is complied with.

.14 Landfills.

A. Applicability. These regulations apply to owners and operators of facilities that dispose of hazardous waste in landfills, except as Regulation .01 provides otherwise.

B. Design and Operating Requirements.

(1) A landfill shall:

(a) Have a liner that is designed, constructed, and installed to prevent any migration of wastes out of the landfill to the adjacent subsurface soil or ground water or surface water at any time during the active life, including the closure period, of the landfill. The liner shall be constructed of materials that prevent wastes from passing into the liner during the active life of the facility. The liner shall be:

(i) Constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients, including static head 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;

(ii) Placed upon a foundation or base capable of providing support to the liner and resistance to pressure gradients above and

Supp. 20

10.51.05.14 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

below the liner to prevent failure of the liner due to settlement, compression, or uplift;

(iii) Installed to cover all surrounding earth likely to be in contact with the waste or leachate; and

(iv) Located entirely above natural seasonal high water table. Minimal distance will be specified by the Secretary in the permit.

(b) Have a leachate collection and removal system immediately above the liner that is designed, constructed, maintained, and operated to collect and remove leachate from the landfill. The Secretary will specify design and operating conditions in the permit to ensure that the leachate depth over the liner does not exceed 30 cm (1 foot). The leachate collection and removal system shall be:

(i) Constructed of materials that are chemically resistant to the waste managed in the landfill and the leachate expected to be generated, and 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

(ii) Designed and operated to function without clogging through the scheduled closure of the landfill.

(c) Be located in a geohydrologic setting which is compatible with hazardous waste land disposal as determined by the Secretary. Compatability criteria shall include but not be limited to the:

(i) Attenuative capacity of the in-situ soils;

S EPA ARCHIVE DOCUMENT

(ii) Hydraulic conductivity of the in-situ soils;

(iii) Thickness and classification of in-situ soils; and

(iv) Water table surface or potentiometric surface of each aquifer within 50 feet of the facility boundaries.

(2) The owner or operator will be exempted from the requirements of $\S{B}(1)$ if the Secretary finds, based on a demonstration by the owner or operator, that alternative design and operating practices, together with location characteristics, will prevent the migration of any hazardous constituents (see Regulation .06D) into the ground water or surface water at any future time. In deciding whether to grant an exemption, the Secretary will consider:

(a) The nature and quantity of the wastes;

(b) The proposed alternate design and operation;

2164

(c) The hydrogeologic setting of the facility, including the attenuative capacity and thickness of the liners and soils present between the landfill and ground water or surface waters; and

(d) All other factors which would influence the quality and mobility of the leachate produced and the potential for it to migrate to ground water or surface water.

(3) The owner or operator shall 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 storm.

(4) The owner or operator shall 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.

(5) Collection and holding facilities (for example, tanks or basins) associated with run-on and run-off control systems shall be emptied or otherwise managed expeditiously after storms to maintain design capacity of the system.

(6) If the landfill contains any particulate matter which may be subject to wind dispersal, the owner or operator shall cover or otherwise manage the landfill to control wind dispersal.

(7) The Secretary will specify in the permit all design and operating practices that are necessary to ensure that the requirements of this section are satisfied.

C. Monitoring and Inspection.

(1) During construction or installation, liners and cover systems (for example, membranes, sheets, or coatings) shall be inspected for uniformity, damage, and imperfections (for example, holes, cracks, thin spots, or foreign materials). Immediately after construction or installation:

(a) Synthetic liners and covers shall be inspected to ensure tight seams and joints and the absence of tears, punctures, or blisters; and

(b) Soil-based and admixed liners and covers shall be inspected for imperfections including lenses, cracks, channels, root holes, or other structural non-uniformities that may cause an increase in the permeability of the liner or cover.

(2) While a landfill is in operation, it shall be inspected weekly and after storms to detect evidence of any of the following:

Supp. 20

EPA ARCHIVE DOCUMENT

10.51.05.14 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(a) Deterioration, malfunctions, or improper operation of runon and run-off control systems;

(b) The presence of liquids in leak detection systems;

(c) Proper functioning of wind dispersal control system, when present; and

(d) The presence of leachate in and proper functioning of leachate collection and removal systems, when present.

D. - H. (Reserved)

JS EPA ARCHIVE DOCUMENT

I. Surveying and Recordkeeping. The owner or operator of a landfill shall maintain the following items in the operating record required under Regulation .05D:

(1) On a map, the exact location and dimensions, including depth of each cell with respect to permanently surveyed benchmarks; and

(2) The contents of each cell and the approximate location of each hazardous waste type within each cell.

J. Closure and Post-closure Care.

(1) At final closure of the landfill or upon closure of any cell the owner or operator shall cover the landfill or cell with a final cover designed and constructed to:

(a) Provide long-term minimization of migration of liquids through the closed landfill;

(b) Function with minimum maintenance;

(c) Promote drainage and minimize erosion or abrasion of the cover;

(d) Accommodate settling and subsidence so that the cover's integrity is maintained; and

(e) Have a permeability less than or equal to the permeability of any bottom liner system or natural subscils present.

(2) After final closure, the owner or operator shall comply with all post-closure requirements contained in Regulation .07G - J, including maintenance and monitoring throughout the post-closure care period. The owner or operator shall:

(a) Maintain the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, ercsion, or other events;

(b) Continue to operate the leachate collection and removal system:

(i) During post-closure period, or

(ii) Until leachate is no longer detected;

(c) Maintain and monitor the ground water monitoring system and comply with all other applicable requirements of Regulation .06;

(d) Prevent run-on and run-off from eroding or otherwise damaging the final cover, and

(e) Protect and maintain surveyed benchmarks used in complying with §L.

K. (Reserved)

L. Special Requirements for Ignitable or Reactive Waste. Except as provided in L(2), ignitable or reactive waste may not be placed in a landfill, unless the waste is treated, rendered, or mixed before or immediately after placement in a landfill so that:

(1) The resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive waste under COMAR 10.51.02.10 or .12; and

(2) Regulation .02H(2) is complied with.

M. Special Requirements for Incompatible Wastes. Incompatible wastes, or incompatible wastes and materials (see Appendix V for example), may not be placed in the same landfill cell, unless Regulation .02H(2) is complied with.

N. Special Requirements for Liquid Waste. Bulk or non-containerized liquid waste or waste containing free liquids may not be placed in a landfill.

O. Special Requirements for Containers. Unless the containers are very small (such as ampules), the containers shall be crushed, shredded, or similarly reduced in volume to the maximum practical extent before burial in the landfill.

.15 Incinerators.

A. Applicability. This regulation applies to owners and operators of existing facilities that treat hazardous waste in incinerators, except as Regulation .01 otherwise provides. All facilities subject to this regulation shall submit a permit application within 6 months of promulgation of Regulation .15-1. Upon issuance of a permit pursuant to Regulation .15-1, applicability with this regulation ceases.

2167

Supp. 20

US EPA ARCHIVE DOCUMENT

10.51.05.15 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

B. General Operating Requirements. Before adding hazardous waste, the owner or operator shall bring his incinerator to steady state (normal) conditions of operation, including steady state operating temperature and air flow, using auxiliary fuel or other means.

C. Waste Analysis. In addition to the waste analyses required by Regulation .02D, the owner or operator shall sufficiently analyze any waste which he has not previously burned in his incinerator to enable him to establish steady state (normal) operating conditions (including waste and auxiliary fuel feed and air flow) and to determine the type of pollutants which might be emitted. At a minimum, the analysis shall determine:

(1) Heating value of the waste;

S EPA ARCHIVE DOCUMENT

(2) Halogen content and sulfur content in the waste; and

(3) Concentrations in the waste of lead and mercury, unless the owner or operator has written, documented data that shows that the element is not present.

D. Monitoring and Inspections. The owner or operator shall conduct, as a minimum, the following monitoring and inspections when incinerating hazardous waste:

(1) Existing instruments which relate to combustion and emission control shall be monitored at least every 15 minutes. Appropriate corrections to maintain steady state combustion conditions shall be made immediately either automatically or by the operator. Instruments which relate to combustion and emission control would normally include those measuring waste feed, auxiliary fuel feed, air flow, incinerator temperature, scrubber flow, scrubber pH, and relevant level controls.

(2) The stack plume (emissions) shall be observed visually at least hourly for normal appearance (color and opacity). The operator shall immediately make any indicated operating corrections necessary to return visible emissions to their normal appearance.

(3) The complete incinerator and associated equipment (pumps, valves, conveyors, pipes, etc.) shall be inspected at least daily for leaks, spills and fugitive emissions, and all emergency shutdown controls and system alarms shall be checked to assure proper operation.

E. Closure. At closure, the owner or operator shall remove all hazardous waste and hazardous waste residues (including but not limited to ash, scrubber waters, and scrubber sludges) from the incinerator.

2168

.15-1 Thermal Destruction of Hazardous Waste.

A. Definitions.

(1) As used in this regulation and in COMAR 10.51.07.05, the following terms have the meanings indicated.

(2) "Acute hazardous waste" means hazardous waste that is classified pursuant to COMAR 10.51.02.17 as acute hazardous waste, except for quantities that satisfy the small quantity exclusion in COMAR 10.51.02.05C.

(3) "Electric generating station" means a fuel burning facility constructed or operated by an electric company that provides electric energy for public consumption and whose activities are controlled by the Public Service Commission under Article 78, Annotated Code of Maryland.

(4) "Installation" means any article, machine, equipment, or other contrivance, including, but not limited to, emission control equipment, processing equipment, manufacturing equipment, fuel burning equipment, incinerators, or any equipment or construction, capable of generating, causing, or reducing emissions, as defined in COMAR 10.18.01.01L

(5) "Installation that has an air quality permit to operate" means an installation subject to COMAR 10.18.02.03B(1) for which an annual air quality permit to operate has been issued.

(6) "Small quantity hazardous waste" means hazardous waste that satisfies the small quantity exclusion at COMAR 10.51.02.05C, except for polychlorinated biphenyls (PCB's).

B. Applicability.

(1) This regulation applies to owners and operators of installations used to thermally destroy hazardous waste, except as Regulation .01 provides otherwise.

(2) After consideration of the waste analysis included with the permit application, the Department, in establishing the permit conditions, will exempt the applicant from all requirements of this regulation except §§C, D, F(5), and L if the:

(a) Department finds that the waste to be burned is:

(i) Listed as a hazardous waste in COMAR 10.51.02.14 -- .17 solely because it is ignitable (Hazard Code D, corrosive (Hazard Code C), or both.

Supp. 20

10.51.05.15-1 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(ii) Listed as a hazardous waste in COMAR 10.51.02.14 — .17 solely because it is reactive (Hazard Code R) for characteristics other than those listed in COMAR 10.51.02.12A(4) and (5), and will not be burned when other hazardous wastes are present in the combustion zone,

(iii) A hazardous waste solely because it possesses the characteristics of ignitability, corrosivity, or both, as determined by the test for characteristics of hazardous wastes under COMAR 10.51.02.10 - .11, or

(iv) A hazardous waste solely because it possesses any of the reactivity characteristics described by COMAR 10.51.02.12A(1) - (3) and (6) - (8), and will not be burned when other hazardous wastes are present in the combustion zone; and

(b) Waste analysis shows that the waste contains none of the hazardous constituents listed in COMAR 10.51.02, Appendix V, which would reasonably be expected to be in the waste.

(3) If the waste to be burned is one which is described by B(2XaXi), (ii), (iii), or (iv) and contains insignificant concentration of the hazardous constituents listed in COMAR 10.51.02, Appendix V, then the Department may, in establishing permit conditions, exempt the applicant from all requirements of this regulation except §§D, F, and L, after consideration of the waste analysis included with the permit application, unless the Department finds that the waste will pose a threat to human health and the environment when burned in an incinerator.

(4) The owner or operator of a hazardous waste incinerator may conduct trial burns subject only to the requirements of COMAR 10.51.07.02P.

C. General Requirements.

JS EPA ARCHIVE DOCUMENT

(1) Notwithstanding any other provision of this subtitle, a person who thermally destroys hazardous waste is subject to the requirements of this regulation. A person shall thermally destroy hazardous waste in accordance with the provisions of C(2) - (4), below.

(2) Except for small quantity hazardous waste, the following hazardous waste shall be thermally destroyed only in a hazardous waste incinerator that has been permitted under COMAR 10.51.07.02 and .03 to thermally destroy hazardous waste:

2170

(a) Acute hazardous waste.

(b) Hazardous waste, with a heating value of less than 6,000 BTU/lb.

(c) Hazardous waste with a heating value of 6,000 BTU/lb. or greater, not used as a fuel for heat energy recovery, and containing material listed in COMAR 10.51.02, Appendix V.

(d) Hazardous waste with a heating value of 6,000 BTU/lb. or greater containing a constituent or constituents having a heating value of less than 6,000 BTU/lb. unless the:

(i) Applicant demonstrates to the satisfaction of the Department that it is unnecessarily costly to separate the waste; and

(ii) Hazardous waste with a heating value of 6,000 BTU/lb. or greater does not contain more than 1 percent by volume of the constituent or constituents having a heating value of less than 6,000 BTU/lb. except that if the constituents having a heating value of less than 6,000 BTU/lb. is primarily water the volume may be greater than 1 percent. However, the Department reserves the right to limit the amount of water present in the hazardous waste to be thermally destroyed such that the flame temperature is not reduced to a level where incomplete combustion of the hazardous waste may be expected.

(e) Hazardous waste or hazardous waste mixtures that the Department determines will create a public health or environmental hazard.

(3) All other hazardous waste may be thermally destroyed in a hazardous waste incinerator permitted under COMAR 10.51.07.02 and .03, an electric generating station with a Limited Facility Permit under COMAR 10.51.07.05, or any other installation that has an air quality permit to operate and a Limited Facility Permit under COMAR 10.51.07.05.

(4) The requirements of the Federal Toxic Substances Control Act, 15 U.S.C. 2505(e) (TOSCA), and regulations adopted under that Act, 40 C.F.R. §761, shall take precedence over the requirements of this regulation concerning polychlorinated biphenyls (PCBs), to the extent that there is any inconsistency between them. A person may not thermally destroy PCB's except in compliance with the Toxic Substances Control Act, 15 U.S.C. 2601 (TOSCA), and COMAR 10.51.07.

Supp. 20

10.51.05.15-1 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

D. Waste Analysis.

(1) As a portion of the trial burn plan required by COMAR 10.51.07.02P(2), or with the permit application, the owner or operator shall include an analysis of the waste feed sufficient to provide all information required by COMAR 10.51.07.02A(7) and P(2). Owners or operators of new hazardous waste incinerators shall provide the information required by COMAR 10.51.07.02P(3) to the greatest extent possible.

(2) Throughout normal operation the owner or operator shall conduct sufficient waste analysis to verify that waste feed to the hazardous waste incinerator is within the physical and chemical composition limits specified in his permit under SH(2).

E. Principal Organic Hazardous Constituents (POHCs).

(1) Principal Organic Hazardous Constituents (POHCs) in the waste feed shall be treated to the extent required by the performance standard of §F.

(2) One or more POHCs will be specified in-the facility's permit from among those constituents listed in COMAR 10.51.02, Appendix V, for each waste feed to be burned. This specification will be based on the degree of difficulty of incineration of the organic constituents in the waste and on their concentration or mass in the waste feed, considering the results of waste analyzes and trial burns or alternative data submitted with the facility's permit application. Organic constituents which represent the greatest degree of difficulty of incineration will be those most likely to be designated as POHCs. Constituents are more likely to be designated as POHCs if they are present in large quantities or concentrations in the waste.

(3) Trial POHCs will be designated for performance of trial burns in accordance with the procedure specified in COMAR 10.51.07.02P(2) for obtaining trial burn permits.

F. Performance Standards. A hazardous waste incinerator burning hazardous waste shall be designed, constructed, and maintained so that when operated in accordance with operating requirements specified under §H it will meet the following performance standards:

(1) It shall achieve a destruction and removal efficiency (DRE) of 99.99 percent for each principal organic hazardous constituent (POHC) designated under §E in its permit for each waste feed. DRE is determined for each POHC from the following equation:

DISPOSAL OF HAZARDOUS SUBSTANCES

DRE =
$$\frac{(\forall in \cdot \forall out) \ge 100 \text{ percent}}{\forall in}$$

where:

"in = Mass feed rate of one principal organic hazardous constituent (POHC) in the waste stream feeding the hazardous waste incinerator; and

^wout = Mass emission rate of the same POHC present in exhaust emissions before release to the atmosphere.

(2) When producing stack emissions of more than 1.8 kilograms per hour (4 pounds per hour) of hydrogen chloride (HCl), it shall control HCl emissions such that the rate of emission is not greater than the larger of either 1.8 kilograms per hour or 1 percent of the HCl in the stack gas prior to entering any pollution control equipment.

(3) It may not emit particulate matter in excess of 68.7 milligrams per dry standard cubic meter (0.030 grains per dry standard cubic foot) when corrected as provided for at COMAR 10.18.08.05.

(4) Visible Emissions Standard.

(a) A person may not cause or permit the discharge of emissions from a hazardous waste incinerator that violate the visible emissions standards in COMAR 10.18.08.04.

(b) A person may apply for an exception to the visible emission standard in F(4)(a), above, using the procedures in COMAR 10.18.01.08.

(5) As provided in COMAR 10.18.08. hazardous waste incinerators are subject to all applicable substantive requirements of COMAR 10.18 and shall also be subject to the approval requirements of COMAR 10.18.02.03A for New Sources Impacting on a Nonattainment Areas (NSINA's) and Prevention of Significant Deterioration (PSD) Sources.

(6) For purposes of permit enforcement, compliance with the operating requirements specified in the permit under §H will be regarded as compliance with this section. However, evidence that compliance with those permit conditions is insufficient to ensure compliance with the performance requirements of this section may be information justifying modification, revocation, or reissuance of a permit under COMAR 10.51.07.02J or .03.

Supp. 20

2172-1

10.51.05.15-1

10.51.05.15-1 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

G. Hazardous Waste Incinerator Permits.

(1) The owner or operator of a hazardous waste incinerator shall burn only wastes specified in his permit and only under operating conditions specified for those wastes under §H except: .

(a) In approved trial burns under COMAR 10.51.07.02P(2); or

(b) Under exemptions created by §B.

US EPA ARCHIVE DOCUMENT

(2) Other hazardous wastes shall be burned only after operating conditions have been specified in a new permit or a permit modification as applicable. Operating requirements for new wastes shall be based on either trial burn results or alternative data included with a permit application.

(3) The permit for a new hazardous waste incinerator shall establish appropriate conditions for each of the applicable requirements of this section, including but not limited to allowable waste feeds and operating conditions necessary to meet the requirements of §H, sufficient to comply with the following standards:

(a) For the period beginning with initial introduction of hazardous waste to the incinerator and ending with initiation of the trial burn, and only for the minimum time required to establish operating conditions required in G(3)(b), not to exceed a duration of 720 hours operating time for incineration of hazardous waste, the operating requirements shall be those most likely to ensure compliance with the performance standards of §F, based on the Department's engineering judgment. The Department may extend the duration of this period once for up to 720 additional hours when good cause for the extension is demonstrated by the applicant.

(b) For the duration of the trial burn, the operating requirements shall be sufficient to demonstrate compliance with the performance standards of §F and shall be in accordance with the approved trial burn plan.

(c) For the period immediately following completion of the trial burn, and only for the minimum period sufficient to allow sample analysis, data computation, and submission of the trial burn results by the applicant, and review of the trial burn results and modification of the facility permit by the Department, the operating requirements shall be those most likely to ensure compliance with the performance standards of §F based on the Department's engineering judgment.

2172-2

(d) For the remaining duration of the permit, the operating requirements shall be those demonstrated, in a trial burn or by alternative data specified in the permit application, as sufficient to ensure compliance with the performance standards of §F.

H. Operating Requirements.

(1) A hazardous waste incinerator shall be operated in accordance with operating requirements specified in the permits. These will be specified on a case-by-case basis as those demonstrated (in a trial burn or in alternative data as specified in SG(2) and included with a facility's permit application) to be sufficient to comply with the performance standards of SF.

(2) Each set of operating requirements will specify the composition of the waste feed, including acceptable variations in the physical or chemical properties of the waste feed which do not affect compliance with the performance requirements of §F to which the operating requirements apply. For such waste feed, the permit will specify acceptable operating limits including the following conditions:

(a) Carbon monoxide (CO) level in the stack exhaust gas;

(b) Waste feed rate;

(c) Combustion temperature;

(d) An appropriate indicator of combustion gas velocity;

(e) Allowable variations in incinerator system design or operating procedures; and

(f) Such other operating requirements as are necessary to ensure that the performance standards of $\S F$ are met.

(3) During start-up and shut-down of a hazardous waste incinerator, hazardous waste, except wastes exempted in accordance with §B, may not be fed into the incinerator unless the incinerator is operating within the conditions of operation (temperature air feed rate, etc.) specified in the permit.

(4) Fugitive emissions from the combustion zone shall be controlled by:

(a) Keeping the combustion zone totally sealed against fugitive emissions;

(b) Maintaining a combustion zone pressure lower than atmospheric pressure; or

Supp. 20

EPA ARCHIVE DOCUMENT

2172-3

10.51.05.15-1 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(c) An alternate means of control demonstrated (with the permit application) to provide fugitive emissions control equivalent to maintenance of combustion zone pressure lower than atmospheric pressure.

(5) A hazardous waste incinerator shall be operated with a functioning system to automatically cut off waste feed to the incinerator when operating conditions deviate from limits established under \S H(1).

(6) A hazardous waste incinerator shall cease operation when changes in waste feed, incinerator design, or operating conditions exceed limits designated in its permit.

L Monitoring and Inspections.

(1) The owner or operator shall conduct, as a minimum, the following monitoring while incinerating hazardous waste:

(a) Combustion temperature, waste feed rate, and the indicator of combustion gas velocity specified in the facility permit shall be monitored on a continuous basis;

(b) CO shall be monitored on a continuous basis at a point in the hazardous waste incinerator downstream of the combustion zone and before release to the atmosphere;

(c) Upon request by the Department, sampling and analysis of the waste and exhaust emissions shall be conducted to verify that the operating requirements established in the permit achieve the performance standards of §F.

(2) The hazardous waste incinerator and associated equipment (pumps, valves, conveyors, pipes, etc.) shall be subjected to thorough visual inspection, at least daily, for leaks, spills, fugitive emissions, and signs of tampering.

(3) The emergency waste feed cutoff system and associated alarms shall be tested at least weekly to verify operability, unless the applicant demonstrates to the Department that weekly inspections will unduly restrict or upset operations and that less frequent inspection will be adequate. At a minimum, operational testing shall be conducted at least monthly.

(4) This monitoring and inspection data shall be recorded and the records shall be placed in the operating log required by Regulation .05D.

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US EPA ARCHIVE DOCUMENT

2172-4

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.05.16

L. Closure. At closure, the owner or operator shall remove all hazardous waste and hazardous waste residues (including but not limited to ash, scrubber waters, and scrubber sludges) from the incinerator site.

M. Existing Hazardous Waste Incinerators. Not later than 6 months after the effective date of this regulation, the owner or operator of any existing hazardous waste incinerator shall submit a completed permit application for that hazardous waste incinerator, as provided for in COMAR 10.51.07.02, or cease to operate the incinerator.

.16 Thermal Treatment and Open Burning.

A. Applicability. This regulation applies to owners and operators of facilities that thermally treat hazardous waste other than by thermal destruction and that cause or permit the open burning of hazardous waste. Thermal destruction of hazardous waste is subject to the requirements of Regulation .15 or .15-1.

B. General Operating Requirements. Before adding hazardous waste, the owner or operator shall bring his thermal treatment process to steady state (normal) conditions of operaton, including steady state operating temperatures, using auxiliary fuel or other means, unless the process is a non-continuous (batch) thermal treatment process which requires a complete thermal cycle to treat a discrete quantity of hazardous waste.

C. Waste Analysis. In addition to the waste analyses required by Regulation .02D, the owner or operator shall sufficiently analyze any waste which he has not previously treated in his thermal treatment process to enable him to establish steady state (normal) or other appropriate (for a non-continuous process) operating conditions (including waste and auxiliary fuel feed) and to determine the type of pollutants which might be emitted. At a minimum, the analysis shall determine:

(1) Heating value of the waste;

(2) Halogen content and sulfur content in the waste; and

(3) Concentrations in the waste of lead and mercury, unless the owner or operator has written, documented data that show that the element is not present.

D. Monitoring and Inspections. The owner or operator shall conduct, as a minimum, the following monitoring and inspections when thermally treating hazardous waste:

Supp. 20

EPA ARCHIVE DOCUMENT

2172-5

10.51.05.16 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(1) Existing instruments which relate to temperature and emission control (if an emission control device is present) shall be monitored at least every 15 minutes. Appropriate corrections to maintain steady state or other appropriate thermal treatment conditions shall be made immediately either automatically or by the operator. Instruments which relate to temperature and emission control would normally include those measuring waste feed, auxiliary fuel feed, treatment process temperature, and relevant process flow and level controls.

(2) The stack plume (emissions), where present, shall be observed visually at least hourly for normal appearance (color and opacity). The operator shall immediately make any indicated operating corrections necessary to return visible emissions to their normal appearance.

(3) The complete thermal treatment process and associated equipment (pumps, valves, conveyors, pipes, etc.) shall be inspected at least daily for leaks, spills, and fugitive emissions, and all emergency shutdown controls and system alarms shall be checked to assure proper operation.

E. Closure. At closure, the owner or operator shall remove all hazardous waste and hazardous waste residues (including, but not limited to, ash) from the thermal treatment process or equipment.

F. Open Burning: Waste Explosives. Open Burning of hazardous waste is prohibited except for the open burning and detonation of waste explosives. Waste explosives include waste which has the potential to detonate and bulk military propellants which cannot safely be disposed of through other modes of treatment. Detonation is an explosion in which chemical transformation passes through the material faster than the speed of sound (0.33 kilometers/second at sea level). Owners or operators choosing to open burn or detonate waste explosives shall do so in accordance with the following table and in a manner than does not threaten human health or the environment.

(See following page)

~	. Pounds of Waste Explosives or Propellants	Minimum Distance from Open Burning or Detonation to the Property of Others
	0 - 100	204 meters (670 feet)
	101 - 1,000	380 meters (1,250 feet)
	1,001 - 10,000	530 meters (1,730 feet)
-	10,001 - 30,000	690 meters (2,260 feet)

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.05.17

.17 Chemical, Physical, and Biological Treatment.

A. Applicability. This regulation applies to owners and operators of facilities which treat hazardous wastes by chemical, physical, or biological methods in other than tanks, surface impoundments, and land treatment facilities, except as Regulation .01 otherwise provides. Chemical, physical, and biological treatment of hazardous waste in tanks, surface impoundments, and land treatment facilities shall be conducted in accordance with Regulations .10, .11, and .13, respectively.

B. General Operating Requirements.

(1) Chemical, physical, or biological treatment of hazardous waste shall comply with Regulation .02H(2).

(2) Hazardous wastes or treatment reagents may not be placed in the treatment process or equipment if they could cause the treatment process or equipment to rupture, leak, corrode, or otherwise fail before the end of its intended life.

(3) When hazardous waste is continuously fed into a treatment process or equipment, the process or equipment shall be equipped with a means to stop this inflow (for example, a waste feed cut-off system or by-pass system to a standby containment device).

C. Waste Analysis and Trial Tests. In addition to the waste analysis required by Regulation .02D, whenever a hazardous waste which is substantially different from waste previously treated in a treatment process or equipment at the facility is to be treated in that process or equipment, or a substantially different process than any previously used at the facility is to be used to chemically treat hazardous waste, the owner or operator shall, before treating the different waste or using the different process or equipment, conduct waste analyses and trial treatment tests (for example, bench scale or pilot

Supp. 20

S EPA ARCHIVE DOCUMENT

2172-7

10.51.05.17 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

plant scale tests), or obtain written, documented information on similar treatment of similar waste under similar operating conditions, to show that this proposed treatment will meet all applicable requirements of $\S{B}(1)$ and (2).

D. Inspections. The owner or operator of a treatment facility shall inspect, where present:

(1) Discharge control and safety equipment (for example, waste feed cut-off systems, by-pass systems, drainage systems, and pressure relief systems) at least once each operating day, to ensure that is in good working order;

(2) Data gathered from monitoring equipment (for example, pressure and temperature gauges), at least once each operating day, to ensure that the treatment process or equipment is being operated according to its design;

(See page 2173)
(3) The construction materials of the treatment process or equipment, at least weekly, to detect corrosion or leaking of fixtures or seams; and

(4) The construction materials of, and the area immediately surrounding, discharge confinement structures (for example, dikes), at least weekly, to detect erosion or obvious signs of leakage (for example, wet spots or dead vegetation).

E., Closure. At closure, all hazardous waste and hazardous waste residues shall be removed from treatment processes or equipment, discharge control equipment, and discharge confinement structures.

F. Special Requirements for Ignitable or Reactive Waste. Ignitable or reactive waste may not be placed in a treatment process or equipment unless the waste is:

(1) Treated, rendered, or mixed before or immediately after placement in the treatment process or equipment so that the resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive waste under COMAR 10.51.02.10, and Regulation .02H(2) is complied with; or

(2) Treated in such a way that it is protected from any material or conditions which may cause the waste to ignite or react.

G. Special Requirements for Incompatible Wastes.

(1) Incompatible wastes, or incompatible wastes and materials, (see Appendix V for examples) may not be placed in the same treatment process or equipment, unless Regulation .02H(2) is complied with.

(2) Hazardous waste may not be placed in unwashed treatment equipment which previously held an incompatible waste or material, unless Regulation .02H(2) is complied with.

.18 Underground Injection Control.

A person may not dispose of hazardous waste by underground injection (as the term "underground injection" is defined at COMAR 10.50.04 and 40 C.F.R. 143.3).

(The next page is 2179)

Supp. 15

EPA ARCHIVE DOCUMENT

2173

Appendix I Recordingkeeping Instructions

The recordkeeping provisions of Regulation .05D specify that an owner or operator shall keep a written operating record at his facility. This appendix provides additional instructions for keeping portions of the operating record. See Regulation .05D(2) for additional recordkeeping requirements.

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

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

(1) A description by its common name and the EPA Hazardous Waste Number(s) from COMAR 10.51.02 which apply to the waste. The waste description also shall include the waste's physical form, i.e., liquid, sludge, solid, or contained gas. If the waste is not listed in COMAR 10.51.02.14 — .17, the description also shall include the process that produced it (for example, solid filter cake from production of

EPA Hazardous Waste Number W051).

Each hazardous waste listed in COMAR 10.51.01.14 — .17, and each hazardous waste characteristic defined in COMAR 10.51.02.09 — .13, has a four-digit EPA Hazardous Waste Number assigned to it. This number shall be used for recordkeeping and reporting purposes. When a hazardous waste contains more than one listed hazardous waste, or when more than one hazardous waste characteristic applies to the waste, the waste description shall include all applicable EPA Hazardous Waste Numbers.

(2) The estimated or manifest-reported weight, or volume and density, when applicable, in one of the units of measure specified in Table 1; and

(See following page)

Supp. 15

10.51.05.18H DEPARTMENT OF HEALTH AND MENTAL HYGIENE

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

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Unit of Measure	Symbol*	Density
Pounds	P	-
Short Tons (2000 lbs)	Т	—
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



DISPOSAL OF HAZARDOUS SUBSTANCES

10.51.05.18H

- 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

JS EPA ARCHIVE DOCUMENT

- T39 Encapsulation
- T40 Filtration
- T41 Flocculation
- T42 Flotation
- T43 Foaming
- T44 Sedimentation
- T45 Thickening
- T46 Ultrafiltration
- T47 Other (specify)



10.51,05.18H Department of Health and Mental Hygiene

(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 Scripping
- T55 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 Spray 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)

DISPOSAL OF HAZARDOUS SUBSTANCES

10.51.05.18H

Appendix II

EPA Report Form and Instructions

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10.51.05.18H DEPARTMENT OF HEALTH AND MENTAL HYGIENE



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DISPOSAL OF HAZARDOUS SUBSTANCES

10.51.05.18H

GENERAL INSTRUCTIONS HAZARDOUS WASTE REPORT (EPA Form 8700-13)

Important: READ ALL INSTRUCTIONS BEFORE COMPLETING THIS FORM

Section I

TYPE OF HAZARDOUS WASTE REPORT:

Part A; Generator Annual Report For generators who ship their waste off-site to facilities which they do not own or operate, fill in the reporting year for this report (e.g., 1982).

NOTE: Generators who ship hazardous waste off-site to a facility which they own or operate must complete the facility (Part B) report instead of the Part A report.

Part B: Facility Annual Report

For owners or operators of on-site or off-site facilities that treat, store, or dispose of hazardous waste, fill in the reporting year for this report (e.g., 1982).

Part C: Unmanifested Waste Report

For facility owners or operators who accept for treatment, storage, or disposal any hazardous waste from an off-site source without an accompanying manifest, fill in the date the waste was received at the facility (e.g., 04-12-1982).

Section II thru Section IV

EPA ARCHIVE DOCUMENT

INSTALLATION I.D. NUMBER, NAME OF IN-STALLATION, and INSTALLATION MAILING ADDRESS:

If you received a preprinted label from EPA, attach it in the space provided and leave Sections II through IV blank. If there is an error or omission on the label, cross out the incorrect information and fill in the appropriate item(s). If you did not receive a preprinted label, complete Section II through Section IV.

Section V LOCATION OF INSTALLATION:

If your installation location address is different than the mailing address, enter the location address of your installation.

10:51.05.18H DEPARTMENT OF HEALTH AND MENTAL HYGIENE

Section VI	INSTALLATION CONTACT Enter the name (last and first) and telephone number of the person who may be contacted re- garding information contained in this report.
Section VII	TRANSPORTATION SERVICES USED (For Part A reports ONLY) List the EPA Identification Number for each transporter whose services you used during the reporting year.
Section VIII	 COST ESTIMATES FOR FACILITIES (For Part B reports ONLY) A. Enter the most recent cost estimate for facility closure in dollars. See COMAR 10.51.05.08 for more detail. B. For disposal facilities only, enter the most recent cost estimate for post closure monitoring and maintenance. See COMAR 10.51.05.08.
Section IX	CERTIFICATION The generator or his authorized representative (Part A reports) or the owner or operator of the fa- cility or his authorized representative (Parts B and C reports) must sign and date the certifica- tion where indicated. The printed or typed name of the person signing the report must also be in- cluded where indicated.

NOTE: Since more than one page is required for each report, enter the page number of each sheet in the lower right corner as well as the total number of pages.

> FACILITY ANNUAL REPORT Part B INSTRUCTIONS (EPA Form 8700-13B)

EPA ARCHIVE DOCUMENT

Facility Annual Report for owners or operators of on-site or off-site facilities that treat, store, or dispose of hazardous waste.

NOTE: Generators who ship hazardous waste off-site to a facility they own or operate must complete this Part B report instead of the Generator (Part A) Annual Report.

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.05.18H

IMPORTANT: READ ALL INSTRUCTIONS BEFORE COMPLET-ING THIS FORM

Section	TYPE OF REPORT
XVI	Put an "X" in the box marked Part B.
Section	FACILITY'S EPA IDENTIFICATION NUMBER
XVII	Enter the EPA identification number for your

Enter the EPA identification number for your facility.

Example:

GIMIA DI 3 8 3 1 2 6 4 8 7	1

Section XVIII GENERATOR'S EPA IDENTIFICATION NUM-BER

Enter the EPA identification number of the generator of the waste described under Section XXI which was received by your facility during the reporting year. A separate sheet must be used for each generator. If the waste came from a foreign generator, enter the EPA identification number of the importer in this section and enter the name and address of the foreign generator in Section XXII, Comments. If the waste was generated and treated, stored, or disposed of at the same installation, leave this section blank.

Section XIX

GENERATOR'S NAME

Enter the name of the generator corresponding to the generator's EPA identification number in Section XVIII.

If the waste was generated and treated, stored, or disposed of at the same installation, enter "ON-SITE".

If the waste came from a foreign generator, enter the name of the importer corresponding to the EPA identification number in Section XVIII.

Section XX GENERATOR'S ADDRESS

Enter the address of the generator corresponding to the generator's EPA identification number in Section XVIII. If the waste was generated and

10.51.05.18H DEPARTMENT OF HEALTH AND MENTAL HYGIENE

treated, stored, or disposed of at the same installation, leave this section blank. If the waste came from a foreign generator, enter the address of the importer corresponding to the EPA identification number in Section XVIII.

Section XXI

WASTE IDENTIFICATION

All information in this section must be entered by line number. A separate line entry is required for each different waste or mixture of wastes that your facility received during the reporting year. The handling code applicable to that waste at the end of the reporting year should be reported. If a different handling code applies to portions of the same waste, (e.g., part of the waste is stored while the remainder was "chemically fixed" during the year), use a separate line entry for each portion.

(See following example)



1 1

Example:

Section DESCRIPTION OF WASTE

For hazardous wastes that are listed under COMAR 10.51.02.14—.17, enter the EPA listed name, abbreviated if necessary. Where mixtures of listed wastes were received, enter the description which you believe best describes the waste.

For unlisted hazardous waste identified under COMAR 10.51.02.09—.13, enter the description which you believe best describes the waste. Include the specific manufacturing or other process generating the waste (e.g., green sludge from widget manufacturing) and if known, the chemical or generic chemical name of the waste.

Section XXI-B

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XXI-A

EPA HAZARDOUS WASTE NUMBER

For listed waste, enter the four digit EPA Hazardous Waste Number from COMAR 10.51.02.14-...17, which identifies the waste.

For a mixture of more than one listed waste, enter each of the applicable EPA Hazardous Waste Numbers.

Four spaces are provided. If more space is needed, continue on the next line(s) and leave all other information on that line blank.

For unlisted hazardous wastes, enter the EPA Hazardous Waste Numbers from COMAR 10.52.02.09—.13, applicable to the waste. If more than four spaces are required, follow the procedure described above.

(See following example)

DISPOSAL OF HAZARDOUS SUBSTANCES

10.51.05.18H



Example:

and the second se	A. DECRIPTION OF WARTE	B. 87A MAZARDOUS WASTE NUMBER (see futurctions)	MAND- MAND- LING METHOD Fonity Contro	00	JC R	THE REAL		40 TINU	ددادد وعجد)
1	Steel Finishing Sludge	<u>x 0 6 0 x 0 6 1</u> <u>x 0 6 2 x 0 6 3</u>	TZL	5		74	-n		
 		K.0.6.4							

10.51.05.18H DEPARTMENT OF HEALTH AND MENTAL HYGIENE

HANDLING CODE Section XXI-C Enter one EPA handling code for each waste line entry. Where several handling steps have occurred during the year, report only the handling code representing the waste's status at the end of the reporting year or its final disposition. EPA handling codes are given in Appendix I of this chapter. Section AMOUNT OF WASTE XXI-D Enter the total amount of waste described on this line which you received during this reporting year. Section UNIT OF MEASURE XXI-E

Enter the unit of measure code for the quantity of waste described on this line. Units of measure which must be used in this report and the appropriate codes are:

Units of Measure	Code
pounds	P
short tons (2000 lbs)	Т
kilograms	K
Tonnes (1000 kg)	М

Units of volume may not be used for reporting but must be converted into one of the above units of weight, taking into account the appropriate density or specific gravity of the waste.

Section XXII

- COMMENTS
 - This space may be used to explain or clarify any entry. If used, enter a cross-reference to the appropriate Section number.
- NOTE: Since more than one page is required for each report, enter the page number of each sheet in the lower right hand corner as well as the total number of pages.

WHERE REQUIRED BY COMAR 10.51.05.06 OR .18, ATTACH GROUND-WATER MONITORING DATA TO THIS REPORT.

UNMANIFESTED WASTE REPORT Part C INSTRUCTIONS (EPA Form 8700-13B)

Unmanifested Waste Report for facility owners or operators who accept for treatment, storage, or disposal any hazardous waste from an off-site source without an accompanying manifest.

IMPORTANT: READ ALL INSTRUCTIONS BEFORE COMPLET-ING THIS FORM.

For the Unmanifested Waste Report, EPA Forms 8700-13 and 8700-13B must be filled out according to the directions for the Part-B Facility Annual Report except that: (1) blocks for which information is not available to the owner or operator of the reporting facility may be marked "UNKNOWN," and (2) the following special instructions apply:

Section VIII XVI	COST ESTIMATES FOR FACILITIES Do not enter closure or post-closure cost estimates. TYPE OF REPORT Put an "X" in the box marked Part C.
Section XXI-A	DESCRIPTION OF WASTE Use as many line numbers as are needed to describe the waste.
Section XXI-C	HANDLING CODE Enter the handling code which describes the status of the waste on the date the report is filed.
Section XXI-D	AMOUNT OF WASTE Enter the amount of waste received, rather than a total annual aggregate.
Section XXII	COMMENTS a. Enter the EPA Identification number, name, and address of the transporter, if known. If the trans- porter is not known to you, enter the name and chauffeur license number of the driver and the State and license number of the transporting ve- hicle which presented the waste to your facility,

2193

if known.

b. Enter an explanation of how the waste movement was presented to your facility; why you believe the waste is hazardous; and how your facility plans to manage the waste. Continue on a separate blank sheet of paper if additional space is needed.

MONITORING DATA

Do not attach monitoring data.

Appendix III

EPA Interim Primary Drinking Water Standards

Parameter

Maximum Level

	(mg/1)
Arsenic	0.05
Barium	1.0
Cadmium	0.01
Chromium	0.05
Fluoride	1.4-2.4
Lead	0.05
Mercury	0.002
Nitrate (as N)	10
Selenium	0.01
Silver	0.05
Endrin	0.0002
Lindane	0.004
Methoxychlor	0.1
Toxaphene	0.005
2,4-D	0.1
2,4,5-TP Silvex	0.01
Radium 5 pCi/1	
Gross Alpha 15 pCi/1	
Gross Beta	
Turbidity 1/TU	
Coliform Bacteria 1/100 ml	

(Comment: Turbidity is applicable only to surface water supplies.)

Appendix IV

Cochran's Approximation to the Behrens-Fisher Students' T-test

Using all the available background data (n_b readings), calculate the background mean (x_b) and background variance S_b^2 . For the single monitoring well under investigation (n_m reading), calculate the monitoring mean (x_m) and monitoring variance (S_m^2). For any set of data ($x_1, x_2, ..., x_n$) the mean is calculated by:

$$\overline{\mathbf{X}} = \frac{\mathbf{X}_1 + \mathbf{X}_2 \dots + \mathbf{X}_n}{n}$$

and the variance is calculated by:

8

$${}^{2} = \frac{(X_{1} - \overline{X})^{2} + (X_{2} - \overline{X})^{2} \dots + (X_{n} - \overline{X})^{2}}{n-1}$$

where "n" denotes the number of observations in the set of data.

The t-test uses these data summary measures to calculate a tstatistic (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:

$$t^{*} = \frac{X_{m} - \overline{X}_{b}}{\sqrt{\frac{S_{m}^{2}}{n_{m}} + \frac{S_{b}^{2}}{n_{b}}}}$$

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.

Supp. 20

10.51.05.18H DEPARTMENT OF HEALTH AND MENTAL HYGIENE

The t-statistic (t_c), against which t* will be compared, necessitates finding t_B and t_m 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 weighting W_{a} and W_{M} are defined as:

$$W_{B} = \frac{S_{B}^{2}}{n_{B}}$$
 and $W_{m} = \frac{S_{m}^{2}}{n_{m}}$

and so the comparison t-statistic is:

$$\mathbf{t}_{\mathrm{c}} = \frac{\mathbf{W}_{\mathrm{B}}\mathbf{t}_{\mathrm{B}} + \mathbf{W}_{\mathrm{m}}\mathbf{t}_{\mathrm{m}}}{\mathbf{W}_{\mathrm{B}} + \mathbf{W}_{\mathrm{m}}}$$

The t-statistic (t^{*}) is now compared with the comparison t-statistic (t_.) using the following decision-rule:

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

If t^{\bullet} 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_c for pH and similar monitoring parameters.

It t[•] is equal 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.

(See next page for Standard T-Tables)

2195-1

Supp. 20

DISPOSAL OF HAZARDOUS SUBSTANCES

Standard T-Tables

10.51.05.18H

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		
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		

Appendix V

Examples of Potentially Incompatible Waste

Many hazardous wastes, when mixed with other waste or materials at a hazardous waste facility, can produce effects which are harmful to human health and environment, such as (1) heat or pressure, (2) fire or explosion, (3) violent reaction, (4) toxic dusts, mists, fumes, or gases, or (5) flammable fumes or gases.

Supp. 20

2195-2

10.51.05.18H DEPARTMENT OF HEALTH AND MENTAL HYGIENE

Below are examples of potentially incompatible wastes, waste components, and materials, along with the harmful consequences which result from mixing materials in one group with materials in another group. The list is intended as a guide to owners or operators of treatment, storage, and disposal facilities, and to enforcement and permit granting officials, to indicate the need for special precautions when

(See page 2196)

10.51.05.18H DEPARTMENT OF HEALTH AND MENTAL HYGIENE

managing these potentially incompatible waste materials or components.

This list is not intended to be exhaustive. An owner or operator must, as the regulations require, adequately analyze his wastes so that he can avoid creating uncontrolled substances or reactions of the type listed below, whether they are listed below or not.

It is possible for potentially incompatible wastes to be mixed in a way that precludes a reaction (e.g., adding acid to water rather than water to acid) or that neutralizes them (e.g., a strong acid mixed with a strong base), or that controls substances produced (e.g., by generating flammable gases in a closed tank equipped so that ignition cannot occur, and burning the gases in an incinerator).

In the lists below, the mixing of a Group A material with a Group B material may have the potential consequence as noted.

Group 1-A

Group 1-B

Acetylene sludge	Ac
Akaline caustic liquids	Ac
Alkaline cleaner	Ba
Alkaline corrosive liquids	Ch
Alkaline corrosive battery fluid	Ele
Caustic wastewater	Eta
Lime sludge and other corrosive	Pic
alkalines	Š
Lime wastewater	Sp
Lime and water	Sp
Spent caustic	Sp

Acid sludge Acid and water Battery acid Chemical cleaners Electrolyte, acid Etching acid liquid or solvent Pickling liquor and other corrosive acids Spent acid Spent mixed acid Spent sulfuric acid

Potential consequences: Heat generation; violent reaction.

Group 2-A

Group 2-B

Any waste in Group 1-A or 1-B

Aluminum Beryllium Calcium Lithium Magnesium Potassium Sodium Zinc powder Other reactive metals and metal hydrides

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.05.18H

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Potential consequences: Fire or explosion; generation of flammable hydrogen gas.

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Group 3-A

Group 3-B

Alcohols Water Any concentrated waste in Groups 1-A or 1-B Calcium Lithium Metal hydrides Potassium SO₂Cl₂, SOCl₂, PCl₃, CH₃SiCl₃ Other water-reactive waste

Potential consequences: Fire, explosion, or heat generation; generation of flammable or toxic gases.

Group 4-A

Group 4-B

Alcohols Aldehydes Halogenated hydrocarbons Nitrated hydrocarbons Unsaturated hydrocarbons Other reactive organic compounds and solvents Concentrated Group 1-A or 1-B wastes Group 2-A wastes

Potential consequences: Fire, explosion, or violent reaction.

Group 5-A

Group 5-B

Spent cyanide and sulfide solu- Group 1-B wastes tions

Potential consequences: Generation of toxic hydrogen cyanide or hydrogen sulfide gas.

Group 6-A

Chlorates

Chlorine

Chlorites

Chromic acid

Hypochlorites

Group 6-B

Acetic acid and other organic acids Concentrated mineral acids Group 2-A wastes Group 4-A wastes

-10.51.05.18H DEPARTMENT OF HEALTH AND MENTAL HYGIENE

Group 6-A

Group 6-B

Other flammable and combustible wastes

Nitrates Nitric acid.fuming Perchlorates Permanganates Peroxides Other strong oxidizers

S EPA ARCHIVE DOCUMENT

Potential consequences: Fire, explosion, or violent reaction.

Source: "Law, Regulations, and Guidelines for Handling of Hazardous Waste." California Department of Health, February 1975.

Administrative History

Regulations .01 — .18 adopted as an emergency provision effective November 18, 1980 (7:25 Md. R. S-1); adopted permanently effective April 3, 1981 (8:7 Md. R. 642)

Regulations .01, .05G, .08, .08A, .11C, .12D, and .14C amended effective January 18, 1982 (9:1 Md. R. 20)

Regulations .01 - .12, .18 amended effoctive January 31, 1983 (10:2 Md. R. 110)

Regulations .01A, B. .02F. .05D, H. .07C, D. G. H. .08A, .09G. .10D, F. .11A-1, C. E. –
 G. .12A, B. D. D-1, D-2, E. G. .13, .14, .15A, .16A, 18 (Appendix IV) amended, .15-1
 adopted. .06 repealed and new .06 sdopted, .10I, .12C-1, and .18 (Appendices VI – XIII) repealed effective February 13, 1984 (11:3 Md. R. 202)

Regulations .01A, .02D, F, .05G, .06A, L .07A, D, L .10D, .11B, F, F-1, .12D-1, .14A --C, J, L, .15-1A, D amended, and .01C adopted effective July 30, 1984 (11:15 Md. R. 1330)

(The next page is 2217) 2198

Supp. 20

Title 10 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

Subtitle 51 DISPOSAL OF CONTROLLED HAZARDOUS SUBSTANCES

Chapter 06 Site Selection for DHS Facilities

Authority: Health-Environmental Article, §2-206 et seq., Annotated Code of Maryland

.01 General Regulations.

A. A facility may not be located in an active fault zone.

B. Floodplains.

US EPA ARCHIVE DOCUMENT

(1) Definitions. The following definitions are used in B(2), below:

(a) "100-year flood" means a flood that has a 1 percent chance of being equaled or exceeded in any given year.

(b) "100-year floodplain" means any land area which is subject to a 1 percent or greater chance of a flooding in any given year from any source.

(c) "Washout" means the movement of hazardous waste from the active portion of the facility as a result of flooding.

(2) A facility located in a 100-year floodplain shall be designed, constructed, operated, and maintained to prevent washout of any hazardous waste by a 100-year flood unless the owner or operator demonstrates to the Secretary that procedures are in effect which will cause the waste to be removed safely, before flood waters can reach the facility, to a location where the wastes will not be vulnerable to floodwaters.

C. A facility may not be located in a wetland, unless the operator obtains a discharge permit under COMAR 08.05.04 and a wetlands permit under COMAR 08.05.07.

D. A facility may not be located so as to be likely to jeopardize the continued existence of endangered and threatened species, or result in the destruction or adverse modification of their critical habitat (reference: COMAR 08.03.01.43 and Natural Resources Article, §§10-2A01 to 2A09, Annotated Code of Maryland).

E. A facility may not be located in the recharge zone of a sole source aquifer unless it can be demonstrated that the facility is designed, constructed, operated, and maintained to prevent any endangerment of the aquifer.

Administrative History

Regulation .01 adopted as an emergency provision effective November 18, 1980 (7:25 Md. R. S-1); adopted permanently effective April 3, 1981 (3:7 Md. R. 642) Regulation .01B amended effective January 31, 1983 (10:2 Md. R. 110)

(The next page is 2219)

Title 10 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

-Sublitle 51 DISPOSAL OF CONTROLLED HAZARDOUS SUBSTANCES

Chapter 07 Permits for CHS Facilities

Authority: Health-Environmental Article, §2-206 et seq., Annotated Code of Maryland

.01 Permit Required.

A. A person may not operate any facilities without first obtaining a valid permit from the Department. A permit will not be issued without the facility first having applied for an EPA identification number.

B. A facility that is no longer operating but is maintained to permanently contain DHS and does not receive any additional DHS shall also be required to obtain a valid permit from the Department.

C. A permit may be issued or denied for one or more units at a facility without simultaneously issuing or denying a permit to all of the units at the facility.

D. Record keeping. Applicants shall keep records of all data used to complete permit applications and any supplemental information submitted under this chapter for a period of at least 3 years from the date the application is signed.

E. Incorporation by Reference. 40 CFR 264.140 — .151 is incorporated by reference as of April 16, 1982.

.02 Permit Procedure.

A. Application for a Permit.

(1) Any person who is required to have a permit (including new applicants and permittees with expiring permits) shall complete, sign and submit an application to the Secretary as described in this section.

(2) 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. The owner shall also sign the permit application.

Supp. 20

10.51.07.02A DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(3) Completeness. The Secretary may not issue a permit before receiving a complete application for a permit. An application for a permit under a program is complete when the Secretary receives an application form and any supplemental information which are completed to his or her satisfaction. The completeness of any application for a permit shall be judged independently of the status of any other permit application or permit for the same facility or activity.

(4) Permit Information. All applicants, using the application form provided by the Department, shall provide the following information to the Secretary. A duplicate of each application shall be submitted at the same time to the EPA. Information shall be signed in accordance with A(1), (2), and B(4).

(a) The activities conducted by the applicant which require it to obtain a permit.

(b) Name, mailing address, and location of the facility for which the application is submitted.

(c) Up to four SIC codes which best reflect the principal products or services provided by the facility.

(d) The operator's name, address, telephone number, ownership status, and status as federal, State, private, public or other entity.

(e) A listing of all permits or construction approvals received or applied under any of the following programs:

(i) Hazardous Waste Management program under the Resource Conservation and Recovery Act;

(ii) Underground Injection Control program under the Safe Drinking Water Act;

(iii) NPDES program under the Clean Water Act;

(iv) Prevention of Significant Deterioration (PSD) program under the Clean Air Act;

(v) Nonattainment program under the Clean Air Act;

(vi) National Emission Standards for Hazardous Pollutants (NESHAPS) preconstruction approval under the Clean Air Act;

(vii) Ocean dumping permits under the Marine Protection Research and Sanctuaries Act;

(viii) Dredge or fill permits under §404 of the Clean Water Act;

2220

Supp. 20

DISPOSAL OF HAZARDOUS SUBSTANCES

(ix) Other relevant environmental permits, including State permits.

(f) A topographic map (or other map if a topographic map is unavailable) extending 1 mile beyond the property boundaries of the source, depicting the facility and:

(i) Each of its intake and discharge structures;

(ii) Each of its hazardous waste treatment, storage, or disposal facilities;

(iii) Each well where fluids from the facility are injected underground; and

(iv) Those wells, springs, other surface water bodies, and drinking water wells listed in public records or otherwise known to the applicant within ½ mile of the facility property boundary.

(g) A brief description of the nature of business.

(h) The latitude and longitude of the facility.

(i) The name, address, and telephone number of the owner of the facility.

(i) An indication of whether the facility is new or existing and whether it is a first or revised application.

(k) For existing facilities, a scale drawing of the facility showing the location of all past, present, and future treatment, storage, and disposal areas.

(1) For existing facilities, photographs of the facility clearly delineating all:

(i) Existing structures;

(ii) Existing treatment, storage, and disposal areas; and

(iii) Sites of future treatment, storage, and disposal areas.

(m) A description of the processes to be used for treating, storing, and disposing of hazardous waste, and the design capacity of these items.

(n) A specification of the hazardous wastes listed or designated in COMAR 10.51.02 to be treated, stored, or disposed at the facility, an estimate of the quantity of the wastes to be treated, stored, or disposed of annually, and a general description of the processes to be used for the wastes.

(o) A general description of the facility.

Supp. 20

EPA ARCHIVE DOCUMENT

10.51.07.02A DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(p) 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 in accordance with COMAR 10.51.05.

(q) A copy of the waste analysis plan required by COMAR 10.51.05.02D.

(r) A description of the security procedures and equipment required by COMAR 10.51.05.02E.

(s) A copy of the general inspection schedule required by COMAR 10.51.05.02F(2). Include, when applicable, as part of the inspection schedule, specific requirements in COMAR 10.51.05.09E, 10.51.05.10D, 10.51.05.11E, 10.51.05.12D-1, 10.51.05.13D, and 10.51.05.14C.

(t) A justification of any request for a waiver or waivers of the preparedness and prevention requirements of COMAR 10.51.05.03.

(u) A copy of the contingency plan required by COMAR 10.51.05.04.

(v) A description of procedures, structures, or equipment used at the facility to:

(i) Prevent hazardous discharge in unloading operations (for example, ramps, special forklifts);

(ii) Prevent runoff from hazardous waste handling areas to other areas of the facility or environment, or to prevent flooding (for example, berms, dikes, trenches);

(iii) Prevent contamination of water supplies;

S EPA ARCHIVE DOCUMENT

(iv) Mitigate effects of equipment failure and power outages;

(v) Prevent undue exposure of personnel to hazardous waste (for example, protective clothing).

(w) Traffic pattern, volume, and control (for example, show turns across traffic lanes, and stacking lanes if appropriate, provide access road surfacing and load bearing capacity, show traffic control signals, provide estimates of traffic volume (number of types of vehicles)).

(x) A description of precautions to prevent accidental ignition or reaction of ignitable, reactive, or incompatible wastes as required to demonstrate compliance with COMAR 10.51.05.02H including documentation demonstrating compliance with COMAR 10.51.05.02H(3).

2222

Supp. 20

· DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.07.02A

(y) The political jurisdiction in which the facility is proposed to be located.

(z) Floodmap.

(i) Owners and operators of all facilities shall provide an identification of whether the facility is located within a 100-year floodplain. This identification shall indicate the source of data for the determination and include a copy of the relevant Federal Insurance Administration (FIA) flood map, if used, or the calculations and maps used if a FIA map is not available. Information shall also be provided identifying the 100-year flood level and any other special flooding factors (for example, wave action) which shall be considered in designing, constructing, operating, or maintaining the facility to withstand washout from a 100-year flood.

(ii) If maps for the National Flood Insurance Program produced by the Federal Emergency Management Agency are available, they will normally be determinative whether a facility is located within or outside of the 100-year floodplain. However, if the FIA map excludes an area (usually areas of the floodplain less than 200 feet in width), these areas shall be considered and a determination made as to whether they are in the 100-year floodplain.

(iii) If FIA maps are not available for a proposed facility location, the owner or operator shall 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.

(aa) Owners and operators of facilities located in the 100-year floodplain shall provide the following information:

(i) Engineering analysis to indicate the various hydrodynamic and hydrostatic forces expected to result at the site as a consequence of a 100-year flood.

(ii) Structural or other engineering studies showing the design of operational units (for example, tanks, incinerators) and flood protection devices (for example, floodwalls, dikes) at the facility, and how these will prevent washout.

(iii) If applicable, and instead of A(4(aa)) and (ii), above, a detailed description of procedures to be followed to remove hazardous waste to safety before the facility is flooded, including: the timing of movement relative to flood levels, including estimated time to move the waste, to show that this movement can be completed before floodwaters reach the facility; a description of the location or locations to

Supp. 20

10.51.07.02A DEPARTMENT OF HEALTH AND MENTAL HYGIENE

which the waste will be moved and demonstration that those facilities will be eligible to receive hazardous waste in accordance with COMAR 10.51.01 — 10.51.10; the planned procedures, equipment, and personnel to be used and the means to ensure that the resources will be available in time for use; and the potential for accidental discharges of the waste during movement.

(bb) An outline of both the introductory and continuing training programs by owners or operators to prepare persons to operate or maintain the HWM facility in a safe manner as required to demonstrate compliance with COMAR 10.51.05.02G. A brief description of how training will be designed to meet actual job tasks in accordance with requirements in COMAR 10.51.05.02G(1)(c).

(cc) A copy of the closure plan and, when applicable, the postclosure plan required by COMAR 10.51.05.07H. Include, when applicable, as part of the plan, specific requirements in COMAR 10.51.05.09I; 10.51.05.10I, 10.51.05.11F, 10.51.05.12G, 10.51.05.13K, and 10.51.05.14J.

(dd) For existing facilities, documentation that a notice has been placed in the deed or appropriate alternate instrument as required by COMAR 10.51.05.07J.

(ee) The most recent closure cost estimate for the facility prepared in accordance with 40 CFR 264.142 plus a copy of the financial assurance mechanism adopted in compliance with 40 CFR 246.143.

(ff) When applicable, the most recent post-closure cost estimate for the facility prepared in accordance with 40 CFR 264.144 plus a copy of the financial assurance mechanism adopted in compliance with 40 CFR 264.145.

EPA ARCHIVE DOCUMENT

(gg) When applicable, a copy of the insurance policy or other documentation which comprises compliance with the requirements of 40 CFR 254.147. For a new facility, documentation showing the amount of insurance meeting the specification of 40 CFR 254.147(a) and, if applicable, 40 CFR 254.147(b), 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 40 CFR 254.147(c).

(hh) When appropriate, proof of coverage by a State financial mechanism in compliance with 40 CFR 264.149 - . . 150.

2224

Supp. 20

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.07.02A

(ii) 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 shall be shown on the map. The contour interval shall 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 management facilities located in mountainous areas should use larger contour intervals to adequately show topographic profiles of facilities. The map shall clearly show the following:

(i) Map scale and date;

(ii) 100-year floodplain area;

(iii) Surface waters including intermittent streams;

(iv) Surrounding land uses (residential, commercial, agricultural, recreational);

(v) A wind rose (for example, prevailing windspeed and direction);

(vi) Orientation of the map (north arrow);

(vii) Legal boundaries of the hazardous waste management facility site;

(viii) Access control (fences, gates);

(ix) Injection and withdrawal wells both on-site and off-site;

(x) Building, 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.);

(xi) Barriers for drainage or flood control;

(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).

(jj) Applicants may be required to submit such information as may be necessary to enable the Secretary to carry out his duties.

(5) Specific Information Requirements. The following additional information is required from owners or operators of specific types of

Supp. 20

EPA ARCHIVE DOCUMENT

2224-1

10.51.07.02A DEPARTMENT OF HEALTH AND MENTAL HYGIENE

hazardous waste management facilities that are used or to be used for storage, disposal, or treatment:

(a) For facilities that store containers of hazardous waste, except as otherwise provided in COMAR 10.51.05.09:

(i) A description of the containment system to demonstrate compliance with COMAR 10.51.05.09H. Show at least the following: basic design parameters, dimensions, and materials of construction; how the design promotes drainage or how containers are kept from contact with standing liquids in the containment system; capacity of the containment system relative to the number and volume of containers to be stored; provisions for preventing or managing run-on; how accumulated liquids can be analyzed and removed to prevent overflow.

(ii) Sketches, drawings, or data demonstrating compliance with COMAR 10.51.05.09F (location of buffer zone and containers holding ignitable or reactive wastes) and COMAR 10.51.05.09G(3) (location of incompatible wastes), when applicable.

(iii) When incompatible wastes are stored or otherwise managed in containers, a description of the procedures used to ensure compliance with COMAR 10.51.05.09G(1) and (2) and COMAR 10.51.05.02H(2) and (3).

(b) For facilities that use tanks to store or treat hazardous waste, except as otherwise provided in COMAR 10.51.05.10A, description of design and operation procedures which demonstrate compliance with requirements of all of COMAR 10.51.05.10, including:

(i) References to design standards or other available information used (or to be used) in design and construction of the tank;

(ii) A description of design specifications including identification of construction materials and lining materials (including pertinent characteristics such as corrosion or erosion resistance);

(iii) Tank dimensions, capacity, and shell thickness;

(iv) A diagram of piping, instrumentation, and process flow;

(v) Description of feed systems, safety cutoff, bypass, systems, and pressure controls (for example, vents);

(vi) Description of procedures for handling incompatible ignitable, or reactive wastes, including the use of buffer zones.

(c) For facilities that store, dispose, or treat hazardous waste in surface impoundments, except as otherwise provided in COMAR

2224-2

Supp. 20

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.07.02A

10.51.05.11, the owner or operator shall submit detailed plans and specifications accompanied by an engineering report which shall collectively include the information itemized in sub-paragraphs (i) — (xv). For new facilities, the plans and specifications shall be in sufficient detail to provide complete information to a contractor hired to build the facility even if the owner or operator intends to construct the facility without hiring a contractor. For existing facilities, comparable detail shall be provided, but the form of presentation need not assume contractor construction except to the extent that the facility will be modified.

(i) A statement of the minimum freeboard to be maintained at the facility and the basis of the design to demonstrate compliance with freeboard requirements of COMAR 10.51.05.11A-1(1) and B(1) and (2). For flow through facilities include a hydraulic profile.

(ii) Detailed drawings of the structure which is or will be provided to immediately stop flow into the impoundment to comply with COMAR 10.51.05.11A-1(2), or, if no structure is needed to comply with COMAR 10.51.05.11H(F-1)(3)(a), a description of the means by which waste additions will be stopped.

(iii) Detailed drawings of any dikes which exist or will be constructed.

(iv) A basis of design and design analysis of any dikes to comply with COMAR 10.51.05.11A-1(4) and G(1). The design analysis shall show that any dike will meet the requirements of COMAR 10.51.05.11E(3)(a).

(v) Detailed design drawings and specifications of liner or liners and the leachate detection, collection, and removal system and the basis of design and design analysis to comply with COMAR 10.51.05.11A-1(3), (4), (5), and C(2), (3), and (5).

(vi) Liner installation instructions to comply with the requirements of COMAR 10.51.05.11E(1). For existing facilities, when the owner or operator proposes to rely on existing liners, a description of the installation procedures used.

(vii) Design details of the leachate removal system, the basis. of design, and a description of the operating procedures to be used to ensure free flow from the collection system in accordance with COMAR 10.51.05.11B(3).

(viii) Design plans and specifications and basis of design of any structures needed to comply with COMAR 10.51.05.11B(5).

2224-3

Supp. 20

EPA ARCHIVE DOCUMENT

10.51.07.02A DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(ix) A description of the maintenance and repair procedures proposed to comply with COMAR 10.51.05.11B(4) and Regulation .02F(3).

(x) A description of the operating procedures that will ensure compliance with COMAR 10.51.05.11G and H.

(xi) A certification by a qualified engineer which complies with COMAR 10.51.05.11E(3). The owner or operator of a new facility shall submit a statement by a qualified engineer that he will provide such a certification upon completion of construction in accordance with the plans and specifications.

(xii) A description of the procedure to be used for removing a surface impoundment from service, as required under COMAR 10.51.05.11F-1(2) and (3). This information should be included in the contingency plan submitted under $\frac{5}{2}A(4\chi u)$.

(xiii) A description of how hazardous waste residues and contaminated materials will be removed from the unit at closure, as required under COMAR 10.51.05.11F(1)(a). For any wastes not to be removed from the unit upon closure, the owner or operator shall submit detailed plans and an engineering report describing how COMAR 10.51.05.11F(1)(b)-(d) and (2) will be complied with. This information should be included in the closure plan, and when applicable, the postclosure plan submitted under SA(4)(cc).

(xiv) If ignitable or reactive wastes are to be placed in a surface impoundment, an explanation of how COMAR 10.51.05.11G will be complied with.

EPA ARCHIVE DOCUMENT

(xv) If compatible wastes, or incompatible wastes and materials will be placed in a surface impoundment, an explanation of how COMAR 10.51.05.11H will be complied with.

(xvi) A description of the liner system. If an exemption from the requirement for a liner is sought as provided by COMAR 10.51.05.11A-1(6), submit detailed plans and engineering and hydrogeologic reports, as appropriate, describing alternate design and operating practices that will, in conjunction with location aspects, prevent the migration of any hazardous constituents into the ground water or surface water at any future time.

(d) For facilities that store or treat hazardous waste in waste piles, except as otherwise provided in COMAR 10.51.05.12.

(i) A description of practices to control wind dispersal (for example, cover or frequent wetting) of hazardous waste in piles so

2224-4

Supp. 20

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.07.02A

that the Secretary, when necessary, can specify appropriate control measures.

(ii) A detailed engineering description of the facility design including: a description of measures to divert run-on away from the pile; a description of the leachate and run-off collection and control system; a description of the foundation supporting the base; design specifications of the pile base and liner or liners including the estimated containment life of the base and the permeability of the liner or liners; estimated life of the hazardous waste pile; and if applicable under COMAR 10.51.05.12D(1)(a)(ii), a description of the leachate detection, collection, and removal system including the system's relation to the water table and a description of any efforts to control the water table.

(iii) A detailed description of the facility operating procedures which demonstrate compliance with COMAR 10.51.05.12C-1, D, E and F, including: a description of efforts to protect the containment system from plant growth which could puncture any component of the system; a description of design and operating procedures to properly manage and dispose of any leachate that is a hazardous waste; a description and listing of all equipment and procedures used to place the waste in or on the pile or to clean and expose the liner surface; and a description of efforts to separate hazardous waste that is incompatible with any waste or material stored nearby including the design specifications of any dike, berm, wall, or other device used to separate the materials.

(iv) If applicable under COMAR 10.51.05.12C-1, a description of the leachate detection, collection, and removal system including the system's relation to the water table and a description of any efforts to control the water table.

(v) If an exemption from COMAR 10.51.05.16 is sought as provided by COMAR 10.51.05.12B(8)(a), submit detailed plans and an engineering report describing how the requirements of COMAR 10.51.05.12B(8)(a)(i) — (iv) will be complied with.

(vi) 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 COMAR 10.51.05.12D and D-1. This information should be included in the inspection plan submitted under A(4)(s).

Supp. 20

EPA ARCHIVE DOCUMENT

2224-5
10.51.07.02A DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(vii) If treatment is carried out on or in the pile, details of the process and equipment used, and the nature and quantity of the residuals.

(viii) If ignitable or reactive wastes are to be placed in a waste pile, an explanation of how the requirements of COMAR 10.51.05.12E will be complied with.

(ix) If compatible wastes, or incompatible wastes and materials will be placed in a waste pile, an explanation of how COMAR 10.51.05.12F will be complied with.

(x) A description of how hazardous waste residues and contaminated materials will be removed from the waste pile upon closure. The owner or operator shall submit detailed plans and an engineering report describing how COMAR 10.51.05.12G will be complied with. This information should be included in the closure plan, and when applicable, the post-closure plan submitted under $\frac{2}{3}A(4)$ (c).

(xi) If an exemption from COMAR 10.51.05.06 is sought under COMAR 10.51.05.12B(8), submit detailed plans and an engineering report describing how the requirements of COMAR 10.51.05.12B(8)(a)(ii) will be complied with.

(e) For storage areas that store containers holding wastes that do not contain free liquids, a demonstration of compliance with COMAR 10.51.05.09G(1) and (2) and COMAR 10.51.05.02H(2) and (3), including:

(i) Test procedures and results or other documentation or information to show that the wastes do not contain free liquids;

S EPA ARCHIVE DOCUMENT

(ii) A description of how the storage area is designed or operated to drain and remove liquids or how containers are kept from contact with standing liquids;

(iii) Sketches, drawings, or data demonstrating compliance with COMAR 10.51.05.09F (location of buffer zone and containers holding ignitable or reactive wastes) and COMAR 10.51.05.09G (location of incompatible wastes), if applicable;

(iv) If incompatible wastes are stored or otherwise managed in containers, a description of the procedures used to ensure compliance with COMAR 10.51.05.09H.

(f) Land Treatment. For facilities that use land treatment to dispose of hazardous wasts, except as otherwise provided in COMAR 10.51.05.01:

2224-6

DEPOSAL OF HAZARDOUS SUBSTANCES 10.51.07.02A

(i) A description of plans to conduct a treatment demonstration as required under COMAR 10.51.05.13C. The description shall include information concerning the wastes for which the demonstration will be made and the potential hazardous constituents in the wastes, the data sources to be used to make demonstration (for example, literature, laboratory data, field data, or operating data), any specific laboratory or field test that will be conducted, including the type of test (for example, column leaching, degradation), materials and methods, including analytical procedures, expected time for completion, and characteristics of the unit that will be simulated in the demonstration, including treatment zone characteristics, climatic conditions, and operating practices.

(ii) A description of a land treatment program, as required under COMAR 10.51.05.13B. This information shall be submitted with the plan for the treatment demonstration, and updated following the treatment demonstration. The land treatment program shall address the following items:

(as) The wastes to be land treated;

(bb) Design measures and operating practices necessary to maximize treatment in accordance with COMAR 10.51.05.13D(1);

(cc) Wasta application method and rate;

(dd) Measures to control soil pH;

(ee) Enhancement of microbial or chemical reactions;

(ff) Control of moisture content;

(gg) Provisions for unsaturated zone monitoring, including: sampling equipment, procedures, frequency, procedures for selecting sampling locations, analytical procedures, chain of custody control, procedures for establishing background values, statistical methods for interpreting results;

(hh) The justification for any hazardous constituents recommended for selection as principal hazardous constituents, in accordance with the criteria for the selection in COMAE 10.51.05.13I(1);

(ii) 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 COMAR 10.51.05.02;

(ii) The proposed dimensions of the treatment zone.

Supp. 20

2224-7

10.51.07.02A DEPARTMENT OF HEALTH AND MENTAL HYDERT

(iii) A description of how the unit is or will be designed, conscrimed, operated, and maintained in order to meet the requirements of COMAR 10.51.05.13D. This submission shall address the following items:

(14) Control of run-on.

¥: ≧

(bb) Collection and control of run-off.

(ce) Minimization of run-off of hamirdous constituents from the treatment mae.

(dd) Management of collection and holding facilities and ciated with run-on and run-off control systems.

. (ee) Periodic inspection of the unit. This information should be included in the inspection plan submitted under $\frac{3}{4}$ (4)(4).

(ff) Control of wind dispersal of particulate matter, if applicable.

(iv) 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 COMAE 10.51.05.13G(1) was conducted including

(as) Characteristics of the food-chain crop for which the demonstration will be made;

(bb) Characteristics of the waste, treatment zone, and waste application method and rate to be used in the demonstration; -

(cc) Procedures for crop growth, sample collection, sample analysis, and data evaluation;

(dd) Characteristics of the comparison crop including the location and conditions under which it was or will be grown.

(v) If food-chain crops are to be grown, and endmium is present in the land treated waste, a description of how the requirements of COMAR 10.51.05.13G(5) will be complied with.

(vi) A description of the regetative cover to be applied to closed portions of the facility, and a plan for maintaining the cover during the post-closure cure period, as required under COMAR 10.51.05.13X(1Xh) and (3Xb). This information should be included in the closure plan and, when applicable, the post-closure cure plan submitted under §A(4Xcc).

DISPOSAL OF HAZABDOUS SUBSTANCES 10.51.07.02A

(vii) If ignitable or reactive wastes will be placed in or on the treatment zone, an explanation of how the requirements of COMAR 10.51.05.13L will be complied with.

(viii) If incompatible wastes, or incompatible wastes and materials, will be placed in or on the same treatment zone, an explanation of how COMAR 10.51.05.13M will be complied with.

(g) Landfills. For facilities that dispose of hazardous waste in landfills, except as otherwise provided in COMAR 10.51.05.01:

(i) A list of the hazardous wastes placed or to be placed in each landfill or landfill cell.

(ii) Detailed plan and an engineering report describing how the landfill is or will be designed, constructed, operated, and maintained to comply with the requirements of COMAR 10.51.05.14B. This submission shall address the following items as specified in COMAR 10.51.05.14B:

(aa) The liner system and leachate collection and removal system (except for an existing portion of landfill). If an exemption from the requirements for a liner and a leachate collection and removal system is sought as provided by COMAR 10.51.05.14B(2), submit detailed plans and engineering hydrogeologic reports as appropriate, describing alternate design and operating practices that will, in conjunction with location aspects, prevent the migration of any hazardous constituents into the ground water or surface water at any future time.

(bb) Control of run-on.

(cc) Control of run-off.

(dd) Management of collection and holding facilities associated with run-on and run-off control systems.

(ee) Control of wind dispersal of particulate matter, when applicable.

(iii) A description of how each landfill, including the liner and cover systems, will be inspected in order to meet the requirements of COMAR 10.51.05.13C(1) and (2). This information should be included in the inspection plan submitted under $\frac{2}{3}A(4)(s)$.

(iv) 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 COMAR 10.51.05.14J(1), and a description of how each landfill will be maintained and monitored after closure

Supp. 20

2224-9

10.51.07.02A DEPARTMENT OF HEALTH AND MENTAL HYGIENE

in accordance with COMAR 10.51.05.14J(2). This information should be included in the closure and post-closure plans submitted under $\frac{1}{2}A(4)(cc)$.

(v) If ignitable or reactive wastes will be landfilled, an explanation of how the requirements of COMAR 10.51.05.14L will be complied with.

(vi) If incompatible wastes, or incompatible wastes and materials will be landfilled, an explanation of how COMAR 10.51.05.14M will be complied with.

(vii) If containers of hazardous waste are to be landfilled, an explanation of how the requirements of COMAR 10.51.05.14O as applicable, will be complied with.

(6) Additional Information Requirements. 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 COMAR 10.51.05.06A(2):

(a) A summary of the ground water monitoring data obtained from the requirements of COMAR 10.51.05.08A — E, when applicable.

(b) Identification of the uppermost aquifer and aquifers hydraulically interconnected beneath the facility property, including ground water flow direction and rate, and the basis for the identification, such as the information obtained from hydrogeologic investigation of the facility area.

EPA ARCHIVE DOCUMENT

(c) On the topographic map required under $\frac{3}{4}(4\times)$, a delineation of the waste management area, the property boundary, the proposed point of compliance as defined under COMAR 10.51.05.06F, the proposed location of ground water monitoring wells as required under COMAR 10.51.05.06H and, to the extent possible, the information required in $\frac{3}{4}(6)(b)$.

(d) A description of any plume of contamination that has entered the ground water from a regulated unit at the time the application is submitted that:

(i) Delineates the extent of the plume on the topographic map required under $\frac{3}{4}$

(ii) Identifies the concentration of each Appendix V constituent from COMAR 10.51.02 throughout the plume or identifies the

2224-10

maximum concentrations of each Appendix V constituent in the plume.

(e) Detailed plans and an engineering report describing the proposed ground water monitoring program to be implemented to meet the requirements of COMAR 10.51.05.06H.

(f) If the presence of hazardous constituents has not been detected in the ground water at the time of permit application, the owner or operator shall submit sufficient information, supporting data, and analyses to establish a detection monitoring program which meets the requirements of COMAR 10.51.05.06L This submission shall address the following items as specified under COMAR 10.51.05.06L:

(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;

(ii) A proposed ground water monitoring system;

(iii) Background values for each proposed monitoring parameter or constituent, or procedures to calculate these values; and

(iv) A description of proposed sampling analysis and statistical comparison procedures to be used in evaluating ground water monitoring data.

(g) If the presence of hazardous constituents has been detected in the ground water at the point of compliance at the time of permit application, the owner or operator shall submit sufficient information, supporting data, and analyzes to establish a compliance monitoring program which meets the requirements of COMAR 10.51.05.06J. The owner or operator shall also submit an engineering feasibility plan for a corrective action program necessary to meet the requirements of COMAR 10.51.05.06K except as provided by COMAR 10.51.05.06I(8)(e). To demonstrate compliance with COMAR 10.51.05.06J, the owner or operator shall address the following items:

(i) A description of the wastes previously handled at the facility;

(ii) A characterization of the contaminated ground water, including concentrations of hazardous constituents;

(iii) A list of hazardous constituents for which compliance monitoring will be undertaken in accordance with COMAR 10.51.05.06H and J;

Supp. 20

EPA ARCHIVE DOCUMENT

2224-11

10.51.07.02A DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(iv) Proposed concentration limits for each hazardous constituent, based on the criteria set forth in COMAR 10.51.05.06E(1) including a justification for establishing any alternate concentration limits;

(v) Detailed plans and an engineering report describing the proposed ground water monitoring system, in accordance with the requirements of COMAR 10.51.05.06H; and

(vi) A description of proposed sampling, analysis and statistical comparison procedures to be used in evaluating ground water monitoring data.

(h) If hazardous constituents have been measured in the ground water which exceed the concentration limits established under COMAR 10.51.05.06E, Table 1, or if ground water monitoring conducted at the time of permit application under COMAR 10.51.05.06A - E at the waste boundary indicates the presence of hazardous constituents from the facility in ground water over background concentrations, the owner or operator shall submit sufficient information, supporting data, and analyses to establish a corrective. action program which meets the requirements of COMAR 10.51.05.06K. However, an owner or operator is not required to submit information to establish a corrective action program if he demonstrates to the Secretary that alternate concentration limits will protect human health and the environment after considering the criteria listed in COMAR 10.51.05.06E(2). An owner or operator who is not required to establish a corrective action program for this reason shall instead submit sufficient information to establish a compliance monitoring program which meets the requirements of COMAR 10.51.05.06J and §A(6)(g). To demonstrate compliance with COMAR 10.51.05.06K, the owner or operator shall address, at a minimum, the following items:

S EPA ARCHIVE DOCUMENT

(i) A characterization of the contaminated ground water, including concentration of hazardous constituents;

(ii) The concentration limit for each hexardous constituent found in the ground water as set forth in COMAR 10.51.05.06E;

(iii) Detailed plans and an engineering report describing the corrective action to be taken; and

(iv) A description of how the groundwater monitoring program will assess the adequacy of the corrective action.

2224 - 12

(7) Incineration. For facilities that incinerate hazardous waste, except as COMAR 10.51.05.15-1B provides otherwise, the application shall fulfill the requirements of $\SA(7)(a)$, (b), and (c):

(a) When seeking exemption under COMAR 10.51.05.15-1B (ignitable, corrosive or reactive wastes only), documentation that the waste is:

(i) Listed as a harmdous waste in COMAR 10.51.02.14 - .17 solely because it is ignitable (Hazard Code I), corrosive (Hazard Code C), or both;

(ii) Listed as a hazardous waste in COMAR 10.51.02.14 — .17 solely because it is reactive (Hazard Code R) for characteristics other than those listed in COMAR 10.51.02.12A(4) and (5), and will not be burned when other hazardous wastes are present in the combustion zone;

(iii) A hazardous waste solely because it possesses the characteristic of ignitability, corrosivity, or both, as determined by the tests for characteristics of hazardous waste under COMAR 10.51.02.10 - .11; or

(iv) A hazardous waste solely because it possesses the reactivity characteristics listed in COMAR 10.51.02.12A(1), (2), (3), (6), (7), or (8), and that it will not be burned when other hazardous wastes are present in the combustion zone.

(b) Submit a trial burn plan, or the results of a trial burn including all required determinations, conducted in accordance with §P.

(c) Instead of a trial burn, the applicant may submit the following information:

(i) An analysis of each waste or mixture of wastes to be burned including:

(aa) Heat value of the waste in the form and composition in which it will be burned.

(bb) Viscosity (if applicable), or description of physical, form of the waste.

(cc) An identification of any hazardous organic constituents listed in COMAR 10.51.02 Appendix V, which are present in the waste to be burned, except that the applicant need not analyze for constituents listed in COMAR 10.51.02. Appendix V, which would reasonably not be expected to be found in the waste. The constituents

2224-13

Supp. 20

S EPA ARCHIVE DOCUMENT

10.51.07.02A DEPARTMENT OF HEALTH AND MENTAL HYGIENE

excluded from analysis shall be identified and the basis for their exclusion stated. The waste analysis shall rely on analytical techniques specified in 40 C.F.R. Part 261, Appendix III.

(dd) An approximate quantification of the hazardous constituents identified in the waste, within the precision produced by the analytical methods specified in 40 C.F.R. Part 261, Appendix III.

(ee) A quantification of those hazardous constituents in the waste which may be designated as POHC's based on data submitted from other trial or operational burns which demonstrate compliance with the performance standard in COMAR 10.51.05.15-1F.

(ii) A detailed engineering description of the hazardous waste incinerator, including:

(as) Manufacturer's name and model number of incinera-

(bb) Type of incinerator;

tor;

(cc) Linear dimension of incinerator unit including cross sectional area of combustion chamber;

(dd) Description of auxilliary fuel system (type/feed);

(ee) Capacity of prime mover;

(ff) Description of automatic waste feed cutoff system or systems;

(gg) Stack gas monitoring and pollution control monitoring system;

(hh) Nozzle and burner design;

(ii) Construction materials;

S EPA ARCHIVE DOCUMENT

(jj) Location and description of temperature, pressure, and flow indicating devices and control devices.

(iii) A description and analysis of the waste to be burned compared with the waste for which data from operational or trial burns are provided to support the contention that a trial burn is not needed. The data should include those items listed in $\frac{3}{4}(7)(c)$. This analysis should specify the POHC's which the applicant has identified in the waste for which a permit is sought, and any differences from the POHC's in the waste for which burn data are provided.

(iv) The design and operating conditions of the hazardous waste incinerator unit to be used, compared with that for which comparative burn data are available.

2224-14

DESPOSAL OF HAZARDOUS SUBSTANCES 10.51.07.02A

(v) A description of the results submitted from any previous-Ty conducted trial burn or burns including:

(aa) Sampling and analysis techniques used to calculate performance standards in COMAR 10.51.05.15-1F;

(bb) Methods and results of monitoring temperatures, waste feed rates, carbon monoxide, and an appropriate indicator of combustion gas velocity (including a statement concerning the precision and accuracy of this measurement); and

(cc) The certification and results required by §P.

(vi) The expected hazardous waste incinerator operation information to demonstrate compliance with COMAR 10.51.05.15-1F and H including:

(aa) Expected carbon monoxide (CO) level in the stack exhaust gas;

(bb) Waste feed rate;

(cc) Combustion zone temperature;

(dd) Indication of combustion gas velocity;

(ee) Expected stack gas volume, flow rate, and tempera-

ture;

zone;

EPA ARCHIVE DOCUMENT

(ff) Computed residence time for waste in the combustion

(gg) Expected hydrochloric acid removal efficiency;

(hh) Expected fugitive emissions and their control procedures; and

(ii) Proposed waste feed cut-off limits based on the identified significant operating parameters.

(vii) Such supplemental information as the Secretary finds necessary to achieve the purpose of this paragraph.

(viii) Waste analysis data, including that submitted in §A(7XcXi), sufficient to allow the Secretary to specify as permit Principal Organic Hazardous Constituents (permit POHC's) the constituents for which destruction and removal efficiencies will be required.

(d) The Secretary shall approve a permit application without a trial burn if he finds that the:

(i) Wastes are sufficiently similar; and

Supp. 20

2224-15

10.51.07.02B DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(ii) Hazardous waste incinerator units are sufficiently similar, and the data from other trial burns are sufficiently similar, and the data from other trial burns are adequate to specify, under COMAR 10.51.05.15-1H operating conditions that will ensure that the performance standards in COMAR 10.51.05.15-1F will be met by the incinerator.

(8) Any facility with an effective permit shall submit to the Secretary a new application at least 180 days before the expiration date of the effective permit, unless permission for a later date has been granted by the Secretary. The later date may not be after the expiration date of the effective permit.

B. Signatories to Permit Applications and Reports.

(1) Applications. All permit applications shall be signed as follows:

(a) For a corporation, by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

(i) 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

(ii) 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 (in secondquarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

(b) For a partnership or sole proprietorship, by a general partner or the proprietor, respectively.

EPA ARCHIVE DOCUMENT

(c) For a municipality, State, federal, or other public agency, by either a principal executive officer or ranking elected official.

(2) Reports. All reports required by permits and other information requested by the Secretary, shall be signed by a person described in B(1), or by a duly authorized representative of that person. A person is a duly authorized representative only if:

(a) The authorization is made in writing by a person described in $\S E(1)$.

(b) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated

2224-16

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.07.02C

Tacility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position).

(c) The written authorization is submitted to the Secretary.

(3) Changes to Authorization. If an authorization under $\S B(2)$ is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of $\S B(2)$ shall be submitted to the Secretary before or together with any reports, information, or applications to be signed by an authorized representative.

(4) Certification. Any person signing a document under SB(1) or (2) shall make the following certification: I certify under penalty of law that I personally examined and am familiar with the information submitted in this document and all attachments, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

C. Conditions Applicable to All Permits. The following conditions apply to all permits. All conditions applicable to all permits, and all additional conditions applicable to all permits for individual programs, shall be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to these regulations shall be given the permit.

(1) Duty to Comply. The permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the appropriate Act and is grounds for:

(a) Enforcement action;

(b) Permit termination, revocation and reissuance, or modification; or

(c) Denial of a permit renewal application.

(2) Duty to Reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee shall apply for and obtain a new permit. This application shall be submitted at least 180 days before the expiration date of the effective permit, unless permission for a later date has

Supp. 20

1

EPA ARCHIVE DOCUMENT

2224-17

10.51.07.02C DEPARTMENT OF HEALTH AND MENTAL HYGIENE

been granted by the Secretary. This later date may not be later than the expiration date of the effective permit.

(?) Duty to Halt or Reduce Activity. It may 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.

(4) Duty to Mitigate. The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

(5) Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the couditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the 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 appropriate quality assurance procedures. 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.

(6) Permit Actions. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

EPA ARCHIVE DOCUMENT

(7) Property Rights. This permit does not convey any property rights of any sort, or any exclusive privilege.

(3) Duty to Provide Information. The permittee shall furnish to the Secretary within a reasonable time, any relevant information which the Secretary may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Secretary, upon request, copies of records required to be kept by this permit.

2224-18

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.07.02C

(9) Inspection and Entry. The permittee shall allow the Secretary, or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:

(a) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

(b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

(c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

(d) Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized, any substances or parameters at any location.

(10) Monitoring and Records.

(a) Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

(b) The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report, or application. This period may be extended by request of the Secretary at any time.

(c) Records of monitoring information shall include the:

(i) Date, exact place, and time of sampling or measurements;

(ii) Individual or individuals who performed the sampling or measurements;

(iii) Date or dates analyses were performed;

(iv) Individual or individuals who performed the analyses;

(v) Analytical techniques or methods used; and

(vi) Results of the analyses.

(11) Signatory Requirement All applications, reports, or information submitted to the Secretary shall be signed and certified.

Supp. 20

S EPA ARCHIVE DOCUMENT

2224-19

10.51.07.02C DEPARTMENT OF HEALTH AND MENTAL HYGENE

(12) Reporting Requirements.

EPA ARCHIVE DOCUMENT

(a) Planned Changes. The permittee shall give notice to the Secretary as soon as possible of any planned physical alterations or additions to the permitted facility.

(b) Anticipated Noncompliance. The permittee shall give advance notice to the Secretary of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

(c) Transfers. This permit is not transferable to any person except after notice to the Secretary. The Secretary shall require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary.

(d) Monitoring Reports. Monitoring results shall be reported at the intervals specified elsewhere in this permit.

(e) Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance achedule of this permit shall be submitted not later than 14 days following each schedule date.

(f) Twenty-Four Hour Reporting. The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A writtensubmission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. Both the oral and written reports shall follow the requirements of \$N(4) of this regulation. In addition, the written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including eract 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 reoccurrence of the noncompliance.

(g) Other Noncompliance. The permittee shall report all instances of noncompliance not reported under C(12Xd), (e), and (f) at the time monitoring reports are submitted. The reports shall contain the information listed in C(12Xf).

2224-20

DISPOSAL OF HAZARDOUS SUBSTANCES

(h) Other Information. If 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 Secretary, it shall promptly submit these facts or information.

D. Establishing Permit Conditions. In addition to conditions required by regulation, the Secretary may establish conditions as required on a case-by-case basis.

E. Duration of Permits.

(1) Permits shall be effective for a fixed term not to exceed 3 years.

(2) The Secretary may issue any permit for a duration that is less than the full allowable term under this section.

F. Schedules of Compliance.

(1) The permit may, when appropriate, specify a schedule of compliance leading to compliance with the appropriate Act and regulations.

(2) Time for Compliance. Any schedules of compliance under this section shall require compliance as soon as possible.

(3) Interim Dates.

Supp. 20

EPA ARCHIVE DOCUMENT

(a) Except as provided in F(5)(a)(i), if a permit establishes a schedule of compliance which exceeds 1 year from the date of permit issuance, the schedule shall set forth interim requirements and the dates for their achievement.

(b) The time between interim dates may not exceed 1 year.

(c) If the time necessary for completion of any interim requirement (such as the construction of a control facility) is more than 1 year and is not readily divisible into stages for 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.

(4) Reporting. The permit shall be written to require that notlater than 14 days following each interim date and the final date of compliance, the permittee shall notify the Secretary in writing of its compliance or noncompliance with the interim or final requirements.

(5) Alternate Schedules of Compliance. A permit applicant or permittee may cases conducting regulated activities (by receiving terminal volume of hezardous waste and for treatment and storage HWM facilities, closing pursuant to applicable requirements, and for

2224-21

10.51.07.02F DEPARTMENT OF HEALTH AND MENTAL HYCIENE

disposal HWM facilities, closing and conducting post-closure care pursuant to applicable requirements) rather than continue to operate and meet permit requirements as follows:

(a) If the permittee decides to cease conducting regulated activities at a given time within the term of a permit which has already been issued:

(i) The permit may be modified to contain a new or additional schedule leading to timely cessation of activities;

(ii) The permittee shall cease conducting permitted activities before noncompliance with any interim or final compliance schedule requirement.

(b) If the decision to cease conducting regulated activities is made before issuance of a permit whose term will include the termination date, the permit shall contain a schedule leading to termination which will ensure timely compliance with applicable requirements.

(c) If the permittee is undecided whether to cease conducting regulated activities, the Secretary may issue or modify a permit to contain two schedules as follows:

(i) Both schedules shall contain an identical interim deadline requiring a final decision on whether to cause conducting regulated activities not later than a date that ensures sufficient time to comply with applicable requirements in a timely manner if the decision is to continue conducting regulated activities.

(ii) One schedule shall lead to timely compliance with applicable requirements.

S EPA ARCHIVE DOCUMENT

(iii) The second schedule shall lead to cessation of regulated activities by a date which will ensure timely compliance with applicable requirements.

(iv) Each permit containing two schedules shall include a requirement that after the permittee has made a final decision under F(5)(c)(i) it shall follow the schedule leading to compliance 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.

(d) The applicant's or permittee's decision to cease conducting regulated activities shall be evidence by a firm public commitment satisfactory to the Secretary, such as a resolution of the board of directors of a corporation.

2224-21-1

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.07.02J

~G. Requirements for Recording and Reporting of Monitoring Results. All permits shall specify:

(1) Requirements concerning the proper use, maintenance, and installation, when appropriate, of monitoring equipment or methods (including biological monitoring methods when appropriate);

(2) Required monitoring including type, intervals, and frequency sufficient to yield data which are representative of the monitored activity including, when appropriate, continuous monitoring;

(3) Applicable reporting requirements based upon the impact of the regulated activity and as specified in COMAR 10.51.05. Reporting may not be less frequently than specified in the above regulations.

H. Effect of a Permit.

(1) The issuance of a permit does not convey any property rights of any sort, or any exclusive privilege.

(2) The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of local law or regulations.

I. 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 under §J, or a minor modification made to identify the new permittee and incorporate such other requirements as may be necessary.

J. Modification or Revocation and Reissuance of Permits.

(1) When the Secretary 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, or conducts a review of the permit file) he or she may determine whether or not one or more of the causes listed in \$J(1) and (2) for modification or revocation and reissuance, or both, exist. If cause exists, the Secretary may modify or revoke and reissue the permit accordingly, subject to the limitations of \$J(2), and may request an updated application if necessary. When a permit is modified, only the conditions subject to modification are reopened. If a permit is revoked and reissued, the entire permit is reopened and subject to revision and the permit is reissued for a new term. If cause does not exist under this section or \$L, the Secretary may not modify or revoke and reissue the permit. If a permit modification satisfies

2224-21-2

Supp. 20

EPA ARCHIVE DOCUMENT

10.51.07.02J DEPARTMENT OF HEALTH AND MENTAL HYGENE

the criteria in §L for "minor modifications" the permit may be modified without a draft permit or public review. Otherwise, a draft permit shall be prepared and other procedures of this chapter followed.

(2) Causes of Modification. The following are causes for modification but not revocation and reissuance of permits:

(a) Alterations. There are material and substantial alterations or additions to the permitted facility or activity which occur after permit issuance which justify the application of permit conditions that are different or absent in the existing permit.

(b) Information. The Secretary has received information. Permits may be modified during their terms for this cause only if the information was not available at the time of permit issuance (other revised regulations, guidance, or test methods) and would have justified the application of different permit conditions at the time of issuance.

(c) New Regulations. The standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued.

(d) Modification. The Secretary may modify a permit

(i) When modification of a closure plan is required by COMAR 10.51.05.07C(2) or H(2).

(ii) After the Secretary receives the notification of expected closure under COMAR 10.51.05.07D when the Secretary determines that extension of the 90 or 180 day periods under COMAR 10.51.05.07D, modification of the 30-year post closure period under COMAR 10.51.05.07G(1), continuation of security requirements under COMAR 10.51.05.07G(2), or permission to disturb the integrity of the containment system under COMAR 10.51.05.07G(3) are unwarranted.

S EPA ARCHIVE DOCUMENT

(iii) When the permittee has filed a request under 40 CFR 284.147(c) for a variance to the level of financial responsibility or when the Secretary demonstrates under 40 CFR 264.147(d) that an upward adjustment of the level of financial responsibility is required.

(iv) When the corrective action program specified in the permit under COMAR 10.51.05.06K has not brought the regulated unit into compliance with the ground water protection standard within a reasonable period of time.

(v) To include a detection monitoring program meeting the requirements of COMAR 10.51.05.061, when the owner or operator

2224-21-3

DESPOSAL OF HAZARDOUS SUBSTANCES 10.5

10.51.07.02K

has been conducting a compliance action program under COMAR 10.51.05.06K and the compliance period ends before the end of the post-closure care period for the unit.

(vi) When a permit requires a compliance monitoring program under COMAR 10.51.05.06J, but monitoring data collected before permit issuance indicate that the facility is exceeding the ground water protection standard.

(vii) To include conditions applicable to units at a facility that were not previously included in the facility's permit.

(viii) When a land treatment unit is not achieving complete treatment of hazardous constituents under its current permit conditions.

(e) Compliance Schedules. The Secretary 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 no reasonably available remedy.

(3) The suitability of the facility location may not be considered at the time of permit modification or revocation and reissuance unless new information or standards indicate that a threat to human health or the environment exists which was unknown at the time of permit issuance.

(4) Causes for Modification or Revocation and Reissuance. The following are causes to modify or, alternatively, revoke and reissue a permit:

(a) Cause exists for termination under §K of this regulation, and the Secretary determines that modification or revocation and reissuance is appropriate;

(b) The Secretary has received notification under C(12x) of a proposed transfer of the permit.

K. Termination of Permits.

(1) The following are causes for terminating a permit during its term, or for denying a permit renewal application:

(a) Noncompliance by the permittee with any condition of the permit;

(b) The permittee's failure in the 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

2224-21-4

Supp. 20

EPA ARCHIVE DOCUMENT

10.51.07.02L DEPARTMENT OF HEALTH AND MENTAL HYCIENE

(c) A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit modification or termination.

(2) The Secretary shall follow Regulation .03 in terminating any permit.

L. Minor Modifications of Permits. Upon the consent of the permittee, the Secretary may modify a permit to make the corrections or allowances for changes in the permitted activity listed in this section, without following the procedures of Regulation .03. Any permit modification not processed as a minor modification under this section shall be made for cause and with the draft permit and public notice as required in §J. Minor modifications may only:

(1) Correct typographical errors;

(2) Require more frequent monitoring or reporting by the permittee;

(3) Change an interim compliance date in a schedule of compliance, provided the new date is not more than 120 days after the date specified in the existing permit and does not interfere with attainment of the final compliance date requirement;

(4) Allow for a change in ownership or operational control of a facility if the Secretary determines that no other change in the pernuit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittees has been submitted to the Secretary;

(5) Change the lists of facility emergency coordinators or equipment in the permit's contingency plan; or

(6) In place of §L(5), above:

S EPA ARCHIVE DOCUMENT

(a) Change estimates of maximum inventory under COMAR 10.51.05.07C(1)(b);

(b) Change estimates of expected year of closure or schedules for final closure under COMAR 10.51.05.07C(1)(d); or

(c) Approve periods longer than 90 days or 180 days under COMAR 10.51.05.07D.

(7) Change the treatment program requirements for land treatment units made under COMAR 10.51.05.13B to improve treatment of hazardous constituents, provided the change is minor.

2224-21-5

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.07.02M

(8) Change any conditions specified in the permit for land treatment units to reflect the results of field tests or laboratory analyses used in making a treatment demonstration in accordance with M(2), provided that the change is minor.

(9) Allow a second treatment demonstration for land treatment to be conducted when the results of the first demonstration have not shown the conditions under which the waste or wastes can be treated completely as required by COMAR 10.51.05.13C(1), provided the conditions for the second demonstration are substantially the same as the conditions for the first demonstration.

(10) Change the ranges of the operating requirements set in a hazardous waste incinerator permit to reflect the results of the trial burn, provided that the change is minor.

(11) Change the operating requirements set in a hazardous waste incinerator permit for conducting a trial burn, provided that the change is minor.

(12) Grant one extension of the time period for determining operational readiness of a hazardous waste incinerator following completion of construction, for up to 720 hours operating time for incineration of hazardous waste.

M. Emergency Permits, Short Term Permits, and Phased Permits.

(1) Notwithstanding any other provision of this regulation, if the Secretary finds an imminent and substantial endangerment to human health or the environment, the Secretary may issue a temporary emergency permit to a facility to allow treatment, storage, or disposal of hazardous waste for a non-permitted facility or a hazardous waste not covered by the permit for a facility with an effective permit. This emergency permit:

(a) May be oral or written. If oral, it shall be followed within 5 days by a written emergency permit.

(b) May not exceed 90 days in duration.

(c) Shall clearly specify the hazardous wastes to be received, and the manner and location of their treatment, storage, or disposal.

(d) May be terminated by the Secretary at any time without process if he or she determines that termination is appropriate to protect human health and environment.

Supp. 20

EPA ARCHIVE DOCUMENT

2224-21-6

10.51.07.02M DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(e) Shall be accompanied by a public notice including:

(i) Name and address of the office granting the emergency authority;

(ii) Name and location of the permitted hazardous waste management facility;

(iii) A brief description of the wastes involved;

(iv) A brief description of the action authorized and reasons for authorizing it;

(v) Duration of the emergency permit.

(f) Shall incorporate, to the extent possible and not inconsistent with the emergency situation, all applicable requirements of COMAR 10.51.07 and .05.

(2) Short Term Permits.

(a) For the purpose of allowing an owner or operator to meet the treatment demonstration requirements of COMAR 10.51.05.13C, the Secretary may issue a treatment demonstration permit. The permit shall contain only those requirements necessary to meet the standards in COMAR 10.51.05.13C(3). 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.

(b) The Secretary may issue a two-phase facility permit if he finds that, based on information submitted in the application, substantial, although incomplete or inconclusive, information already exists upon which to base the issuance of a facility permit.

(c) If the Secretary 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 COMAR 10.51.05.13 he shall issue a treatment demonstration permit covering only the field test or laboratory analyses.

(3) Phased Permits.

(a) If the Secretary 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 of laboratory analyses. These permit conditions will include design and operating parameters (including the duration of the tests or analyses and, in the

2224-21-7

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.07.02M

case of field tests, the horizontal and vertical dimensions of the treatment zone), monitoring procedures, post-demonstration clean-up activities, and any other conditions which the Secretary finds may be necessary under COMAR 10.51.05.13C(3). The Secretary will include conditions in the second phase of the facility permit to attempt to meet all requirements pertaining to unit design, construction, operation, and maintenance in COMAR 10.51.05.13. The Secretary will establish these conditions in the second phase of the permit based upon the substantial but incomplete or inconclusive information contained in the application.

(b) The first phase of the permit will be effective as provided in Regulation .03L(3).

(c) The second phase of the permit will be effective as provided in M(5).

(4) When the owner or operator who has been issued a twophase permit has completed the treatment demonstration, he shall submit to the Secretary a certification, signed by a person authorized to sign a permit application or report under §B, that the field tests or laboratory analyses have been carried out in accordances with the conditions specified in phase one of the permit for conducting the tests or analyses. The owner or operator shall also submit all data collected during the field tests of laboratory analyses within 90 days of completion of those tests or analyses unless the Secretary approves a later date.

(5) Modification.

(a) If the Secretary determines that the results of the field tests or laboratory analyses meet the requirements of COMAR 10.51.05.13C, he will modify the second phase of the permit to incorporate any requirements necessary for operation of the facility in compliance with COMAR 10.51.05.13, based upon the results of the field tests or laboratory analyses.

(b) This permit modification may proceed as a minor modification under §L, provided any such change is minor, or otherwise will proceed as a modification under §J.

(c) If no modification of the second phase of the permit is necessary, or if only minor modifications are necessary and have been made, the Secretary 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 final decision on the

Supp. 20

EPA ARCHIVE DOCUMENT

2224-21-8

10.51,07.02N DEPARTMENT OF HEALTH AND MENTAL HYGIENE

second phase of the permit. The second phase of the permit then will become effective as specified in Regulation .03L(3).

(d) If modifications under §J are necessary, the second phase of the permit will become effective only after those modifications have been made.

N. Additional Conditions; Applicable Permita.

(1) The permittee need not comply with the conditions of this permit to the extent and for the duration the noncompliance is authorized in any emergency permit.

(2) The permittee shall maintain records from all ground monitoring wells and associated groundwater surface elevations, for the active life of the facility, and for disposal facilities for the post-closure care period.

(3) For a new hazardous waste management facility, the permittee may not begin treatment, storage, or disposal of hazardous water, 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:

(a) The permittee has submitted to the Secretary 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

(b) The Secretary has inspected the modified or newly constructed facility and finds it is in compliance with the conditions of the permit; or

US EPA ARCHIVE DOCUMENT

(c) Within 15 days of the date of the submission of the letter in SN(3)(a), the permittee has not received notice from the Secretary of his or her intent to inspect, prior inspection is waived, and the permittee may begin treatment, storage, or disposal of hazardous waste.

(4) The following shall be included as information which shall be reported orally within 24 hours as required by C(12)(f):

(a) Information concerning release of any hazardous waste that may cause an endangerment to public drinking water supplies.

(b) 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:

DESPOSAL OF HAZARDOUS SUBSTANCES 10.51.07.020

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JS EPA ARCHIVE DOCUMENT

(i) Name, address, and telephone number of owner or opera-

(ii) Name, address, and telephone number of the facility;

(iii) Date, time, and type of incident;

(iv) Name and quantity of material or materials involved;

 (\mathbf{v}) The extent of injurise, if any;

(vi) An assessment of actual or potential hazards to the environment and human health outside the facility, when this is applicable; and

(vii) Estimated quantity and disposition of recovered material that resulted from the incident. The Secretary may waive the 5-day written notice requirement in favor of a written report within 15 days.

(5) The following reports required by COMAR 10.51.05 shall be submitted in addition to those required by COMAR 10.51.05.07G:

(a) Manifest Discrepancy Report. If a significant discrepancy in a manifest is discovered, the permittee shall attempt to reconcile the discrepancy. If not resolved within 15 days, the permittee shall submit a letter report including a copy of the manifest to the Secretary.

(b) Unmanifested Waste Report. An unmanifested waste report shall be submitted to the Secretary within 15 days of receipt of unmanifested waste.

(c) Annual Report. An annual report shall be submitted covering facility activities during the previous calendar year.

(6) A list of the wastes or classes of wastes which will be treated, stored, or disposed of at the facility, and a description of the process to be used for treating, storing, and disposing of these hazardous wastes at the facility including the design capacities of each storage, treatment, and disposal unit. Except in the case of containers, the description shall identify the particular wastes or classes of wastes which shall be treated, stored, or disposed of in particular equipment or locations (for example, "Halogenated organics may be stored in Tank A," and "Metal hydroxide sludges may be disposed of in landfill cells B, C, and D").

O. Establishing Permit Conditions. In addition to the conditions established under §D, each permit shall include each of the applicable requirements of COMAR 10.51.05.

2224-21-10

10.51.07.02P DEPARTMENT OF HEALTH AND MENTAL HYCIENE

P. Hazardous Waste Incinerator Permits.

(1) Start-up.

(a) For the purposes of determining operational readiness following completion of physical construction, the Department will establish permit conditions, including but not limited to allowable waste feeds and operating conditions, in the permit for a new hazardous waste incinerator. These permit conditions will be effective for the minimum time required to bring the incinerator to a point of operational readiness sufficient to conduct a trial burn, not to exceed 720 hours operating time for incineration of hazardous wasta. The Department may extend the duration of this operational period once, for up to 720 additional hours, at the request of the applicant when good cause is shown. The permit may be modified to reflect the extension according to §L.

(b) Applicants shall submit a statement, with the permit application, which suggests the conditions necessary to operate in compliance with the performance standards of COMAR 10.51.05.15-1F during this period. This statement should include, at a minimum, restrictions on waste constituents, waste feed rates, and the operating perameters identified in COMAR 10.51.05.15-1H.

(c) The Department will review this statement and any other relevant information submitted with the permit application and specify requirements for this period sufficient to meet the performance standards of COMAR 10.51.05.15-1F based on its engineering judgment.

(2) Trial Burn.

(a) For the purposes of determining feasibility of compliances with the performance standards of COMAR 10.51.05.15-1F and of determining adequate operating conditions under COMAR 10.51.05.15-1H, the Department will establish conditions in the permit to a new hazardous waste incinerator to be effective during the trial burn.

(b) Applicants shall propose a trial burn plan, prepared under §P(2Xc).

(c) The trial burn plan shall include the following information:

(i) An analysis of each waste or mixture of wastes to be burned which includes:

(aa) Heat value of the waste in the form and composition in which it will be burned.

2224-21-11

DISPOSAL OF HAZABDOUS SUBSTANCES

10.51.07.02P

(bb) The viscosity (if applicable), or description of physical. form of the waste.

(cc) An identification of any hazardous organic constituents listed in COMAR 10.51.05.02, Appendix V, which are present in the waste to be burned, except that the applicant need not analyze for constituents listed in COMAR 10.51.05.02, Appendix V, which would reasonably not be expected to be found in the waste. The constituents excluded from analysis shall be identified, and the basis for their exclusion stated. The waste analysis shall rely on analytical techniques specified in 40 C.F.R. Part 261, Appendix III.

(dd) An approximate quantification of the hezardous constituents identified in the waste, within the precision produced by the analytical methods specified in 40 C.F.R. Part 261, Appendix III.

. (ii) A detailed engineering description of the hazardous waste incinerator for which the permit is sought including:

(aa) Manufacturer's name and model number of incinerator (if available);

(bb) Type of incinerator.

(cc) Linear dimensions of the incinerator unit including the cross sectional area of combustion chamber;

(dd) Description of the auxiliary fuel system (type/feed);

(se) Capacity of prime mover;

(if) Description of automatic wasts feed cut-off system or

systems;

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JS EPA ARCHIVE DOCUMENT

(gg) Stack gas monitoring and pollution control equip-

(hh) Nozzle and burner design:

(ii) Construction materials:

(ij) Location and description of temperature, pressure, and flow indicating and control devices.

(iii) A detailed description of sampling and monitoring procedures, including sampling and monitoring locations in the system, the equipment to be used, sampling and monitoring frequency, and planned analytical procedures for sample analysis.

(iv) A detailed test schedule for each waste for which the trial burn is planned including date or dates, duration, quantity of

2224-21-12

10.51.07.02P DEPARTMENT OF HEALTH AND MENTAL HYCIZNE

wasts to be burned, and other factors relevant to the Department's decision under $\frac{1}{2}P(2Xf)$.

(v) A detailed test protocol, including, for each waste identified, the ranges of temperature, waste feed rate, combustion gas velocity, use of auxiliary fuel, and any other relevant parameters that will be varied to affect the destruction and removal efficiency of the incinerator.

(vi) A description of, and planned operating conditions for any emission control equipment which will be used.

(vii) Procedures for rapidly stopping wasts feed, shutting down the incinerator, and controlling emissions in the event of an equipment malfunction.

(viii) Such other information as the Department reasonably finds necessary to determine whether to approve the trial burn plan in light of the purposes of this paragraph and the criteria in P(2Xi).

(d) The Department, in reviewing the trial burn plan, shall evaluate the sufficiency of the information provided and may require the applicant to supplement this information, if necessary, to achieve the purposes of this paragraph.

(e) Based on the weste analysis data in the trial burn plan, the Department will specify as trial Principal Organic Hazardous Constituents (POHC's), these constituents for which destruction and removal efficiencies must be calculated during the trial burn. These trial POHC's will be specified by the Department based on its estimate of the difficulty of incineration of the constituents identified in the waste analysis, their concentration or mass in the waste feed, and for wastes listed in COMAR 10.51.02.14 — .17, the hazardous waste organic constituent or constituents identified in Appendix V of COMAR 10.51.02 as the basis for listing.

EPA ARCHIVE DOCUMENT

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(f) The Department will approve a trial burn plan if it finds that the:

(i) Trial burn is likely to determine whether the hazardous waste incinerator performance standard required by COMAR 10.51.05.15-1F can be met;

(ii) Trial burn itself does not present an imminent hazard to human health or the environment;

(iii) Trial burn will help the Department determine operating requirements to be specified under COMAR 10.51.05.15-1H: and

2224-21-13

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.07.02P

(iv) Information sought in P(2)(f)(i) and (iii) cannot reasonably be developed through other means.

(g) During each approved trial burn (or as soon after the burn as is practicable), the applicant shall make the following determinations:

(i) A quantitative analysis of the trial POHC's in the wasts feed to the incinerator;

(ii) A quantitative analysis of the exhaust gas for the concentration and mass emissions of the trial POHC's oxygen (O_3) and hydrogen chloride (HCl);

(iii) A quantitative analysis of the scrubber water (if any), ash residues, and other residues, for the purpose of estimating the fate of the trial POHCs;

(iv) A computation of destruction and removal efficiency (DRE), in accordance with the DRE formula specified in COMAR 10.51.05.15-1F(1);

(v) If the HCl emission rate exceeds 1.8 kilograms of HCl per hour (4 pounds per hour), a computation of HCl removal efficiency in accordance with COMAR 10.51.05.15-1F(2);

(vi) A computation of particulate emissions, in accordance with COMAR 10.51.05.15-1F(3);

(vii) An identification of sources of fugitive emissions and their means of control;

(viii) A measurement of average, maximum, and minimum temperatures and combustion gas velocity;

(ix) A continuous measurement of carbon monoxide (CO) in the exhaust gas; and

(x) Such other information as the Department may specify as necessary to ensure that the trial burn will determine compliance with the performance standards in COMAR 10.51.05.15-1F and to establish the operating conditions required by COMAR 10.51.05.15-1H as necessary to meet those performance standards.

(h) The applicant shall submit to the Department a certification that the trial burn has been carried out in accordance with the approved trial burn plan, and shall submit the results of all the determinations required in SP(2Xg). This submission shall be made within 90 days of completion of the trial burn, or later if approved by the Department.

Supp. 20

2224-21-14

10,51.07.02P DEPARTMENT OF HEALTH AND MENTAL HYCIENT

(i) All data collected during any trial burn shall be submitted to the Department following the completion of the trial burn.

(1) All submissions required by this subsection shall be certified on behalf of the applicant by the signature of a person authorized to sign a permit application or a report under §B.

(k) Based on the results of the trial burn, the Department shall set the operating requirements in the final permit according to COMAR 10.51.05.15-1H. The permit modification shall proceed as a minor modification seconding to §L.

(3) Post Trial Burn.

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EPA ARCHIVE DOCUMENT

(a) For the purposes of allowing operation of a new hazardous waste incinerator following completion of the trial burn and before final modification of the permit conditions to reflect the trial burn results, the Department may establish permit conditions, including but not limited to allowable waste feeds and operating conditions sufficient to meet the requirements of COMAR 10.51.05.15-1H, in the permit for a new hazardous waste incinerator. These permit conditions will be effective for the minimum time required to complete sample analysis, data computation and submission of the trial burn results by the applicant, and modification of the facility permit by the Department.

(b) Applicants shall submit a statement, with the permit application, which identified the conditions necessary to operate in compliance with the performance standards of COMAR 10.51.05.15-1F during this period. This statement should include, at a minimum, restrictions on waste constituents, waste feed rates, and the operating parameters identified in COMAR 10.51.05.15-1H.

(c) The Department will review this statement and any other relevant information submitted with the permit application and specify those requirements for this period most likely to meet the performance standards of COMAR 10.51.05.15-1 based on its engineering judgment.

(4) For the purposes of determining feasibility of compliance with the performance standards of COMAR 10.51.05.15-1F and of determining adequate operating conditions under COMAR 10.51.05.15-1H, the applicant for a permit to an existing bazardous wasts incinerator may prepare and submit a trial burn plan and perform a trial burn in accordance with P(2xc) - (i). Applicants who submit trial burn plans and receive approval before submission of a permit application shall complete the trial burn and submit the results, specified in P(2xg).

2224-21-15

10.51.07.020 DESPOSAL OF HAZABDOUG SUBSTANCES

with the permit application. If completion of this process conflicts with the date set for submission of the application, the applicant shall contact the Department to establish a later date for submission of the application or the trial burn results. If the applicant submits a trial burn plan with Part B of the permit application, the trial burn shall be conducted and the results submitted within a time period to be specified by the Department.

Q. Permits for Land Treatment Demonstrations Using Field Test or Laboratory Analyses.

(1) General

(a) For the purpose of allowing an owner or operator to meet the treatment demonstration requirements of COMAR 10.51.05.13C. the Secretary may issue a treatment demonstration permit. The permit shall contain only those requirements necessary to meet the standards in COMAR 10.51.05.13C(3). 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.

(b) The Secretary may issue a two-phase facility permit if he finds that, based on information submitted in the application, substantial although incomplete or inconclusive information already exists upon which to base the issuance of a facility permit.

(c) If the Secretary 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 COMAR 10.51.05.13, he shall issue a treatment demonstration permit covering the field test or laboratory analyzes.

(2) Phased Permit.

(a) If the Secretary 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 laborator; analy--see. These permit conditions will include design and operating parameters (including the duration of the tests or analyses and, in thecase of field tests, the horizontal and vertical dimensions of the treatment zone), monitoring procedures, post-demonstration clean-up activities, and any other conditions which the Secretary finds may be necessary under COMAR 10.51.05.13C(3). The Secretary will include conditions in the second phase of the facility permit to attempt to most all COMAR 10.51.05.13 requirements pertaining to unit design.

Supp. 20

2224-21-16

US EPA ARCHIVE DOCUMENT

10.51.07.02Q DEPARTMENT OF HEALTH AND MENTAL HYCIENE

construction, operation, and maintenance. The Secretary will establish these conditions in the second phase of the permit based upon the substantial but incomplete or inconclusive information contained in the application.

(b) The first phase of the permit will be effective as provided in Regulation .03L(3) of this chapter.

(c) The second phase of the permit will be effective as provided in Q(4).

(3) Certification. When the owner or operator who has been issued a two-phase permit has completed the treatment demonstration, he shall submit to the Secretary a certification, signed by a person authorized to sign a permit application or report under §E(1) that the field tests or laboratory analyzes have been carried out in accordance with the conditions specified in phase one of the permit for conducting the tests or analyzes. The owner or operator shall also submit all data collected during the field tests or laboratory analyzes within 90 days of completion of those tests or analyzes unless the Secretary approves a later data.

(4) Modifications.

JS EPA ARCHIVE DOCUMENT

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(a) If the Secretary determines that the results of the field tests or laboratory analyses meet the requirements of COMAR 10.51.05.13, he will modify the second phase of the permit to incorporate any requirements necessary for operation of the facility in compliance with COMAR 10.51.05.13, based upon the results of the field tests or laboratory analyses.

(b) This permit modification may proceed as a minor modification under Regulation .OIL provided any change is minor, or otherwise will proceed as a modification under Regulation .O3J(1)(b).

(c) If no modifications of the second phase of the permit are necessary, or if only minor modifications are necessary and have been made, the Secretary 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 Regulation .03L(3).

(d) If modifications under Regulation .03J(1)(b) are necessary, the second phase of the permit will become effective only after those modifications have been made.

2224-21-17

DESPOSAL OF HARARDOUS SUBSTANCES

.03 Administrative Procedures.

A. Application for a Permit.

(1) Any person who requires a permit shall complete, sign, and submit to the Secretary an application.

(2) The Secretary may not begin the processing of a permit until the applicant has fully complied with the application requirements.

(3) Permit applications shall comply with the signature and certification requirements of Regulation .02B.

(4) The Secretary shall review for completeness each application for a permit. Each application for a permit submitted by a hazardous waste management facility should be reviewed for completeness by the Secretary within 60 days of its receipt. Upon completing the review, the Secretary shall notify the applicant in writing whether the application is complete. If the application is incomplete, the Secretary shall list the information necessary to make the application complete. After the application is completed, the Secretary may request additional information from an applicant but only when necessary to clarify, modify, or supplement previously submitted material. Requests for additional information may not render an application incomplete.

(5) If an applicant fails or refuses to correct deficiencies in the application, the permit may be denied and appropriate enforcement actions may be taken under the applicable statutory provision in State statutes.

(6) If the Secretary decides that a site visit is necessary for any reason in conjunction with the processing of an application, he or she shall notify the applicant and a date shall be scheduled.

(7) The effective date of an application is the date on which the Secretary notifies the applicant that the application is complete as provided in SA(4).

(8) For each application from a major hazardous waste management facility, the Secretary shall, not later than the effective date of the application, prepare and mail to the applicant a project decision schedule. The schedule shall specify target dates by which the Secretary intends to:

(a) Prepare a draft permit;

(b) Give public notice:

Supp. 20

2224-21-18

10.51.07.03B DEPARTMENT OF HEALTH AND MENTAL HYCIENE

 \sim (c) Complete the public comment period, including any public hearing;

(d) Issue a final permit.

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B. Modifications, Revocation and Reissuance, or Termination of Permits.

(1) Permits may be modified, revoked and reissued, or terminated either at the request of any interested person (including the permittee) or upon the Secretary's initiative. However, permits may only be modified, revoked and reissued, or terminated for the reasons specified in Regulation .02J and K. All requests shall be in writing and shall contain facts or reasons supporting the request.

(2) If the Secretary decides the request is not justified, he or she shall send the requester a brief written response giving a reason for the decision. Denials of requests for modification, revocation and reissuance, or termination are not subject to public notice, comment, or hearings. Denials by the Secretary may be informally appealed by a letter briefly setting forth the relevant facts. The appeal shall be made in accordance with COMAR 10.01.05.

(3) If the Secretary tentatively decides to modify or revoke and reissue a parmit under Regulation .02J, he shall propare a draft permit under §C of this regulation, incorporating the proposed changes. The Secretary 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 Secretary shall require the submission of a new application.

(4) In a permit modification under this regulation, only those conditions to be modified shall be reopened when a new draft permit is prepared. All other aspects of the existing permit shall remain in effect for the duration of the unmodified permit. When a permit is revoked and reissued under this regulation, the entire permit is reopened just as if the permit had expired and was being reissued. During any revocation and reissuance proceeding, the permittee shall comply with all conditions of the existing permit until a new final permit is reissued.

(5) Minor modifications are not subject to the requirements of this regulation. Minor modification is defined in Regulation .02L.

(6) If the Secretary tentatively decides to terminate a permit under Regulation .02L, he or the shall issue a notice of intent to terminate. A notice of intent to terminate is a type of draft permit

2224-21-19

DISPOSAL OF HAZARDOUS SUBSTANCES

which follows the same procedures as any draft permit prepared under §C of this regulation.

C. Draft Permits.

(1) Once an application is complete, the Secretary shall tentatively decide whether to prepare a draft permit or to deny the application.

(2) If the Secretary tentatively decides to deny the permit application, he or she shall issue a notice of intent to deny. A notice of intent to deny the permit application is a type of draft permit which allows the same procedures as any draft permit prepared under this section. If the Secretary's final decision is that the tentative decision to deny the permit application was incorrect, he or she shall withdraw the notice of intent to deny and proceed to prepare a draft permit under ${C(3)}$.

(3) If the Secretary decides to prepare a draft permit, he or she shall prepare a draft permit that contains the information described in §§C, D, F, G, N, and O of Regulation .02.

(4) All draft permits shall be accompanied by a statement of basis or fact sheet (§§D and E) and shall be based on the administrative record (§F), publicly noticed (§G), and made available for public comment (§H). The Secretary shall give notice of opportunity for the public hearing (§I), issue a final decision (§L), and respond to comments (§M). An appeal may be taken pursuant to COMAR 10.05.10. Draft permits prepared by the State shall be accompanied by a fact sheet if required under §E.

D. Statement of Basis. The Secretary shall prepare a statement of basis for every draft permit for which a fact sheet under §E is not prepared. The statement of basis shall briefly describe the derivation of the conditions of the draft permit and the reasons for them, or in the case of notices of intent to deny or terminate, reasons supporting the tentative decision. The statement of basis shall be sent to the applicant and, on request, to any other person.

E. Fact Sheet.

(1) A fact sheet shall be prepared for every draft permit for a major hazardous waste management facility and for every permit which the Secretary finds is the subject of widespread public interest

or raises major issues. 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 Secretary shall send this fact sheet to the applicant and, on request, to any other person.

Supp. 20

2224-21-20
10.51.07.03F DEPARTMENT OF HEALTH AND MENTAL HYGIENE

(2) The fact sheet shall include, when applicable:

(a) A brief description of the type of facility or activity which is the subject of the draft parmit;

(b) The type and quantity of wastes, fluids, or pollutants which are proposed to be or are being treated, stored, disposed of, injected, emitted, or discharged:

(c) A brief summary of the basis for the draft permit conditions including references to applicable statutory or regulatory provisions and appropriate supporting references to the administrative record required by §F.

(d) Ressons why any requested variances or alternatives to required standards do or do not appear justified;

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

(i) The beginning and ending dates of the comment period under §G, and the address where comments will be received,

(ii) Procedures for requesting a hearing and the nature of that hearing, and

(iii) Any other procedures by which the public may participate in the final decision;

(f) Name and telephone number of a person to contact for additional information.

F. Administrative Record for Draft Permits.

EPA ARCHIVE DOCUMENT

(1) The provisions of a draft permit prepared by the EPA under §C shall be based on the administrative record defined in this regulation.

(2) For preparing a draft permit under \$C, the record shall consist of:

(a) The application, if required, and any supporting data furnished by the applicant;

(b) The draft permit or notice of intent to deny the application or to terminate the permit;

(c) The statement of basis or fact sheet;

and

(d) All documents cited in the statement of basis or fact sheet;

2224-22

DISPOSAL OF HAZARDOUS SUBSTANCES 10.51.07.03G

(e) Other documents contained in the supporting file on the draft permit.

(3) Material readily available at the department or published material that is generally available, and that is included in the administrative record under §F(2), need not be physically included with the rest of the record as long as it is specifically referred to in the statement of basis or the fact sheet.

(4) This section applies to all draft permits when public notice was given after the effective date of these regulations.

G. Public Notice of Permit Actions and Public Comment Period.

(1) The Secretary shall give public notice that the following actions have occurred:

(a) A permit application has been tentatively denied;

(b) A draft permit has been prepared;

(c) Public hearings or informational meetings have been scheduled:

(d) An appeal has been granted.

(2) Public notice is not required when a request for permit modification, revocation and reissuance, or termination is denied. Written notice of that denial shall be given to the requester and to the permittee

(3) Public notices may describe more than one permit or permit action.

(4) Timing.

US EPA ARCHIVE DOCUMENT

(a) Public notice of the preparation of a draft permit (including a notice of intent to deny a permit application) required under §G(1) shall allow at least 45 days for public comment.

(b) Public notice of a public hearing shall be given at least 45 days before the hearing. Public notice of the hearing may be given at the same time as public notice of the draft permit and the two notices may be combined.

(5) Methods.

(a) Public notice of activities described in §G(1) shall be given by mailing a copy of a notice to the following persons (any person otherwise entitled to receive notice under this paragraph may waive his or her rights to receive notice for any classes and categories of permits):

2224-23

10.51.07.03G DEPARTMENT OF HEALTH AND MENTAL HYCIENE

(i) The applicant;

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JS EPA ARCHIVE DOCUMENT

• (ii) Any other agency who has issued or is required to issue a VIC, PSD. NPDES, or 404 permit for the same facility or activity;

(iii) Federal and State agencies with jurisdiction over fish, shellfish, and wildlife resources and over coastal zone management plans, the Advisory Council on Historic Preservation, State Historic Preservation Officers, and other appropriate government authorities, including any affected States; and

(iv) Persons on a mailing list. The list can be developed by:

(as) Including those who request in writing to be on the

(bb) Soliciting persons for "area lists" from participants in past permit proceedings in that area, and

(cc) Notifying the public of the opportunity to be put on the mailing list through periodic publication in the public press and in such publications as regional and State funded newsletters, environmental bulletins, or State law journals.

(b) All public notices issued under this section shall contain the following minimum information:

(i) Name and address of the office processing the permit action for which notice is being given;

(ii) Name and address of the permittee or permit applicant and, if different, of the facility or activity regulated by the permit;

(iii) A brief description of the business conducted at the facility or activity described in the permit application or the draft permit;

(iv) Name, address, and telephone number of a person from whom interested persons may obtain further information, including copies of the draft permit or draft general permit, as the case may be, statement of basis or fact sheet, and the application;

(v) A brief description of the comment procedures required by §§H and I and the time and place of any hearing that will be held, including a statement of procedures to request a hearing (unless a hearing has already been scheduled) and other procedures by which the public may participate in the final permit decision;

(vi) The location of the administrative record required by §F, the times at which the record will be open for public inspection.

2224-24

DESPOSAL OF HAZABOOUS SUBSTANCES

10.51.07.031 .

and a statement that all data submitted by the applicant is available as part of the administrative record.

(c) Public Notices for Hearings. In addition to the general public notice described in G(5)(a), the public notice of a hearing shall contain the following information:

(i) Reference to the date of previous public notices relating to the permit;

(ii) Date, time, and place of the hearing;

(iii) A brief description of the nature and purpose of the bearing, including the applicable regulations and procedures;

(iv) In addition to the general public notice described in G(5)(a), all persons identified in G(5)(a)(i),(ii), and (iii) shall be mailed a copy of the fact sheet or statement of basis, the permit application (if any), and the draft permit (if any).

H. Public Comments and Requests for Public Hearings.

(1) 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.

(2) A request for a public bearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing.

(3) All comments shall be considered in making the final deciation and shall be answered as provided in §M.

L Public Hearings.

(1) The Secretary shall hold a public hearing whenever he or she receives written notice of opposition to a draft permit and a request for a hearing within 45 days of public notice. The Secretary also may hold a public hearing at his or her discretion, whenever, for instance, a hearing might clarify one or more issues involved in the permit decision. Public notice of the hearing shall be given as specified in §G.

(2) Whenever a public hearing will be held, the Secretary shall designate a hearing officer who shall be responsible for its scheduling and orderly conduct.

(3) Any person may submit oral or written statements and data concerning the draft permit. Reasonable limits may be set upon the time allowed for oral statements, and the submission of statements in writing may be required. The public comment period under §G shall automatically be extended to the close of any public hearing

Supp. 15

2224-25

10.51.07.03J DEPARTMENT OF HEALTH AND MENTAL HYCERE

under this section. The hearing officer may also extend the comment period by so stating at the hearing.

(4) A tape recording or written transcript of the hearing shall be made available to the public.

(5) Whenever possible, the Secretary shall schedule a hearing under this section at a location convenient to the nearest population center to the proposed facility.

J. Obligation to Raise Issues and Provide Information During the Public Comment Period.

(1) All persons, including applicants, who believe any condition of a draft permit is inappropriate or that the Secretary's tentative decision to deny an application, terminate a permit, or prepare a draft permit is inappropriate, shall raise all reasonably ascertainable issues and submit all reasonably available arguments and factual grounds supporting their position, including all supporting material, by the close of the public comment period (including any public hearing) under §G.

(2) All supporting materials shall be included in full and may not be incorporated by reference, unless they are already part of the administrative record in the same proceeding, or consist of State or federal statutes and regulations, EPA documents of general applicability, or other generally available references materials.

(3) Commenters shall make supporting material not already included in the administrative record available to the Secretary. A comment period longer than 30 days will often be necessary in complicated proceedings to give commenters a reasonable opportunity to comply with the requirements of this section. Commenters may request longer comment periods and they should be freely established under §G to the extent they appear necessary.

K. Reopening of the Public Comment Period.

JS EPA ARCHIVE DOCUMENT

(1) If any data, information, or arguments submitted during the public comment period, including information or arguments required under §J appear to raise substantial new questions concerning a permit, the Secretary may take one or more of the following actions:

(a) Prepare a new draft permit, appropriately modified, under §C;

(b) Prepare a revised statement of basis, a fact sheet or revised fact sheet and reopen the commant period;

2224-28

(c) Reopen or extend the comment period to give interested persons an opportunity to comment on the information or arguments submitted.

(2) Comments filed during the responsed comment period shall be limited to the substantial new questions that caused its respaning. The public notice under §G shall define the scope of the respansing.

(3) The Secretary may also, in the circumstances described above, elect to hold further proceedings.

(4) Public notice of any of the above actions shall be issued under §G.

L. Issuance and Effective Date of Permit.

(1) After the close of the public comment period under §G on a draft permit, the Secretary shall issue a final permit decision. The Secretary shall notify the applicant and each person who has submitted written comments or requested notice of the final permit decision. This notice shall include reference to the procedures for appealing a decision on a permit or for contesting a decision to terminate a permit.

(2) For the purposes of this section, a final permit decision means a final decision to issue, deny, modify, revoke and reissue, or terminate a permit.

(3) A final permit decision shall become effective 30 days after the service of notice of the decision under §L(1), unless:

(a) A later effective date is specified in the decision;

(b) Review is requested, or an evidentiary hearing is requested under COMAR 08.05.06; or

(c) Comments do not request a change in the draft permit, in which case the permit shall become effective immediately upon issuance.

M. Response to Comments.

(1) At the time that any final permit is issued, the Secretary shall issue a response to comments. This response shall specify which provisions, if any, of the draft permit have been changed in the final permit decision, and the reasons for the change.

(2) Documents cited in the response to comments shall be included in the administrative record for the final permit decision. If new

Supp. 20

2224-27

10.51.07.04 DEPARTMENT OF HEALTH AND MENTAL HYGENS

points are raised or new material supplied during the public comment period, the State may document its response to those matters by adding new materials to the administrative record.

(3) The response to comments shall be available to the public.

.04 Permit Fees.

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A. The annual fee for a facility permit shall be \$50 as a minimum.

3. Permit fees shall be established based upon the following considerations:

(1) Acreage involved in the facility;

(2) Nature and quantity of the CHS handled at the facility;

(3) The threat that the CHS may present to human health or

(4) The anticipated costs of monitoring and regulating the dispo-

(5) The anticipated costs attributable to the removing and properly disposing of all CHS that may escape from a facility; and

(6) Anticipated needs for program development activities relating to CHS.

.05 Limited Facility Permits for Thermal Destruction Facilities other than Hazardous Waste Incinerators.

A. Permits Required.

(1) A person may not thermally destroy hazardous waste in an installation other than a hazardous waste incinerator without first obtaining a Limited Facility Permit and an air quality operating permit, except that an electric generating station is not required to obtain an air quality operating permit.

(2) The effects of these regulations with respect to persons who have submitted timely applications under SE(2) shall be stayed until the Department has either issued or denied the Limited Facility Permit, but only so long as the applicant operates in compliance with the terms and conditions of an approval issued by the Department under COMAR 10.18.11.08.

(3) Upon issuance of the Limited Facility Permit, the terms and conditions of the Limited Facility Permit will supersede the terms and conditions of any approval issued under COMAR 10.18.11.06.

2224-28

Disposal of Hazabixus Substances

B. Application for a Limited Facility Permit.

(1) A person may apply to the Department for a Limited Facility Permit on an application provided by the Department. The application shall include the following information:

(a) Identification of the application and a description of the installation in which the thermal destruction is to take place.

(b) The characteristics and quantity of the hazardous waste to be thermally destroyed. For ignitable, corresive, reactive hazardous waste, the applicant shall submit evidence of the exemption under COMAR 10.51.05.15E(2).

(c) A waste analysis plan as described in COMAR 10.51.05.02D(2).

(d) A general inspection schedule as described in COMAR 10.51.05.02F(2).

(e) A contingency plan as described in COMAR 10.51.05.04.

(f) A closure plan as described in COMAR 10.51.05.07C, except that COMAR 10.51.05.07C(4) regarding public comment on the closure plan does not apply to permits issued under this regulation.

(g) A closure cost estimate, as described in COMAR 10.51.05.08C, evidence of financial responsibility, as described in COMAR 10.51.05.08D, and evidence of insurance, as described in COMAR 10.51.05.08H. A cost estimate for post-closure care and financial assurance for post-closure is not required for facilities thatthermally destroy hazardous waste.

(h) A person who has received an exemption under COMAR 10.51.05.15-1B(2) shall also comply with COMAR 10.51.05.01 - .05, .07, and .08.

(i) Any other information the Department may request in order to make a determination under this regulation.

(j) The signature on the application of the applicant, if the applicant is an individual person, or of a person who is a responsible official as described in Regulation .02B(1) of the organization, if the applicant is a business, governmental, or other organization entity.

(2) An installation subject to $\frac{5}{4}(1)$ that was in operation on the effective date of these regulations shall apply to the Department for a Limited Facility Permit on an application provided by the Department within 6 months of the effective date of this regulation. The application shall contain the information requested in $\frac{5}{4}(1)$.

2224-29

10.51.07.05 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

C. Issuance of a Limited Facility Permit.

(1) General. Applications for a Limited Facility Permit will be reviewed and a permit issued by the Department based on the combustion efficiency and capacity of the installation to be used to destroy the waste. In determining the approvability of an application, the Department will consider the characteristics of the components in the waste and the capability of the installation to dispose of the waste in a manner that will have no adverse impact on the environment or on persons living in the area of the installation proposed to be used.

(2) Specific Requirements. A permit may be issued if the following requirements are met:

(a) The burner within the installation shall be of a type and size to burn the specified wasts and the heat energy demand of the installation shall be constant during the time when the waste is burned or otherwise capable of maintaining the required combustion conditions.

(b) The stack height of the installation shall be consistent with good engineering practice.

(c) The installation shall be operated and maintained by a person directly assigned to those responsibilities.

(d) The discharge of components of the waste or products of combustion of the waste, including sulfur, lead, and halogenated compounds, may not cause a violation of any ambient air quality standards at COMAR 10.18.03 and COMAR 10.18.04 or cause a threat to public health.

(e) If PCB's are present in the waste to be destroyed, the PCB content of the waste shall be within allowable limits for the selected installation as specified by the U.S. EPA.

D. Permit Conditions and Procedures.

US EPA ARCHIVE DOCUMENT

(1) The conditions and procedures specified at Regulation .02C - M as applicable to facility permits shall also apply to Limited Facility Permits.

(2) The Department may establish conditions on a permit for the purpose of monitoring and controlling the efficiency of combustion of the waste, the products of combustion in the exhaust, or the composition of the waste feed.

2224-30

Supp. 20

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(3) The Department will deny an application for a Limited Facility Permit if it determines that the requirements of §§B and D of this regulation or any other applicable requirements under this subtitle have not been satisfied.

E. Permit Duration. A Limited Facility Permit under this regulation is valid for 3 years unless modified, revoked, or terminated under Regulation .02J or Regulation .03B.

Administrative History

Regulations .01 - .05 adopted as an emergency provision effective November 18, 1960 (7:25 Md. R. S-1); adopted permanently effective April 3, 1981 (8:7 Md. R. . 642)

Regulation .01 amended effective January 18, 1982 (9:1 Md. R. 20)

Regulation .02A -- F repealed, and new .02A -- O adopted effective January 31, 1983 (10:2 Md. R. 110)

Begulations .02A, B, F, J, L, M, N. .03A, B, C, L, M amended and .01C, P, and .05 adopted effective February 13, 1984 (11:3 Md. R. 202)

Regulations .02A, C. J. .03I amended and .01D, E and .02Q adopted effective July 30, 1984 (11:15 Md. R. 1330)

Regulation .03A - E repealed, and new .03A - M adopted effective January 31. 1983 (10:2 Md. R. 110)

Regulation .05 repealed effective January 31, 1983 (10:2 Md. R. 110)

Title 10 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

Subtitle 51 DISPOSAL OF CONTROLLED HAZARDOUS SUBSTANCES

Chapter 08 Public Access to Information

Authority: Natural Resources Article, §8-1413.2, Annotated Code of Maryland

Repealed

Administrative History

Regulation .01 adopted as an emergency provision effective November 18, 1980 (7:25 Md. R. S-1); adopted permanently effective April 3, 1981 (8:7 Md. R. 642) Chapter repealed effective January 18, 1982 (9:1 Md. R. 20)

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Title 10

DEPARTMENT OF HEALTH AND MENTAL HYGIENE

Subtitle 51 DISPOSAL OF CONTROLLED HAZARDOUS SUBSTANCES

Chapter 09 Right of Condemnation

Authority: Health-Environmental Article, §2-206 et seq., Annotated Code of Maryland

.01 Determination by the Department.

The Department, pursuant to the applicable provisions of the Real Property Article, may condemn any land or facility used for disposal of CHS if it detarmines any of the following:

A. The condemnation is necessary to provide for proper perpetual care and monitoring of the facility;

B. Future disturbance of the land poses a substantial threat to the natural resources of the State; or

C. The facility poses a substantial threat to the public health.

Administrative History

Regulation .01 adopted as an emergency provision effective November 18, 1980 (7:25 Md. R. S-1); adopted permanently effective April 3, 1981 (8:7 Md. R. 642)

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Title 10 DEPARTMENT OF HEALTH AND MENTAL HYGIENE

Subtitle 51 DISPOSAL OF CONTROLLED HAZARDOUS SUBSTANCES

Chapter 10 Enforcement

Authority: Health-Environmental Article, §2-206, Annotated Code of Maryland

.01 Enforcement Provisions.

A. Violation of any of the provisions of these regulations shall be subject to the civil and criminal liabilities as specified in the Annotated Code of Maryland.

B. At the direction of the Department, an operator can be made to close his entire facility if any portion of it is not, at the determination of the Department, in substantial compliance with the applicable requirements of this subtitle.

C. Fine and Bond Schedule. Reserved

Administrative History

Regulation .01 adopted as an emergency provision effective November 18, 1980 (7:25 Md. R. S-1); adopted permanently effective April 3, 1981 (8:7 Md. R. 642)

Subtitle 52 PREVENTIVE MEDICINE

Authority: Health-General Article, §§2-104(i) and 2-105(a), Annotated Code of Maryland

Notice of Final Action

[88-435-F]

On January 3, 1989, amendments to Regulations .03, .04, .05, .07, .09, .10, and .15 under COMAR 10.52.06 Maryland AIDS Drug Assistance Program: Eligibility, and Regulation .12 under COMAR 10.52.07 Maryland AIDS Drug Assistance Program: Services, were adopted by the Secretary of Health and Mental Hygiene. These amendments, which were proposed for adoption in 15:22 Md. R. 2589 – 2590 (October 21, 1988), have been adopted as proposed.

Effective Date: February 6, 1989.

ADELE WILZACK Secretary of Health and Mental Hygiene

Title 11 DEPARTMENT OF TRANSPORTATION

Subtitle 17 MOTOR VEHICLE ADMINISTRATION — DRIVER LICENSING AND IDENTIFICATION DOCUMENTS

11.17.13 Point System: Definition of Moving Violation and Assessment of Points

> Authority: Transportation Article, §16-402, Annotated Code of Maryland

Notice of Final Action

[88-466-F]

On December 23, 1988, new Regulations .01 and .02 under a new chapter, COMAR 11.17.13 Point System: Definition of Moving Violation and Assessment of Points, were adopted by the Motor Vehicle Administrator. These new regulations, which were proposed for adoption in 15:23 Md. R. 2693 – 2695 (November 4, 1988), have been adopted as proposed.

Effective Date: February 6, 1989.

W. MARSHALL RICKERT Administrator Motor Vehicle Administration

Title 12 DEPARTMENT OF PUBLIC SAFETY AND CORRECTIONAL SERVICES

Subtitle 10 CORRECTIONAL TRAINING COMMISSION

12.10.01 General Regulations

Authority: Article 41, §4-301, Annotated Code of Maryland

Notice of Final Action [88-378-F]

On November 23, 1988, amendments to Regulation .05 under COMAR 12.10.01 General Regulations were adopted by the Secretary of Public Safety and Correctional Services. This action was taken at a public meeting, notice of which was given in the Maryland Register pursuant to State Government Article, §10-506(c), Annotated Code of Maryland.

These amendments, which were proposed for adoption in 15:20 Md. R. 2366 - 2367 (September 23, 1988), have been adopted as proposed.

Effective Date: February 6, 1989.

BISHOP L. ROBINSON Secretary of Public Safety and Correctional Services

Title 26 DEPARTMENT OF THE ENVIRONMENT

Code of Maryland Regulations Publication

[89-02-20]

New Title 26 Department of the Environment, Part 2, is now available for purchase and delivery from the Division of State Documents. This title replaces portions of existing Title 10 Department of Health and Mental Hygiene. During the 1987 legislative session, the General Assembly passed and the Governor signed a law that reorganized these chapters under the Department of the Environment. This law further provided that the regulations continue in effect under the new Department.

New Title 26 Department of the Environment, Part 2, reflects this governmental reorganization and contains the official text of the regulations of this Department as promulgated through August 1, 1988. New, amended, or repealed regulations effective after this date appear in the Maryland Register under the new codification as outlined below. Title 26, Part 1, was published previously and is also available for purchase.

Title 26 Department of the Environment, Part 2, contains the following chapters:

Subtitle 11 AIR QUALITY

- 26.11.01 General Administrative Provisions
- 26.11.02 Permits, Approvals, and Registration
- 26.11.03 State-Adopted National Ambient Air Quality Standards and Guidelines
- 26.11.04 State Ambient Air Quality Standards
- 26.11.05 Air Pollution Episode System
- 26.11.06 General Emission Standards, Prohibitions, and Restrictions
- 26.11.07 Open Fires
- 26.11.08 Control of Incinerators
- 26.11.09 Control of Fuel Burning Equipment and Stationary Internal Combustion Engines
- 26.11.10 Control of Iron and Steel Production Installations
- 26.11.11 Control of Petroleum Refineries and Petroleum Installations, Including Asphalt Paving, Asphalt Concrete Plants, Motor Vehicle Fuel Storage and Use of Waste Oils
- 26.11.12 Control of Batch Type Hot-Dip Galvanizing Installations
- 26.11.13 Control of Gasoline and Other Volatile Organic Compound Storage and Handling
- 26.11.14 Control of Kraft Pulp Mill TRS Emissions
- 26.11.15 Toxic Air Pollutants
- 26.11.16 Control of Glass Melting Furnaces
- 26.11.17 Bubbles, Banking and Offsets
- 26.11.18 Control of Agriculturally Related Installations
- 26.11.19 Volatile Organic Compounds from Specific Processes
- 26.11.20 Mobile Sources
- 26.11.21 Control of Asbestos

Subtitle 12 RADIATION MANAGEMENT

26.12.01 Radiation Project

EPA ARCHIVE DOCUMENT

26.12.02 Inspection and Certification

Subtitle 13 DISPOSAL OF CONTROLLED HAZARDOUS SUBSTANCES

- 26.13.01 Hazardous Waste Management System: General
- 26.13.02 Identification and Listing of Hazardous Waste
- 26.13.03 Standards Applicable to Generators of Hazardous Waste
- 26.13.04 Standards Applicable to Transporters of Hazardous Waste
- 26.13.05 Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
- 26.13.06 Site Selection for CHS Facilities
- 26.13.07 Permits for CHS Facilities
- 26.13.08 Rights of Condemnation
- 26.13.09 Enforcement
- 26.13.10 Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities

The following table converts the previous codification, as used by the Department of Health and Mental Hygiene, to the codification now in use by the Department of the Environment:

Previous Citation	Redesignation
10.14.02.01	26.12.01
10.14.02.0206	26.12.02
10.18.0117	26.11.0117
10.18.18 and .19 (Repealed)	
10.18.2023	26.11.1821
10.51.0107	26.13.0107
10.51.08 (Repealed)	
10.51.0911	26.13.0810