

## Chapter 854: Standards for Hazardous Waste Facilities

**SUMMARY:** This rule specifies the standards applicable to the establishment, construction, alteration and operation of waste facilities for hazardous waste in Maine.

**1. Legal Authority.** This rule is promulgated under 38 M.R.S.A. Section 1301, *et seq.*, which prohibits the establishment, construction, alteration or operation of a waste facility for hazardous waste without a license and authorizes the Board of Environmental Protection to adopt rules establishing standards for the licensing of these facilities.

**2. Preamble.** It is the purpose of the Department of Environmental Protection, consistent with legislative policy, to provide necessary controls over hazardous waste facilities so as to ensure the protection of public health, safety, welfare and the environment.

The Board of Environmental Protection will administer this rule in a conservative fashion because it recognizes that many unknowns remain about the short-term and long-term impacts of hazardous waste to public health and natural ecosystems. The intent of this rule is to protect the public health, safety, and general welfare and the environment; the burden of proof shall rest with each applicant seeking a license for a waste facility for hazardous waste to affirmatively demonstrate that the intent of this rule will be met at all times.

**3. Definitions.** For purposes of this rule, terms not defined in this section shall have the meaning given them in 38 M.R.S.A., Sections 361-A and 1303-C. The following terms as used in this rule shall have the following meaning unless the context indicates otherwise.

**A. Aboveground tank.** "Aboveground tank" means a device meeting the definition of "tank" which is situated in such a way that the entire surface area of the tank is completely above the plane of the adjacent surrounding surface and the entire surface area of the tank (including the tank bottom) can be visually inspected.

**B. Active Life.** "Active life" means the period from the initial receipt of hazardous waste at the facility until the Department receives certification of final closure.

**C. Ancillary equipment.** "Ancillary equipment" means any device including, but not limited to, such devices as piping, fittings, flanges, valves, and pumps, that is used to distribute, meter, or control the flow of hazardous waste from its point of generation to a storage or treatment

tank(s), between hazardous waste storage or treatment tanks to a point of disposal on-site, or to a point of shipment for disposal offsite.

**E. Claims made policy.** "Claims made policy" means an insurance policy that provides coverage for an occurrence for which a claim arising out of the occurrence is made during the term of the policy or any extension thereof.

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

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

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

**H. Dike.** "Dike" means a berm, embankment or ridge of either natural or man-made materials used to prevent the lateral movement of liquids, sludges, solids or other materials.

**I. Existing tank system.** "Existing tank system" or "existing component" means a tank system or component used for the storage or treatment of hazardous waste that is in operation, or which installation has commenced on or prior to July 14, 1986. Installation will be considered to have commenced if the owner or operator has obtained all Federal, State, and local approvals or permits necessary to begin physical construction of the site or installation of the tank system and if either (1) a continuous on-site physical construction or installation program has begun, or (2) the owner or operator has entered into contractual obligations, which cannot be canceled or modified without substantial loss, for physical construction of the site or installation of the tank system to be completed within a reasonable time.

**J. Final Closure.** "Final closure" means the closure of all hazardous waste management units at the facility in accordance with all applicable requirements so that hazardous waste management activities are no longer conducted, except as provided in Chapter 851, Section 8(B).

**K. Food chain crops.** "Food chain crops" means tobacco, crops grown for human consumption, and crops grown for feed for animals whose products are consumed by humans.

**L. Freeboard.** "Freeboard" means the vertical distance between the top edge of a tank or surface impoundment dike and the surface of the waste contained therein.

**M. Hazardous waste incinerator.** "Hazardous waste incinerator" means an enclosed device using controlled flame combustion, a purpose of which is to thermally break down hazardous waste. Examples of incinerators are rotary kiln, fluidized bed, and liquid injection incinerators, cement kilns and boilers used to thermally treat hazardous waste.

**N. Hazardous Waste Management Unit.** "Hazardous waste management unit" as is defined in 40 CFR 260.10.

**O. Hydraulic conductivity.** "Hydraulic conductivity" means a recognized measure of water permeability under standard conditions of hydraulic head.

**P. Inground tank.** "Inground tank" means a device meeting the definition of tank whereby a portion of the tank wall is situated to any degree within the ground, thereby preventing visual inspection of that external surface area of the tank that is in the ground.

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

**R. Landfill.** "Landfill" is defined as is defined in 40 CFR 260.10.

**S. Land treatment.** "Land treatment" means the treatment of hazardous waste by application onto or incorporation into the soil surface so that the waste is rendered nonhazardous by soil processes. A land treatment facility is a disposal facility if the waste will remain after use of the facility ceases.

**T. Leachate.** "Leachate" means any liquid or semi-liquid, including any suspended components therein, that has percolated through or drained from hazardous waste.

**U. Leak detection system.** "Leak detection system" means a system capable of detecting the failure of either the primary or secondary containment structure or the presence of a release of hazardous waste or accumulated liquid in the secondary containment structure. Such a system must employ operational controls (e.g., daily visual inspections) or consist of

an interstitial monitoring device designed to detect continuously and automatically the failure of the primary or secondary containment structure or the presence of a release of hazardous waste into the secondary containment structure.

**V. Abbreviated License.** "Abbreviated License" means authorization to establish, construct, alter or operate a facility upon and for so long as the facility is in compliance with requirements established by Chapter 856, Section 11.

**W. Miscellaneous unit.** "Miscellaneous unit" means a hazardous waste management unit where hazardous waste is treated, stored, or disposed of and that is not a container, tank, surface impoundment, waste pile, land treatment unit, landfill, incinerator (including boiler or industrial furnace), or underground injection well.

**X. Mobile treatment facility.** "Mobile treatment facility" means a facility or unit capable of being moved and operated at hazardous waste sites for a limited period of time at a generator's site. In order to qualify as a "mobile treatment facility" units located at generator sites must be operational at more than one site in a calendar year.

**Y. New tank system.** "New tank system" means a tank system or component that will be used for the storage or treatment of hazardous waste and for which installation has commenced after July 14, 1986.

**Z. On ground tank.** "On ground tank" means a device meeting the definition of tank which is situated in such a way that the bottom of the tank is on the same level as the adjacent surrounding surface so that the external tank bottom cannot be visually inspected.

**AA. Partial Closure.** "Partial closure" means the closure of a hazardous waste management unit in accordance with the applicable closure requirements of Chapters 855 and 856 at a facility that contains other active hazardous waste management units.

**BB. Principal hazardous constituents (PHC).** "Principal hazardous constituents" (PHC) means the hazardous constituents identified in Chapter 850, Appendix VIII.

**CC. Representative sample.** "Representative sample" means a sample of a universe or whole which can be expected and demonstrated to exhibit the average properties of the universe or whole.

**DD. Run-off.** "Run-off" means any rainwater, leachate or other liquid that drains from any part of the facility property over land, including land which

is part of the facility property as defined in Chapter 856, Section 3 and land which is not.

**EE. Run-on.** "Run-on" means any rainwater, leachate or other liquid that drains onto any part of the facility property over land, including land which is part of the facility property as defined in Chapter 856, Section 3 and land which is not.

**FF. Seepage lagoon.** "Seepage lagoon" means any lagoon in which seepage of liquid hazardous waste or leachate through its base or sides is the intended method of disposal of liquids from the lagoon.

**GG. Storage.** "Storage" means the containment of hazardous waste, either on a temporary basis or for a period of years, in such a manner as not to constitute disposal of the hazardous waste.

**HH. Sump.** "Sump" means any pit or reservoir that meets the definition of tank and those troughs/trenches connected to it that serve to collect hazardous waste for transport to hazardous waste storage, treatment, or disposal facilities.

**II. Surface impoundment.** "Surface 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 or holds an accumulation of liquid wastes or wastes containing free liquids, and which is not an injection well. Examples of surface impoundments are holding, storage, treatment, settling and aeration pits, ponds and lagoons.

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

**KK. "Tank system"** means a hazardous waste storage or treatment tank and its associated ancillary equipment and containment system.

**LL. Thermal treatment.** "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.

**MM. Treatment.** "Treatment" means any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to

neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to handle; or amenable for recovery, amenable for storage, or reduced in volume.

**NN. Trust fund.** "Trust fund" means a trust, established by the owner or operator of a hazardous waste facility and administered by a financial institution with fiduciary responsibility to carry out the terms of the trust, in which funds are held for the purpose of assuring proper closure and/or post-closure care of the facility.

**OO. Underground injection.** "Underground injection" means the subsurface emplacement of fluids through a bored, dug, drilled or driven well, or a subsurface waste disposal system including, but not limited to, a septic tank, cesspool, drainage field, seepage lagoon, salt dome formation, salt bed formation, underground mine or cave.

**PP. Underground tank.** "Underground tank" means a device meeting the definition of tank whose entire surface area is totally below the surface of and covered by the ground.

**QQ. Unfit for use tank system.** "Unfit for use tank system" means a tank system that has been determined through an integrity assessment or other inspection to be no longer capable of storing or treating hazardous waste without posing a threat of release of hazardous waste to the environment.

**RR. Waste pile.** "Waste pile" means any non-containerized accumulation of solid, nonflowing hazardous waste that is used for storage of the waste prior to treatment or disposal.

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

**4. References to Federal Regulations.** Portions of this rule refer to federal regulations of the United States Environmental Protection Agency (EPA). Unless otherwise specified, the federal regulations referenced are those interim final or final regulations revised as of July 1, 1988, as they appeared in volume 40 of the Code of Federal Regulations (CFR). Where specifically stated, the terms of a referenced federal regulation are hereby adopted as terms of this rule, except that in regulations incorporated thereby, "EPA" shall mean "the Maine Department of Environmental Protection (DEP)"; "Administrator", "Regional Administrator" and "Director" shall mean "the Maine Board of Environmental Protection or its designated representative", and the phrase "treat, store, and/or dispose" shall mean "handle". In addition, where the terms of federal regulations

hereby incorporated by reference differ from or are inconsistent with other terms of this Chapter or Chapters 850-860, the more stringent of the requirements shall apply. Other changes to regulations incorporated hereby are as expressly made in this rule.

## **5. Environmental Performance Standards**

**A.** All hazardous waste facilities shall be located, designed, constructed, altered, operated, maintained and closed in a manner that will assure protection of human health and welfare and the environment. Protection of human health and welfare and the environment shall include, but not be limited to:

(1) Prevention of adverse effects on ground water quality considering:

(a) The volume and physical and chemical characteristics of the waste in the facility, including its potential for migration through soil or through synthetic liner materials;

(b) The hydrogeological characteristics of the facility and surrounding land;

(c) The quantity, quality and directions of ground water flow;

(d) The proximity and withdrawal rates of ground water users;

(e) The existing quality of ground water, including other sources of contamination and their cumulative impact on the ground water;

(f) The potential for health risks caused by human exposure to waste constituents;

(g) The potential damage to wildlife, crops, vegetation and physical structures caused by exposure to waste constituents;

(h) The persistence and permanence of the potential adverse effects; and

(2) Prevention of adverse effects on surface water quality considering:

(a) The volume and physical and chemical characteristics of the waste in the facility;

(b) The hydrogeological characteristics of the facility and surrounding land, including the topography of the area around the facility;

(c) The quantity, quality and directions of ground water flow;

(d) The patterns of rainfall in the region;



- (e) The proximity of the facility to surface waters;
  - (f) The uses of nearby surface waters and any water quality standards established for those surface waters;
  - (g) The existing quality of surface water, including other sources of contamination and their cumulative impact on surface water;
  - (h) The potential for health risks caused by human exposure to waste constituents;
  - (i) The potential damage to wildlife, crops, vegetation and physical structures caused by exposure to waste constituents;
  - (j) The persistence and permanence of the potential adverse effects; and
- (3) Prevention of adverse effects on air quality, considering:
- (a) The volume and physical and chemical characteristics of the waste in the facility, including its potential for volatilization and wind dispersal;
  - (b) The existing quality of the air, including other sources of contamination and their cumulative impact on the air;
  - (c) The potential for health risks caused by human exposure to waste constituents;
  - (d) The potential damage to wildlife, crops, vegetation and physical structures caused by exposure to waste constituents;
  - (e) The persistence and permanence of the potential adverse effects; and
- (4) Prevention of adverse effects due to migration of waste constituents in the subsurface environment, considering:
- (a) The volume and physical and chemical characteristics of the waste in the facility, including its potential for migration through soil;
  - (b) The geologic characteristics of the facility and surrounding land;
  - (c) The patterns of land use in the region;
  - (d) The potential for migration of waste constituents into subsurface physical structures;
  - (e) The potential for migration of waste constituents into the root zone of food chain crops and other vegetation;



(f) The potential for health risks caused by human exposure to waste constituents;

(g) The potential damage to wildlife, crops, vegetation and physical structures caused by exposure to waste constituents; and

(h) The persistence and permanence of the potential adverse effects.

**B.** The treatment or disposal of hazardous waste at a facility by means of evaporation is prohibited.

**C.** The burning of hazardous waste in a cast iron and fire-tube boiler or in a boiler having a capacity level of less than 25 million Btu per hour is prohibited.

**D.** The disposal of hazardous waste within the coastal waters of this State is prohibited. In addition, the disposal of hazardous waste in any ocean waters by a resident of this state is prohibited except that this prohibition shall not apply to ocean waters which are within the jurisdiction of another state.

**E.** The placement of any hazardous waste into any salt dome formation, salt bed formation, underground mine or cave, and the underground injection of hazardous waste, is prohibited.

## **6. General Standards**

**A.** The standards set forth in this section are applicable to all waste facilities for hazardous waste, except as specifically provided otherwise in this rule or in Chapter 856. An applicant for a license must demonstrate in his application that the facility has been designed, will be established, constructed or altered and will operate in compliance with these standards. A licensee must operate the facility so as to comply with these standards.

**B.** The plans, specifications, descriptions and other documentation submitted by the applicant in support of his application and approved by the Board in issuing the license constitute terms of the license which must be complied with by the licensee. These plans, specifications, descriptions and other documentation include, without limitation, those required by Chapter 856, Section 10 and this rule.

**C.** The facility must be established, constructed, altered and operated in compliance with the following requirements:

(1) this rule;

- (2) 40 CFR 264.12, Required Notices, which is hereby adopted and incorporated by reference, provided, however, that the phrase "of this Part and Part 270 of this chapter" in 40 CFR 264.12(c) shall mean "of this Chapter and Chapter 856";
- (3) 40 CFR 264.13 as revised on August 17, 1988 (53 FR 31211), Waste Analysis, which is hereby adopted and incorporated by reference, provided, however, that all references to 40 CFR Part 268 or sections or subparts thereof shall mean "Chapter 852", all references to "this part" shall mean "this Chapter", the phrase "Part 270 and Part 124 of this chapter" in 40 CFR 264.13(a)(1) shall mean "Chapter 856", all references to "Part 261" shall mean "Chapter 850", the reference to "Sections 264.17, 264.314, 264.341 and 268.2 of this Chapter" shall mean "this Chapter and Chapter 852", and the phrase "Section 260.22 of this Chapter" in 40 CFR 264.13(b)(7)(iii) shall mean "Chapter 850";
- (4) 40 CFR 264.14, Security, which is hereby adopted and incorporated by reference;
- (5) The daily inspection requirements of Chapter 856, Section 10B(3) and 40 CFR 264.15, General Inspection Requirements, which is hereby adopted and incorporated by reference, provided, however, that any references to sections of 40 CFR Part 264 shall mean "this Chapter";
- (6) 40 CFR 264.16, Personnel Training, which is hereby adopted and incorporated by reference. In addition, the training program must be approved by the Department prior to operation of the facility;
- (7) 40 CFR 264.17, 264.31-264.37, Preparedness and Prevention, which are hereby adopted and incorporated by reference, provided, however, that references to "Section 264.13" shall mean "subsection (3) above". In addition, the precautions required to be taken by 40 CFR 264.17 must meet applicable requirements of codes, standards and rules of the Department of Public Safety (State Fire Marshal's Office); the aid agreements required by 264.37 must be in writing, on file with each party to the agreement and with the Department, readily accessible to facility personnel, and reviewed and updated annually; and the facility owner or operator shall provide copies of the agreement to all parties thereto and shall file a copy with the Department prior to the commencement of operation of the facility and upon each update of the agreement;
- (8) 40 CFR 264.51-264.56, Contingency Plan and Emergency Procedures, which are hereby adopted and incorporated by reference, provided, however, that the reference in 40 CFR 264.52(b) to "Part 112 of this chapter,

or Part 1510 of Chapter V" shall read "Part 112 or Part 1510 of EPA regulations";

NOTE: Applicable facilities must also comply with Chapter 856, Section 13(A)(14).

(9) The owner or operator must keep a written record at the facility. The following information must 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 method(s) and date(s) of its treatment, storage, or disposal at the facility as required by Appendix I to 40 CFR Part 264, which is hereby adopted and incorporated by reference, provided that references to Section 264.73 shall mean "this subsection", and references to "Part 261 of this chapter" or sections or subparts thereof shall mean "Chapter 850";

(b) The information specified in 40 CFR 264.73(b)(2)-(16) as revised on August 17, 1988 (53 FR 31211), which is hereby adopted and incorporated by reference, provided, however, that all references to Part 264 or subparts or sections thereof shall mean "applicable provisions of Chapter 852";

(10) 40 CFR 264.74, Availability, Retention, and Disposition of Records, which is hereby adopted and incorporated by reference, provided, however, that the reference to "section 264.73(b)(2)" shall mean "subsection (9)(b) above".

(11) 40 CFR 264.75, Annual Report, which is hereby adopted and incorporated by reference, provided, however, that references to sections within 40 CFR Part 264 shall mean "Chapter 854", other comparable forms may be required by the Department, and the report must be prepared and submitted annually no later than March 1st for the preceding calendar year;

(12) 40 CFR 264.76, Unmanifested Waste Report, which is hereby adopted and incorporated by reference, provided, however, that the reference to "Section 263.20(e)(2)" shall mean "Section 7B of Chapter 857", and the reference to 40 CFR 261.5 shall mean "Section 3(A)(5) of Chapter 850";

(13) In addition to submitting annual reports and unmanifested waste reports as specified in subsections (11) and (12) above, the owner/operator must also report to the Department releases, fires, and explosions as specified in subsection (8) above, facility closures, reports as mandated in other provisions of this Chapter; and other reports, concerning quantities and handling of hazardous waste, as deemed necessary by the Department for effective management of wastes.

(14) Chapter 857, Manifest Requirements;

(15) 40 CFR 264.111-264.115, closure for all facilities, and 40 CFR 264.116-264.120 post closure requirements for all disposal facilities, and waste piles, surface impoundments, and tanks closing as landfills as those provisions were revised on September 2, 1988 (53 FR 34086), Closure and Post Closure Care, which are hereby adopted and incorporated by reference, provided, however, that:

(a) references to other sections or subparts of 40 CFR 264 shall mean "this Chapter";

(b) references to 40 CFR Part 270 or Part 124, or sections or subparts thereof, shall mean "Chapter 856";

(c) references to 40 CFR Part 262 shall mean "Chapter 851";

(d) 40 CFR 264.112(e) shall be deleted;

(e) certification of closure of any unit (not just land disposal units as provided in 40 CFR 264.115) used to handle hazardous wastes shall be required within 60 days of completion of closure; and

(f) the notification of closure required by 40 CFR 264.112(d) shall be provided at least 180 days prior to the date on which closure is expected to begin.

(16) The financial requirements of 40 CFR 264.141-264.143 and 264.147-264.151 for all facilities, and 40 CFR 264.144-264.146 for all facilities subject to post-closure requirements, as those provisions were revised on September 1, 1988 (53 FR 33950), which are hereby adopted and incorporated by reference, provided, however that:

(a) references to other sections or subparts of 40 CFR 264 shall mean "this Chapter";

(b) references to sections or subparts of 40 CFR Part 265 shall mean "Chapter 855";

(c) references to "section 3008 of RCRA" shall mean "applicable Board or Department procedures";

(d) references to sections or subparts of 40 CFR Parts 124 or 270 shall mean "Chapter 856"; and

(e) liability coverage shall not be demonstrated through a financial test or corporate guarantee, therefore 40 CFR 264.147(a)(2), (b)(2) and (3),(f), and (g); and 40 CFR 151(g) and (h)(2) shall be deleted; and combinations of coverage shall not include the financial test or corporate guarantee.

(f) when a financial test is selected as the method of providing closure or post-closure assurance, the applicant must include in the application the most current copy of Form 10K as filed with the Securities and Exchange Commission or equivalent financial information. A current copy of Form 10K or equivalent financial information must be submitted to the Department with the annual fee each year for the term of the license.

(g) any trust agreement must provide that the trustee is prohibited from investing trust funds in Commodities, Real Estate Investment Trusts (REITs), Corporate or Municipal Bonds which have not received the highest rating by Moody's Investment Service or Standard & Poor's, equity shares of firms which are not subject to regulation by the Securities and Exchange Commission, Foreign Currency speculation or in any other investment vehicle that is not consistent with the "Prudent Man" concept as it would apply to assuring that funds are available for carrying out a future activity with vital public interest. The agreement must also provide that primary consideration in making investments must be given to prompt liquidity and face value of assets held in trust.

(h) the owner or operator must pay into a closure or post-closure trust fund according to the following requirements:

(i) The owner or operator shall deposit 25 percent of the sum required into the trust fund on the date his facility license is issued. The license is not effective until the deposit is made.

(ii) The remaining 75 percent of the sum required, adjusted for inflation, must be deposited in the trust fund in equal installments on or prior to the anniversary of the date upon which the license was issued, in each remaining year of the term of the license. The license remains in effect only if each deposit is made. The obligation to make deposits ceases only upon an approved transfer of the license or upon full payment.

(iii) After the last annual deposit to the trust fund, subsequent annual deposits to account for inflation must be made over the life of the facility. The license remains in effect only if these deposits are made. The obligation to make deposits ceases only upon an approved transfer of the license or upon accomplishment of closure.

(iv) If the Board determines that the costs of closure or post-closure are increased, it may require the owner or operator to deposit additional funds into the trust fund by single deposit or according to a schedule. If according to a schedule, adjustment for inflation must be made for each deposit after the first. The license remains in effect only if the additional deposits are made. The obligation to make deposits ceases only upon an approved transfer of the license or full payment or upon accomplishment of closure or termination of the post-closure care period.

(v) If a license is suspended or revoked, the Board may require deposits to be made according to (i), (ii), (iii), and (iv) above or may impose an accelerated schedule or may require immediate full payment, with adjustment for estimated inflation.

(vi) When computing the annual inflation adjustment for closure or post-closure trust funds, the owner or operator must use the Implicit Price Deflator for Gross National Product as published by the Department of Commerce in "Survey of Current Business."

NOTE: Sample Computation:

1980 Implicit Price Deflator 177.36 = 1.09\*

1979 Implicit Price Deflator 162.77

\* Adjustment Factor

Assuming that the initial closure cost estimate, prepared in 1979, was \$25,000, then  $\$25,000 \times 1.09 = \$27,250$  (new adjusted closure cost requirement). The licensee would then be required to adjust the monetary value of the funding instrument to reflect the new adjusted monetary amount, or portion thereof.

(i) The owner or operator must submit with his application and must submit annually thereafter proof of liability insurance for the facility for sudden and accidental occurrences. Coverage must be provided during active life and closure and, where wastes will remain on the facility property after closure, during the post-closure period. The level of coverage must be at least one million dollars per occurrence and two million dollars annual aggregate, unless because of a greater risk a higher minimum is required by the Board for a particular facility.

(j) The owner or operator of a facility that utilizes a landfill, land treatment, surface impoundment or underground storage in tanks to handle hazardous waste or of a facility where hazardous waste will or is likely to remain on the facility property after closure must submit with his application and must

submit annually thereafter proof of liability insurance for the facility for non-sudden and accidental occurrences. Coverage must be provided during active life and for so long as any waste remains on the facility property but for no longer than the post-closure period. The level of coverage must be at least three million dollars per occurrence and six million dollars annual aggregate, unless because of a greater risk a higher minimum is required by the Board for a particular facility.

(k) Wording of liability insurance endorsements must be identical to the wording contained in 40 CFR 264.151(i) except that subparagraph 2(b) shall read: "The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement by the insured for any such payment made by the Insurer."

(l) All liability insurance coverage amounts must be exclusive of legal defense costs.

(m) A financial test may not be utilized in lieu of liability insurance nor may an owner or operator self-insure. If liability insurance is unavailable, a \$2,000,000 letter of credit drawn on a reputable bank, the terms of which the Board must approve, may be utilized in lieu of liability insurance for sudden and accidental occurrences.

(n) If a liability insurance policy is written as a "claims made" policy, an endorsement must provide for a discovery period of at least twelve (12) months beyond the date of expiration or cancellation of the policy. The endorsement must also provide that the underwriter will notify the public according to the requirements below:

(i) At least sixty (60) days prior to the date upon which the policy will expire or be canceled, give written notification to all owners of property abutting the facility and to the chief elected official in the municipality in which the facility is located and in each of the municipalities immediately abutting the municipality in which the facility is located, that insurance for the facility will expire or be canceled, giving date of expiration or cancellation, and that claims against the insured must be filed within twelve (12) months from the date of expiration or cancellation, specifying where and how claims can be filed;

(ii) During the first, third, sixth and ninth month subsequent to the date of expiration or cancellation, place in each of the State's major newspapers (Portland Press Herald, Bangor Daily News, Lewiston Sun, Kennebec Journal, and Waterville Sentinel) and in all local newspapers published or widely distributed in the municipality where the facility is located an



advertisement designed to attract notice and containing the information specified in i. above.

(17) Chapter 851, Section 8 A & B, Pre-Transport Requirements.

(18) 40 CFR 264.101, Corrective Action for Solid Waste Management Units, which is hereby adopted and incorporated by reference.

**D.** No person shall own or operate a waste facility for hazardous waste without having obtained a hazardous waste facility identification number specific to the site.

(1) The identification number shall be comprised of the identification number assigned to the facility by the U.S. Environmental Protection Agency (EPA) and/or any identifying number or letter as may be assigned by the Department.

NOTE: An owner or operator must apply to EPA for an identification number in accordance with the EPA notification procedures described in 45 Federal Register 12746.

**E.** An applicant must demonstrate in his application sufficient financial capacity, including projections of utilization of the facility by hazardous waste generators, to construct, operate and maintain all aspects of the facility in accordance with requirements of statute and rules. A licensee must maintain sufficient financial capacity for the term of the license, including any renewal license, and at the time of renewal must demonstrate sufficient current financial capacity including current projections of utilization of the facility during the renewal term.

**F.** For a facility at which hazardous waste will be disposed, the applicant must demonstrate that the volume of waste and the risks related to its handling will have been reduced to the maximum practical extent. For an on-site facility, the applicant shall comply with this requirement first by toxics use reduction, as described in 38 MRSA section 2302, subsection 1, then by waste reduction, as defined in 38 MRSA section 2302, subsection 3, then by treatment and volume reduction prior to disposal.

NOTE: Pursuant to 38 M.R.S.A. 2304, Subsection 3(B)(1)(d), hazardous waste generated as a result of remedial/corrective actions or facility closures required by law or undertaken to protect employee health and safety, public health and safety, or the environment, is exempt from this requirement.

A licensee must operate the facility to meet this requirement during the term of the license, including renewal thereof, and at time of renewal must provide a current demonstration that the requirement is met.

**G.** An application for a mobile treatment facility may consist of two phases:

- (1) The first consisting of general operational, structural features, and generic siting criteria.
- (2) The second consisting of site specific operating and siting features.

## **7. Facility Location in Certain Areas**

**A. Prohibition.** No person shall establish, construct, alter, or operate a waste facility for hazardous waste, except as noted, where the facility is or would be located:

- (1) On land defined as a wetland under statutes or regulations administered by the Department, Department of Conservation, Department of Inland Fisheries & Wildlife, Department of Marine Resources, or the State Planning Office; or
- (2) Within any 100 year flood plain so designated by the Federal Insurance Agency or within the level of any documented flood of a greater magnitude. This prohibition shall not apply to a facility where hazardous waste is not handled in a landfill, land treatment unit, miscellaneous unit, surface impoundment or waste pile or to any interimly-licensed (under Chapter 855) storage or treatment facility in use on the effective date of this rule; or
- (3) So that it overlies any portion of a surface or subsurface sand and gravel aquifer or a high yield bedrock aquifer. This prohibition shall apply to a facility where hazardous waste is handled in a surface impoundment, landfill, underground tank, or waste pile or a facility where hazardous waste is treated utilizing land treatment techniques; or

NOTE: Maps prepared by the Department of Conservation (Maine Geological Survey) may provide guidance as to the location of sand and gravel and bedrock aquifers within the State of Maine.

- (4) Within the boundaries of a state or federal park or designated wilderness area. This prohibition shall not apply to a storage facility (Section 12 of this rule);

**B. Rebuttable Presumption.** A waste facility for hazardous waste located as set forth below is presumed to pose serious threats to public health or welfare or to the environment such that a license for a facility cannot be issued. The presumption applies if:

- (1) The facility property is located on land defined as a wetland under statutes or regulations administered by the Department, Department of

Conservation, Department of Inland Fisheries & Wildlife, Department of Marine Resources, or the State Planning Office; or

(2) The facility or facility property is located within 300 feet of any 100 year flood plain so designated by the Federal Insurance Agency or within 300 feet of the level of any documented flood of a greater magnitude. Evidence that the facility will be constructed or operated in compliance with the special requirements for facilities located in a flood plain is not an adequate basis for rebutting the presumption against such siting. However, the presumption may not be rebutted unless the applicant demonstrates along with its other offer of evidence rebutting the presumption that the facility will meet all applicable standards; or

(3) The facility or facility property overlies any portion of a surface or subsurface sand and gravel aquifer or its primary recharge zone or a high yield bedrock aquifer; or

(4) The facility or facility property is located within one mile upgradient of any underground source of public drinking water, or within the watershed of a surface water source of public drinking water, or within 1,000 feet of any source of potable water for humans or livestock; or

(5) The facility or facility property is located such that it may pose a threat to fisheries or wildlife or other natural resources in an area including a sanctuary, refuge, or preserve designated as such under statutes or regulations administered by the Departments of Inland Fisheries & Wildlife or Marine Resources; a state or federal park, sanctuary, or designated wilderness area, or a critical area identified as such under statutes or regulations administered by the State Planning Office, or to fish in a fish hatchery; or

(6) The facility property is located within the boundaries of a state or federal park or designated wilderness area.

An applicant seeking a license to establish, construct, alter, or operate a facility in such a location must overcome this presumption by persuasive evidence that the facility is unique in some way that allows for compliance with the intent of this rule.

## **8. Additional Standards Applicable to Hazardous Waste Landfills**

### **A. Performance Standards**

(1) Landfills are regarded by the Board as the least preferable method of hazardous waste handling. While it is expected that the expense of landfilling will discourage its use, the Board, prior to approval of any

application for a hazardous waste landfill, will consider whether alternative preferred method(s) exist for handling a waste proposed to be landfilled.

(2) A hazardous waste landfill must be designed, constructed, and installed to prevent any migration of wastes out of the landfill to adjacent subsurface soil or ground water or surface water at any time during the life, including the post-closure period, of the landfill.

(3) A hazardous waste landfill must be established, constructed, altered and operated to meet the following performance standards:

(a) No landfilled hazardous waste or constituent or derivative thereof shall appear in ground or surface waters at a concentration above background level, or above current public health drinking water standards for Maine, including the Maximum Exposure Guidelines, or standards for aquatic toxicity, whichever is most stringent. Background levels shall be those established by the pre-construction analysis required by Chapter 856, Section 10C(11)(g) or of the upgradient monitoring well required by Section 8D(1) below, whichever is lower.

NOTE: Drinking water and aquatic toxicity standards are obtained from current manuals including but not limited to: State of Maine Rules of the Department of Human Services relating to Drinking Water; "Drinking Water and Health" published by the National Academy of Sciences; "Suggested No-Adverse Response Levels" as determined by the Environmental Protection Agency; "Ambient Water Quality Criteria" manuals, published by the Environmental Protection Agency.

(b) No landfilled hazardous waste or constituent or derivative thereof, shall appear in the atmosphere in concentrations significantly above the background level nor exceed current ambient air quality standards for Maine at any time. Background levels shall be established by monitoring or demonstrated to have been previously established by monitoring.

**B. Design.** The provisions of 40 CFR 264.301(a), (c), and (f)-(j) are hereby adopted and incorporated by reference, provided however, that:

(1) All new, replacement, or expanded portions of a landfill established in the State of Maine must be at least double-lined. The two liners are referred to below as

(a) the bottom liner, which lies adjacent to subsoil deposits; and

(b) the top liner, which is in contact with the landfilled waste.

(2) A landfill must have two impervious liners of or equivalent to:

(a) a synthetic topline, and a bottom liner of recompacted clay of a minimum of five (5) feet thick, with a hydraulic conductivity of  $1 \times 10^{-7}$  cm/sec. or less, and, in addition, have a minimum of ten (10) feet of similar deposits beneath the bottom liner.

If a suitably low permeability clay liner cannot be produced by recompaction, its permeability must be decreased by addition of bentonite or other approved sealing compounds; or,

(b) a synthetic top and bottom liner and, in addition, have a minimum of ten (10) feet of similar clay deposits as specified in (a) above, beneath it.

NOTE: Proper siting on low permeability deposits is the single most important design criterion. Siting in a favorable hydrologic setting is also an important design criterion, ground water discharge zones being considered the most favorable.

(3) Where the landfill is located in a ground water discharge zone, the applicant must evaluate the potential for upward rupture of the liner or basal layer and design the landfill so as to prevent such a rupture.

(4) Any synthetic liner approved by the Board and installed after December 31, 1993 must be a minimum thickness of 80 mil's, and be able to meet the following criteria:

(a) Meet National Sanitary Foundation (NSF) Standard #54 specifications, if one exists for the proposed material; and

(b) Meet required performance specifications for the proposed project application.

(5) At a minimum, synthetic liners must be used in lieu of clay liners if the clay cannot be made sufficiently impermeable or if organic solvents are to be handled in the landfill.

(6) Any synthetic liner proposed for use shall meet all of the following criteria. A synthetic liner must:

(a) Be of adequate strength and durability to ensure mechanical integrity during emplacement, freeze-thaw cycles in the underlying soils and operation of the facility; and

(b) Be of uniform thickness and free from thin spots, cracks, tears, blisters and foreign particles; and

- (c) Be resistant to attack from soil bacteria, fungus, burrowing animals and birds; and
- (d) Be resistant to ozone cracking, sun weathering and stiffening in frosty conditions; and
- (e) Be able to withstand extreme heat either by itself or in combination with a protective layer of earthen material; and
- (f) Be compatible with and unaffected by hazardous waste(s) which may be landfilled at the facility and any constituents or derivatives thereof; and
- (g) Be impermeably sealed in the field, without defects in the seams between sections or in the parent material itself; and
- (h) Be properly installed on a base which is both smooth and structurally capable of supporting the entire landfill; and
- (i) Be covered by a sufficient layer of well-graded fine soil material (not less than six inches in depth) so as to prevent damage to the liner due to facility operation, such as the movement of heavy equipment used at the site.
- (j) Be installed to cover all surrounding earth likely to be in contact with a waste or leachate; and
- (k) Be able to generate sufficient friction force between itself and the surrounding materials in order to maintain a short term factor of safety of 1.25 and a long term factor of safety of 1.50; and
- (l) Be able to meet the manufacturer's minimum specifications for the material being proposed for use.

Manufacturers' specifications on the standard leak rate of the liner must be specified in the application.

(7) The applicant must develop a Quality Assurance Plan (QAP) in order to ensure that design specifications and performance requirements for all hazardous waste facility components are met during construction. The QAP shall clearly describe the Construction Quality Control (CQC) and Construction Quality Assurance (CQA) measures to be implemented during construction. The QAP shall include, but not be limited to, the following:

- (a) A description of the responsibility and authority of organizations and personnel involved in permitting, designing, and constructing the facility;
- (b) The qualifications of the CQC/CQA personnel;

- (c) The observations and tests to be used to ensure that the construction or installation meets or exceeds all design criteria, plans, and specifications for each hazardous waste facility component;
  - (d) The sampling activities, sample size, methods for determining sample locations, frequency of sampling, acceptance and rejection criteria, and methods for ensuring that corrective measures are implemented;
  - (e) Recordkeeping and reporting requirements for CQC/CQA activities;
  - (f) An assessment of construction equipment and manpower skills necessary to achieve design specifications and performance requirements; and
  - (g) A list and description of required manufacturers' product certification, installation certifications, and warranties.
- (8) A leachate detection, collection, and removal system must be installed immediately above the top liner to assure that leachate is collected and removed. In addition, a leachate detection, collection and removal system must be installed between the top and bottom liners.
- (9) The leachate collection system must be constructed such that:
- (a) the system immediately above the top liner must be designed, constructed, maintained, and operated to collect and remove leachate from the landfill during the active life and post closure care period. The design of the collection and removal system shall be such that no more than 30 cm (1 foot) of leachate shall accumulate on the top liner at any one time.
  - (b) the leachate collection system between the liners must be designed, constructed, maintained, and operated to detect, collect, and remove liquids that may leak through the topline during the active life and post closure care period.
  - (c) the leachate collection systems must be 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 designed and operated to function without clogging during the active life and post-closure care period.
- (10) The applicant must evaluate the potential for generation of gas within buried wastes. If a potential for build up or explosion of gases exists, a gas discharge system capable of collecting gases must be designed into the landfill cover system.



(11) The applicant must evaluate the compaction and consolidation of materials placed within the landfill. If compaction could result in ponding of drainage on the final cover system, an impermeable plastic cap or cover liner must be used to prevent infiltration. Otherwise, the final cover may be a layer of re-compacted clay at least 2 feet thick with a hydraulic conductivity of less than  $1 \times 10^{-7}$  cm/sec.

NOTE: Design of the closure cap/final cover system is integral to the design of a landfill.

(12) A sand and gravel drain layer must be placed over the final cover system.

(13) Final cover must be protected from disruption. Disruption due to frost heaving and penetration by burrowing rodents must be prevented by grading the site with soil material and at least six inches of topsoil. Disruption by plant roots must be prevented by the planting of shallow-rooted vegetation and its maintenance in perpetuity. The final grade of the landfill surface must be between two and ten percent grade.

(14) The applicant must evaluate the earthquake risk. The applicant must show that the facility is designed so that any disruption due to earthquake will not cause any performance standard to be violated.

(15) A buffer zone of at least 200 feet must be designed and maintained between the boundaries of the facility property and the boundaries of the landfill and of any other area of the property where hazardous waste will be handled.

(16) Fugitive emissions, including volatile organic compounds, from the facility must be controlled in accordance with a plan approved by the Board.

**C. Operation.** The provisions of 40 CFR 264.303, 264.312, 254.313, 264.316 and 264.317 are hereby adopted and incorporated by reference, provided however, that:

(1) Run-on must be diverted away from the facility.

(2) Run-off from the facility must be collected, analyzed and managed according to a design and plan approved by the Board.

(3) Cover material, sufficient to control odors, dispersion by wind and excessive water infiltration into a hazardous landfill cell, must be placed daily or after the landfill has received new wastes, whichever is the longer period.

(4) Access to active portions of the facility must be restricted to facility personnel needed for operation or management and to authorized federal, state and local officials while in performance of their official duties.

(5) No liquid waste shall be placed in a landfill except in accordance with the following:

(a) Bulk or non-containerized liquid hazardous or nonhazardous waste, or hazardous or nonhazardous waste containing free liquids, must not be placed in a landfill unless, before disposal, the liquid waste or waste containing free liquids is treated or stabilized, chemically or physically, so that free liquids are no longer present and that the wastes are altered in such a way so that the materials that have absorbed the liquids will not biodegrade or release liquids when compressed.

NOTE: The paint filter method specified in Chapter 850, Appendix XI will generally be used to determine liquid content for the purposes of this section.

(b) Containers holding free liquids must not be placed in a landfill unless:

(i) all free liquid has been removed by decanting or other methods, or solidified so that no free liquid is present, or otherwise eliminated in such a way that the materials that have absorbed the liquids will not biodegrade or release liquids when compressed; or

(ii) the container is a lab pack as defined in 40 CFR 264.316 and is disposed of in accordance with 40 CFR 264.316.

(c) To demonstrate the absence or presence of free liquids in either a containerized or a bulk waste, the test method referenced in 850, Appendix XI of the Department's rules shall apply.

(6) Incompatible wastes must be separated horizontally by such barriers as will prevent any mixing of them in accordance with a plan approved by the Department. Vertical landfilling of incompatible wastes is prohibited.

(7) Containers placed in landfills must be:

(a) at least 90 percent full; or

(b) crushed, shredded, or similarly reduced in volume to the maximum practical extent before burial.

**D. Ground Water Protection.** Ground water beneath and adjacent to the facility shall be protected and monitored in accordance with the requirements of:

(1) this rule, including the following:

(a) A minimum of four wells, sampled at levels specified or approved by the Department, are required to monitor ground water quality. At least one monitoring well shall be located hydraulically upgradient from the landfill and three downgradient. The downgradient wells shall be located as close to the landfill as possible without disturbing the design or operational systems.

(b) Monitor wells must, at a minimum, be packed and cased through surficial deposits and screened where appropriate flow zones exist. The top of the well casing must be sealed to prevent contamination of ground water by run-off. Materials used in construction must not affect water quality.

(c) Water level measurements must be taken and sampling and analysis must be performed by the operator according to a schedule specified or approved by the Department. Additional sampling may be required if the performance standards are not being met. Water levels and results of analyses must be sent to the Department within ten working days of being taken or performed.

(d) Analysis of samples must be performed by a laboratory certified by the State of Maine or the U.S. Environmental Protection Agency.

(e) A final set of monitor well specifications must be sent to the Department upon completion of well installation, showing:

(i) exact location of monitor wells;

(ii) elevation of the land surface and the top of the well casing to the nearest tenth of a foot;

(iii) depth to the bottom of the well;

(iv) screened interval (depth to top and bottom of well screen);

(v) type and size of casing;

(vi) type and size of screen;

(vii) type and grain size of packing, grouting and other sealing materials, and fluids used in drilling.

(2) 40 CFR 264.93 and 264.95-264.100 as those provisions were on October 11, 1988 (53 FR 39720), which are hereby adopted and incorporated by reference, provided, however, that references to 40 CFR 264.92 or 264.94 or portions thereof shall mean the performance standards of Section 8A of this rule and no variance from these standards shall be allowed, references to 40 CFR Part 261 shall mean Chapter 850, the reference to "Section 144.8 of this chapter" in 40 CFR 264.93(c) shall mean "40 CFR 144.8", and references to Appendix IX of Part 264 shall mean Appendix IX of this Chapter.

(3) Assurance of financial responsibility for corrective action must be provided in accordance with Section 6(C)(16) of this rule.

(4) For the purposes of this section, "detection" is defined as statistically significant evidence of contamination, and "exceedence" is defined as statistically significant evidence of increased contamination.

**E. Surface Water Monitoring.** The Board may require surface waters within or adjacent to a facility or facility property to be monitored in accordance with a plan approved by the Board.

#### **F. Air Monitoring**

(1) Emissions, including fugitive emissions, from the facility shall be monitored in accordance with a plan approved by the Board.

(2) If, at any time during operation, closure or post-closure of the facility, the monitoring demonstrates that the performance standards are not being met, a corrective action program must be implemented, details of which must be specified or approved by the Department.

#### **G. Surveying and Recordkeeping**

(1) The owner or operator of a hazardous waste landfill facility must prepare and keep current a map showing the exact location and dimensions, including depth, of each cell with respect to permanently surveyed benchmarks, the contents of each cell and the total amount and location of each type of hazardous waste within each cell. In addition, the owner or operator must keep a record of all repairs, accidents and abatement measures taken.

(2) The map and record must be maintained in the facility operating record and kept current for as long as the facility is operated and must be kept at the facility. The Department may require that a current copy of the map and record be kept on file with the Department. Upon closure the map and the record must be delivered to the Department.

**H. Closure and Post Closure Requirements.** The requirements of 40 CFR 264.310 are hereby adopted and incorporated by reference, provided however, that references to other sections or subparts of 40 CFR Part 264 shall mean "this Chapter". Furthermore, in the closure and post-closure plans, the owner or operator must address the following objectives and indicate how they will be achieved:

- (1) Control of pollutant migration from the facility via ground water, surface water, and air;
- (2) Control of surface water infiltration, including prevention of pooling; and
- (3) Prevention of erosion.

The owner or operator must consider at least the following factors in addressing the closure and post-closure care objectives of this section:

- (1) Type and amount of hazardous waste and hazardous waste constituents in the landfill;
- (2) The mobility and the expected rate of migration of the hazardous waste and hazardous waste constituents;
- (3) Site location, topography, and surrounding land use, with respect to the potential effects of pollutant migration (e.g., proximity to ground water, surface water, and drinking water sources);
- (4) Climate, including amount, frequency, and pH of precipitation;
- (5) Characteristics of the cover including material, final surface contours, thickness, porosity and permeability, slope, length of run of slope, and type of vegetation on the cover; and
- (6) Geological and soil profiles and surface and subsurface hydrology of the site.

During the post-closure care period, the owner or operator of a hazardous waste landfill must, at a minimum:

- (1) Maintain the function and integrity of the final cover as specified in the approved closure plan;
- (2) Maintain and monitor the leachate collection, removal, and treatment system (if there is one present in the landfill) to prevent excess accumulation of leachate in the system.

NOTE: If the collected leachate is a hazardous waste under Chapter 850, it must be managed as a hazardous waste in accordance with all applicable requirements of these rules.

## **9. Additional Standards for Hazardous Waste Surface Impoundments**

**A. Performance Standards.** A hazardous waste surface impoundment which is existing, new or laterally expanded must be established, constructed, altered and operated to meet the following performance standards:

- (1) A surface impoundment must be designed, constructed, and installed to prevent any migration of wastes out of the impoundment to the adjacent subsurface soil or ground water or surface water at any time during the life, including the post-closure period, of the impoundment.
- (2) No impounded hazardous waste or constituent or derivative thereof shall appear in ground water or surface water at a concentration above background level, or above current public health drinking water standards for Maine, including the Maximum Exposure Guidelines, or standards for aquatic toxicity, whichever is most stringent. Background levels shall be those established by the preconstruction analysis required by Chapter 856, Section 10C(11)(g) or of the upgradient monitoring well required by Section 8D(1) of this rule, whichever is lower.

NOTE: Drinking water and aquatic toxicity standards are obtained from current manuals including but not limited to: State of Maine Rules of the Department of Human Services relating to Drinking Water; "Drinking Water and Health" published by the National Academy of Sciences; "Suggested No-Adverse Response Levels" as determined by the Environmental Agency; "Ambient Water Quality Criteria" manuals, published by the Environmental Protection Agency.

- (3) No impounded hazardous waste or constituent or derivative thereof shall appear in the atmosphere in concentrations significantly above the background level nor exceed current ambient air quality standards for Maine at any time. Background levels shall be established by monitoring or demonstrated to have been previously established by monitoring.
- (4) An applicant seeking a license to treat hazardous waste in a surface impoundment must demonstrate to the satisfaction of the Board that:
  - (a) the waste is capable of being treated in a surface impoundment using the process proposed, based upon a trial test (a bench or small-scale pilot test)

that determines the treatment technique, its effectiveness, and any limiting factors;

(b) the design measures and operating procedures will maximize the success of the treatment;

(c) the facility design and components are compatible with the hazardous waste and the treatment process; and

(d) the treatment process can and will be controlled at all times so as to prevent uncontrolled releases of hazardous waste or its constituents or derivatives and to protect the public health and safety and the environment.

## **B. Design**

(1) The provisions of 40 CFR 264-221(c), and (f)-(h) are hereby adopted and incorporated by reference provided however, that all new, replacement or expanded portions of a surface impoundment established in the State of Maine must be at least double-lined. The two liners are referred to below as a) the bottom liner, which lies adjacent to subsoil deposits, and b) the top liner, which is in contact with the impounded waste.

(2) A surface impoundment must have an impervious bottom liner of, or equivalent to, a recompacted clay layer of a minimum of 5 feet thick, with a hydraulic conductivity of  $1 \times 10^{-7}$  cm/sec or less and, in addition, have a minimum of 10 feet of similar deposits beneath it. If a suitably low permeability clay bottom liner cannot be produced by recompaction, its permeability must be decreased by addition of bentonite or other approved sealing compounds.

NOTE: Proper siting on low permeability deposits is the single most important design criterion for hazardous waste surface impoundments. Siting in a favorable hydrologic setting is also an important design criterion, ground water discharge zones being considered most favorable.

(3) Where the surface impoundment is located in a ground water discharge zone, an applicant must evaluate the possibility of upward rupture of the liners and design the impoundment so as to prevent such a rupture.

(4) At a minimum, a synthetic liner must be used in lieu of a clay liner if the clay cannot be made sufficiently impermeable or if organic solvents are to be handled in the surface impoundment. Any synthetic liner used as part of a surface impoundment must conform to the requirements of Section 8B(4), (6) and (7) of this rule.



(5) A leachate detection, collection and removal system must be installed, constructed, maintained, and operated immediately above a clay or synthetic bottom liner to assure that leachate is detected, collected and removed. The system must be designed so that the leachate can flow out freely, without a pressure head of leachate developing within the system.

In addition, a leachate detection system must be installed immediately beneath the clay or synthetic bottom liner.

The leachate collection system must be:

(a) constructed of materials that are chemically resistant to the waste managed in the surface impoundment 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 surface impoundment; and

(b) designed and operated to function without clogging during the active life and post-closure care period.

(6) The liner system in contact with the impounded waste must be:

(a) compatible with the waste;

(b) sufficiently impermeable to the waste under maximum operating conditions of hydraulic head so that the leachate system would not be filled in a period of less than one year;

(c) of sufficient strength to outlast the design lifetime of the impoundment; and

(d) constructed on a foundation capable of supporting the liner and the pressure head of the impoundment when full.

(7) Dikes must be designed with sufficient structural integrity to prevent failure when saturated, without dependence on any liner system for support.

(8) Earthen dikes must have a protective cover such as grass, shale or rock to minimize wind and water erosion and to preserve their structural integrity.

(9) Run-on must be diverted away from the surface impoundment.

(10) At least two feet of freeboard must be assured at all times.

(11) An automatic shutoff or automatic diversion system must be installed in the waste feed so that flow of waste into the impoundment will stop when there is less than 2 feet of freeboard or any failure of the base or liners.

(12) An automatic alarm system to alert the operator to abnormal operations and to malfunctions must be installed.

(13) A backup containment system must be provided to contain 20% of the volume of the impoundment or 4 hours maximum flow from the influent pipe(s), whichever is the larger amount.

(14) The applicant must evaluate the earthquake risk and must demonstrate that the facility is designed so that any disruption due to earthquake will not cause any performance standard to be violated.

(15) The applicant must evaluate the compaction and settlement beneath the liners and must demonstrate that the liners will not crack or rupture under full potential load.

(16) A ground water monitoring system which meets the requirements of Section 8D of this rule must be operational before any waste is placed in the impoundment.

(17) Fugitive emissions, including volatile organic compounds, from the surface impoundment, must be controlled in accordance with a plan approved by the Board.

(18) Requirements other or less stringent than those established by Section 9B(1)-(13) above may be imposed on a surface impoundment which is interimly licensed and being used for handling hazardous waste on the effective date of this rule, if the applicant demonstrates to the Board's satisfaction that the surface impoundment has not in the past violated the performance standards established herein and that the risk that it will violate the performance standards is no greater than that risk for a surface impoundment which meets the above requirements.

### **C. Operation**

(1) A surface impoundment must have at all times sufficient freeboard to prevent overtopping by overfilling, wave action or a storm. At no time shall there be less than 2 feet of such freeboard.

(2) Leachate must be removed from the leachate collection system either continuously or with sufficient regularity that no hydraulic head builds up within it.

(3) Earthen dikes must be kept free of perennial woody plants and burrowing animals and maintained so as to prevent any erosion of the dikes.

### **D. Containment System Repairs: Contingency Plans**

(1) Whenever there is any indication of a possible failure of the base, liner, dike, leachate collection system or backup containment system, that part or system must be inspected in accordance with the requirements of Section 9D(4) below. Indications of possible failure include:

- (a) an unplanned non-sudden drop in liquid level in the impoundment;
- (b) liquid detected in the leachate detection system above the quantity to be expected from the design permeability of the liner;
- (c) evidence of leakage or the potential for leakage in the dike;
- (d) erosion of the dike;
- (e) apparent or potential deterioration of the liner(s) based on observation or test samples of the liner materials;
- (f) any mishandling of wastes placed in the impoundment; and
- (g) foreign objects in the impoundment.

(2) Whenever there is an indication of a failure of the base, liner, dike or leachate collection system, the surface impoundment must be removed from service. Indications of failure of the containment system include but are not limited to:

- (a) an unplanned sudden drop in liquid level in the impoundment;
- (b) quantities of waste detected in the leachate detection system in excess of three times the normal daily quantities;
- (c) leakage through the dike; or
- (d) a breach (e.g., a hole, tear, crack, or separation) in the base, liner, dike, leachate collection or backup containment system.

(3) If the surface impoundment must be removed from service the owner or operator must:

- (a) immediately shut off the flow of or stop the addition of wastes into the impoundment;
- (b) immediately contain any leakage which has occurred or is occurring;
- (c) immediately stop any leakage; and

(d) if the leak cannot be stopped by any other means, empty the impoundment into secure containers or the backup containment system.

(e) Take any other steps necessary to stop or prevent catastrophic failure.

(f) Notify the Department of the problem verbally within 24 hours and in writing within seven days after detecting the problem.

NOTE: To report this situation, call the Department response phone number, 1-800-482-0777.

(4) The owner or operator must include as part of the contingency plan that is required to be filed with his application:

(a) a procedure for complying with the requirements of Section 9D(3) above; and

(b) a method for base, liner, dike, leachate collection and backup containment system evaluation and repair including:

(i) testing and monitoring techniques;

(ii) procedures to be followed to evaluate the integrity of the base, liner, dike, leachate collection system and backup containment system in the event of a possible failure;

(iii) actions to be taken in the event of a possible failure; and

(iv) specification of the repair techniques to be used in the event of leakage which does not require the impoundment to be removed from service.

(5) No surface impoundment that has been removed from service in accordance with Section 9D(3) above may be restored to service unless:

(a) repairs have been made; and

(b) repairs have been certified by a qualified engineer to ensure that the failure will not recur.

(6) A surface impoundment which has been removed from service and which is not being repaired must be closed in accordance with closure and post-closure requirements of this rule.

**E. Inspection, Surveying and Recordkeeping.** The provisions of 40 CFR 264.226 and 40 CFR 264.229-264.231 are hereby adopted and incorporated by reference, provided however, that the reference to "40 CFR 264.221(a)" shall be deleted, references to sections of 40 CFR Part 261 shall

mean Chapter 850, and references to "40 CFR 264.17(b)" shall mean "Section 6(C)(7) above." Furthermore, the following requirements shall apply:

(1) The owner or operator of a surface impoundment must inspect:

(a) the freeboard level at least daily to ensure that two feet of freeboard is being maintained; and

(b) the surface impoundment area, including dikes and vegetation thereon, at least weekly to check for any leaks or discharges and for signs of erosion, deterioration or failure of the impoundment.

(2) Where insufficient freeboard is noted, remedial action must be taken at once.

(3) The owner or operator must maintain, and keep current for as long as the facility is operated, a record of all hazardous waste handled in the impoundment by type, volume and date, all methods and times of treatment, all inspections and all records of repair, accidents and abatement measures taken. The record must be kept at the facility during its operating life and upon closure must be delivered to the Department. The Department may require that a current copy of that record be kept on file with the Department.

#### **F. Air, Ground Water and Surface Water Monitoring**

(1) Emissions, including fugitive emissions, from the facility shall be monitored in accordance with Section 8F of this rule.

(2) Ground water shall be monitored in accordance with Section 8D of this rule.

(3) The Board may require surface waters within or adjacent to a facility or facility property to be monitored in accordance with a plan approved by the Board.

#### **G. Closure and Post-Closure**

(1) The owner or operator of a surface impoundment that does not meet the liner requirements of Section 9(B) of Chapter 854 shall:

(a) include in the closure plan for the surface impoundment both a plan for complying with paragraph (2) below and a contingent plan for complying with paragraph (3) below in case not all contaminated subsoils can be practicably removed at closure;

- (b) prepare a contingent post-closure plan for complying with paragraph (3) below in case not all contaminated subsoils can be practicably removed at closure; and
  - (c) base the cost estimates for closure and post-closure care required under subsection 6C(15) above on the cost of complying with the more expensive of the two closure and post closure scenarios.
- (2) The owner or operator must 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 Section 3(A)(3)(d) of Chapter 850 applies; or
- (3) 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 paragraph (2) above, the owner or operator finds that not all contaminated subsoils can be practicably removed or decontaminated, he must close the facility in accordance with the closure and post-closure requirements that apply to landfills.
- (4) After closure, hazardous waste surface impoundments must continue to meet the performance standards.
- (5) The Department may grant a variance to paragraph (2) of this subsection if the owner or operator demonstrates that the hazardous constituents in the waste will not migrate into ground water, surface water and air in violation of the performance standards in this Chapter for as long as the waste and other materials will remain on-site. Facilities receiving a variance to paragraph (2) shall close the facility in accordance with the closure and post closure requirements that apply to landfills.

## **10. Additional Standards Applicable to Hazardous Waste Land Treatment Facilities**

NOTE: The management of hazardous waste utilizing land treatment is a technique still in its infancy and many unknowns remain regarding its efficacy. The Board, consequently, will consider approving applications for such treatment only if there is compelling evidence provided by the applicant that the waste in question can and will be rendered nonhazardous in natural soils under the proposed conditions.

### **A. Performance Standards**

(1) The land treatment of hazardous waste must meet the following performance standards:

(a) A land treatment facility must be designed and operated to ensure that hazardous waste placed in or on the treatment zone will not migrate beyond the zone and will be degraded, transformed, or otherwise made nonhazardous within the treatment zone within six months from the date of waste placement.

(b) No land treated waste or constituent or derivative thereof shall appear in ground or surface waters at a concentration above background level, or above current public health drinking water standards for Maine, including the Maximum Exposure Guidelines, or standards for aquatic toxicity, whichever is most stringent. Background levels shall be those established by the pre-construction analysis required by Chapter 856, Section 10C(1)(g) or of the upgradient monitoring well required by Section 8D(1), whichever is lower.

NOTE: Drinking water and aquatic toxicity standards are obtained from current manuals including but not limited to: State of Maine Rules of the Department of Human Services relating to Drinking Water; "Drinking Water and Health" published by the National Academy of Sciences; "Suggested No-Adverse Response Levels" as determined by the Environmental Protection Agency; "Ambient Water Quality Criteria" manuals, published by the Environmental Protection Agency.

(c) No land treated waste or derivative or constituent thereof shall appear in the atmosphere in concentrations significantly above the background level nor exceed current ambient air quality standards for Maine at any time. Background levels shall be established by monitoring or demonstrated to have been previously established by monitoring.

(2) An applicant seeking a license to land treat hazardous waste must demonstrate to the satisfaction of the Board that:

(a) The waste will be rendered nonhazardous using the processes or methods proposed;

(b) The design measures and operating procedures will maximize the success of the treatment;

(c) The facility design and components including the soils, are compatible with the hazardous waste and the treatment process; and



(d) The treatment process can and will be controlled at all times so as to prevent any uncontrolled releases of hazardous waste or its constituents or derivatives and to protect the public health and safety and the environment.

### **B. Design**

(1) The performance standards can be met by a variety of methods, including but not limited to:

(a) Proper siting of the facility on suitable soils, and with suitable subsoil deposits, and under suitable hydrologic conditions;

(b) Appropriate application of the waste, together with nutrients, soil buffers, and special bacterial strains as necessary;

(c) Cultivation and aeration of the waste/soil layer as necessary;

(d) Collection and treatment of runoff.

(2) Demonstration that the performance standards will be met must be by small-scale pilot studies in which each waste has been rendered nonhazardous in less than six months. Such a demonstration must comply with Chapter 856, Section 10G.

(3) Surface slopes of an active portion of a land treatment facility must not be greater than 5 percent so as to minimize erosion, but must be greater than 0 percent so as to prevent ponding for periods that will cause the treated area to become anaerobic.

(4) The distance from any natural soils barrier to the seasonal high water table at the site must be at least 5 feet.

(5) Fugitive emissions, including volatile organic compounds, from the land treatment facility must be controlled in accordance with a plan approved by the Board.

(6) The requirements of 40 CFR 264.271-264.273 are hereby adopted and incorporated by reference, provided however, that references to 40 CFR 264.278 shall mean subsection 10(D) below, references to Part 261 shall mean Chapter 850, and references to sections of 40 CFR Part 270 shall mean Chapter 856.

### **C. Operation**

(1) Hazardous waste shall not be land treated unless the waste will be made nonhazardous by soil-related biological degradation or chemical reaction

within six months from the date of application of the waste to the treatment area.

(2) Incompatible wastes must not be treated upslope or downslope of one another, nor placed in the same treatment area.

(3) Run-off from active portions of a land treatment facility must be diverted and collected. If the runoff is hazardous, it must be handled as a hazardous waste.

(4) Waste shall not be applied to the soil when it is saturated or snow covered or when the soil surface or subsurface is frozen.

(5) Wells (other than active monitoring wells) and other direct connections to the subsurface environment within the treatment area of the land treatment facility or within 100 feet therefrom, shall be sealed with cement grout or another suitable material prior to any land treatment activity.

(6) The provisions of 40 CFR 264.276 are hereby adopted and incorporated by reference, provided however, that references to 40 CFR Part 261 shall mean Chapter 850. In addition, food chain crops must not be grown on a treated area or within 300 feet of a treated area of a land treatment facility unless the owner or operator demonstrates to the Board that hazardous waste(s) treated thereon:

(a) Will not be transferred to the food portion of the crop by plant uptake or direct contact and will not otherwise be ingested by food chain animals, or

(b) Will not occur in greater concentrations in the crops grown on or within 300 feet of the treatment area than in the same crops grown on untreated soils under similar conditions elsewhere in the same region.

(7) Waste application and incorporation practices shall prevent the zone of incorporation from becoming anaerobic.

(8) The pH of the soil-waste mixture in the zone of incorporation shall be equal to or greater than 6.5 and maintained until the facility is closed.

(9) Supplemental nitrogen and phosphorous added to the soil of the treated area for the purpose of increasing the rate of waste biodegradation shall not exceed the rates of application recommended for agricultural purposes by the United States Department of Agriculture (USDA) or the State Department of Agriculture (DOA).

(10) The provisions of 40 CFR 264.281-264.283 are hereby adopted and incorporated by reference, provided however, that references to 40 CFR

261.21 or 261.23 shall mean "Chapter 850", and references to 40 CFR 264.17(b) shall mean "Section 6(C)(7) above".

**D. Air, Ground Water, Surface Water and Soil Monitoring.** The provisions of 40 CFR 264.278 are hereby adopted and incorporated by reference, provided however, that references to 40 CFR 264.271(b) shall refer to Section 10(B)(6) above.

(1) An unsaturated zone monitoring system must be operational before the placement of waste on the land. The system must:

(a) Detect the vertical migration of hazardous waste(s) and constituents thereof beneath the treatment area of the facility, and

(b) Provide information on the background concentrations of the hazardous waste(s) and constituents thereof in similar but untreated soils nearby (at least 300 feet from the active treatment zone), and

(c) Monitor soils using soil cores, and

(d) Monitor soil-pore water using devices such as lysimeters.

The system must be approved by the Department prior to licensing.

(2) A ground water monitoring system, in accordance with Section 8D of this rule, must be operational prior to the placement of waste on the land.

(3) The Board may require surface waters within or adjacent to a facility or facility property to be monitored in accordance with a plan approved by the Board.

(4) Emissions, including fugitive emissions, from the facility must be monitored in accordance with Section 8F of this rule.

**E. Surveying and Recordkeeping.** The owner or operator of a land treatment facility must maintain and keep current, in the facility operating record for as long as the facility is operated, a record of types and quantities of hazardous waste (s) treated, application dates, rates, and location, repairs, accidents and abatement measures taken within the treatment facility for the entire life of the facility. The Department may require that a current copy of that record be kept on file with the Department. Upon facility closure, such records shall be delivered to the Department.

**F. Special Closure Requirement.** The provisions of 40 CFR 264.280 are hereby adopted and incorporated by reference, provided however, that references to other sections of 40 CFR Part 264 shall mean "this Chapter".

## **11. Additional Standards Applicable to Hazardous Waste Piles**

**A. Performance Standards.** A waste pile must be established, constructed, altered and operated to meet the following performance standards:

- (1) A waste pile must be designed and operated such that there is no migration of wastes out of the pile into adjacent subsurface soil or ground water or surface water at any time and that any particulate matter which may be subject to wind dispersal is controlled at all times.
- (2) No hazardous waste or constituent or derivative thereof shall appear in ground or surface waters at a concentration above background level, or above current public health drinking water standards for Maine, including the Maximum Exposure Guidelines, or standards for aquatic toxicity, whichever is most stringent. Background levels shall be those established by the pre-construction analysis required by Chapter 856, Section 10C(11)(g) or of the upgradient monitoring well required by Section 8D(1), whichever is lower.

NOTE: Drinking water and aquatic toxicity standards are obtained from current manuals including but not limited to: State of Maine Rules of the Department of Human Services relating to Drinking Water; "Drinking Water and Health" published by the National Academy of Sciences; "Suggested No-Adverse Response Levels" as determined by the Environmental Protection Agency; "Ambient Water Quality Criteria" manuals, published by the Environmental Protection Agency.

- (3) No hazardous waste or constituent or derivative thereof shall appear in the atmosphere in concentrations significantly above the background level nor exceed current ambient air quality standards for Maine at any time. Background levels shall be established by monitoring or demonstrated to have been previously established by monitoring.

- (4) No hazardous waste may be treated in a waste pile.

## **B. Design and Operating Requirements**

- (1) The provisions of 40 CFR 264.251 and 264.259 are hereby adopted and incorporated by reference. A natural clay liner meeting the design and operation requirements of Section 8B(2) or a synthetic liner which meets the design and operation requirements of Section 8B(4), (5), (6) and (7) must underlie the waste pile. The liner must be intact beneath the waste pile and must be constructed with a raised berm around the entire waste pile.

- (2) No ignitable or reactive wastes may be stored in a waste pile.

(3) Storage of incompatible wastes in a waste pile must be in accordance with the requirements of 40 CFR 264.257, which is hereby adopted and incorporated by reference, provided, however, that the references 40 CFR 264.17(b) shall mean "Section 6(C)(7) above".

(4) No waste may remain in a pile for longer than 180 days.

(5) Fugitive emissions from the waste pile must be controlled in accordance with a plan approved by the Board.

### **C. Monitoring**

(1) Monitoring of the structure of the waste pile during construction and operation shall meet the requirements of 40 CFR 264.254, which is hereby adopted and incorporated by reference, provided however, that the reference to 40 CFR 264.251(a) shall mean "subsection (B)(1) above."

(2) Ground water shall be monitored in accordance with Section 8D of this rule.

(3) Emissions, including fugitive emissions, from the facility shall be monitored in accordance with Section 8F of this rule.

(4) The Board may require surface waters within or adjacent to a facility or facility property to be monitored in accordance with a plan approved by the Board.

**D. Closure Requirements.** The provisions of 40 CFR 264.258 are hereby adopted and incorporated by reference provided however, that references to Sections of 40 CFR Part 261 shall mean "Chapter 850", and references to other sections or subparts of 40 CFR Part 264 shall mean "this Chapter."

## **12. Additional Standards Applicable to Hazardous Waste Tank and Container Storage Facilities**

### **A. Performance Standards**

(1) A hazardous waste storage facility must be established, constructed, altered and operated to meet the following performance standards:

(a) No hazardous waste or derivative thereof shall escape from the facility to ground or surface waters or to adjacent subsurface soil at any time during the life of the facility.

(b) No hazardous waste or constituent or derivative thereof shall appear in the atmosphere in concentrations significantly above the background level

nor exceed current ambient air quality standards for Maine at any time. Background levels shall be established by monitoring or demonstrated to have been previously established by monitoring.

(2) The storage of hazardous waste in an underground or inground tank is prohibited unless that tank is interimly-licensed under Chapter 855 and in use on the effective date of this rule and is not prohibited under Section 7A(3).

## **B. Design**

(1) The provisions of 40 CFR 264.175, 264.190(a) and (b), 264.192, and 264.193(a)-(f)(3) and (i) as revised on September 2, 1988 (53 FR 34086), are hereby adopted and incorporated by reference, provided however, that references to sections of 40 CFR Part 270 shall mean "Chapter 856", and references to other sections or subparts of 40 CFR Part 264 shall mean "this Chapter".

(2) A container storage facility must have a base which is a firm working surface, such as asphalt or concrete, which is impervious and which must be kept entire. A natural clay liner meeting the design and operation requirements of Section 8B(2) or a synthetic liner which meets the design and operation requirements of Section 8B(4), (5), (6) and (7) must underlie the working surface. The liner must be intact beneath the storage facility and must be constructed with a raised berm around the entire storage facility.

(3) An interimly licensed container storage facility for hazardous waste which is being used as such on the effective date of this rule may be exempted from the requirement of a liner beneath the existing base if the applicant demonstrates to the Board's satisfaction that the facility has not in the past violated the performance standards established herein and that the facility design will provide full compliance with the performance standards at all times.

(4) Each building or separate container storage area must have a containment and collection system the capacity of which must exceed 20% of the total capacity of all containers and tanks used to store wastes or 110% of the capacity of the largest container or tank, whichever is greater. This system must also provide for sufficient freeboard to allow for containment and collection of precipitation resulting from a 24 hour, 25 year storm, unless the storage facility is enclosed.

(5) A tank must be designed and installed so that it can be fully inspected for structural integrity, deterioration, and leaks except that a tank whose base

cannot be fully inspected must be designed and installed to meet the standards of 40 CFR 264.193 (e)(3) for double-walled tanks.

(6) Uncovered tanks must be designed to assure at least 2 feet of freeboard at all times.

(7) Overtopping of tanks during continuous feed must be prevented by a system of automatic shutoff or by automatic diversion of the waste feed into a tank having at least 30 percent of the volume of the primary tank.

(8) A building or other structure used as a hazardous waste storage facility must meet all requirements, codes and standards of the Department of Public Safety (State Fire Marshal's Office).

(9) The date of manufacture of a tank must be painted in a prominent location on the tank.

### **C. Operation**

(1) A container must not be used for the storage of hazardous waste for a period of time exceeding the design life of the container.

(2) The requirements of 40 CFR 264.191 are hereby adopted and incorporated by reference, provided however, that references to 40 CFR 264.193 shall mean "Subsection (B) above", references to sections in 40 CFR Part 270 shall mean "Chapter 856", and references to 40 CFR Part 264.196 shall mean "subsection (E) below." In addition, any pipeline and pipeline valves that transfers hazardous waste to or from a tank used to store hazardous waste must be inspected and pressure tested at least annually or tested at least annually by a method approved by the Board or Department, to determine structural integrity. A pipeline that fails the test or a pipeline or tank is determined as a result of the inspection to be unsafe shall not thereafter be used to store or transfer hazardous waste. A tank, its piping and valves must be tested at least annually to determine the thickness and corrosion rate utilizing a method approved by the Board. In addition all piping valves must be internally inspected at least annually to determine fitness for use. The date of the most recent inspection and testing of a tank must be painted in a prominent location on the tank. Results of all tank and pipe testing shall be submitted to the Department within 10 days of taking place.

(3) An underground tank that is not prohibited by Section 12A(2) of this rule must be tested at least semi-annually by the method(s) recommended in Chapter 691. An underground tank that fails the test or leaks shall be removed and may not be replaced. Underground hazardous waste storage



systems (tanks and piping) with secondary containment, and continuous interstitial space monitoring, need not be tested annually except to insure that the leak detection equipment is operating properly in accordance with the testing and calibration requirements of Chapter 691, Section 7(C)2 of the Regulations for Registration, Installation, Operation and Closure of Underground Oil Storage Facilities.

(4) Hazardous waste must not be stored in containers or tanks which are rusted, bulging or leaking. The requirements of 40 CFR 264.171 are hereby adopted and incorporated by reference.

(5) Containers or tanks must be compatible with the type of waste stored therein. The requirements of 40 CFR 264.172 and 40 CFR 264.194(a) are hereby adopted and incorporated by reference.

(6) Containers or tanks used to store hazardous waste must not be used to store foodstuffs or animal feed or any substance likely to come into contact with foodstuffs or animal feed.

(7) Containers or tanks holding incompatible hazardous wastes must not be stored in the same enclosure, building or structure unless they are segregated in a manner that prevents the wastes from coming into contact with one another under any circumstances, including leakage or failure of a container or tank. The requirements of 40 CFR 264.177 and 264.199 and adopted and incorporated by reference, provided however, that the references to 40 CFR 264.17(b) shall mean "Section 6(C)(7)" above."

(8) All hazardous waste containers must be stored in a manner that allows access for inspection and for remedial action if any container is found to be rusting, bulging or leaking or waste is spilled or discharged. In any event:

(a) Containers with a capacity of 10 gallons or more must not be stacked in rows in excess of 4 wide and 2 high.

(b) Aisle space between rows of containers must be sufficient to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment and decontamination equipment to any area of facility operation in any emergency but in no event shall the aisle space be less than 36 inches wide. Rows not exceeding a single container in width and two (2) high may be stacked adjacent to walls or other components of the storage facility.

(9) Storage of hazardous waste in open containers or in open tanks not meeting the requirements of Section 12B(5)-(7) above is prohibited. The requirements of 40 CFR 264.173 and 264.194(b) and (c) are hereby adopted

and incorporated by reference provided, however, that references to 40 CFR 264.196 shall mean "subsection (E) below".

(10) Wastes not already so labeled must, on arrival at the facility, be clearly and permanently labeled with the words "Hazardous Waste" and labeled to identify type of waste, generator and date of arrival.

(11) For any hazardous waste stored for longer than 180 days, the owner or operator of the facility must:

(a) Pay the fee as required by 38 M.R.S.A., Section 1319-I;

(b) Prepare a written inventory of all wastes stored for 180 days and submit a copy to the Department on the 181st day, indicating when these wastes will be removed from storage for further handling and how they will be handled.

(c) Segregate and label these wastes with the date of the 180th day.

(12) The storage of any hazardous waste for longer than 360 days is prohibited unless the owner or operator of a storage facility applies for, in writing, and receives approval to do so from the Commissioner. Any extension shall be for a period of time not exceeding 90 days, after which a new extension may be requested. In seeking approval, the owner or operator must demonstrate the maintenance of a segregated area for such waste, the continuing integrity of containers or tanks, the quantification and control of fugitive emissions, continuing security and continuing efforts to move the waste out of storage to other handling. If an approval for storage for longer than 360 days is not granted or if any request for extension is denied, continued storage of that waste is a violation of the license of the facility and, in addition, constitutes unlicensed disposal of the waste.

NOTE: For guidance on classifying residues of hazardous waste in empty tanks, refer to Section 3(A)(7) of Chapter 850.

(13) Containers holding ignitable or reactive waste must be located at least 15 meters (50 feet) from the facility's property line. Tanks holding ignitable or reactive waste are subject to the requirements of 40 CFR 264.198, which are hereby adopted and incorporated by reference, provided, however, that references to 40 CFR 261.21 or 261.23 shall mean "Chapter 850" and references to 40 CFR 264.17(b) shall mean "Section 6(C)(7) above."

**D. Inspection, Surveying and Recordkeeping.** The requirements of 40 CFR 264.174 and 264.195 are hereby adopted and incorporated by reference. In addition:

(1) Daily inspections shall be made to ensure that:

- (a) Two feet of freeboard is maintained at all times in uncovered tanks,
- (b) No containers, tanks, pipelines or valves are rusting, bulging or leaking.
- (2) Weekly inspections shall be made to ensure that:
  - (a) The working surface and the containment and collection system are in good order and free from cracks and leaks.
  - (b) All safety devices, valves, spill and overfill equipment and fire extinguishing equipment are structurally sound and properly functioning.
- (3) Monthly inspections shall be made to ensure that:
  - (a) All tank welds, rivets, bolts, foundation supports for both tanks and piping are in good condition,
  - (b) All sources of cathodic protection are tested and in good working order,
  - (c) All pressure relief valves are functioning properly.
- (4) Every ten years, beginning on January 1, 1994, all aboveground vertical tanks with a capacity of 31,500 gallons or more must be inspected and deemed suitable for service in accordance with the standards published by the American Petroleum Institute (API) - #653.
- (5) The owner or operator of a hazardous waste storage facility must maintain and keep current a written record and/or diagram showing:
  - (a) The layout of the facility and where each type of hazardous waste is stored within the facility;
  - (b) The length of time each waste has been at the facility;
  - (c) Details of all inspections of and repairs to the base, liners and containment and collection systems;
  - (d) Details of all accidents and spills, including date and time of discharge or discovery and spill reporting, volume of spill and method of clean up;
  - (e) Dates of repair or removal of rusted, bulging or leaking containers.

This record/diagram must be maintained at the facility during operation and closure and must be delivered to the Department upon closure. The Department may require that a current copy of that record be kept on file with the Department.

(6) The results of annual tank and pipe testing shall be recorded at the facility.

#### **E. Repairs and Response to Leaks or Spills**

(1) Breaks in the liner(s) shall be repaired immediately.

(2) In the event any container is found to be rusted, bulging, leaking or otherwise unsafe, the wastes contained therein shall be transferred immediately to another container that does meet the standards provided in 49 CFR 173. If the unsuitable container is repaired so that it meets the specifications in 49 CFR 173, it may be reused.

(3) The requirements of 40 CFR 264.196 are hereby adopted and incorporated by reference, provided however, that references to other sections in 40 CFR Part 264 shall mean "this Chapter", and references to sections in 40 CFR Part 270 shall mean "Chapter 856."

(4) The liquids must be removed from the containment structure of a storage facility which is not enclosed as soon as practicable, but in no case later than 24 hours or at another time approved by the Department after detection of the leak. Upon request by the owner or operator, the Department may extend the 24 hour time limit if the owner or operator demonstrates further removal is not necessary to prevent further harm to human health or the environment. An evaluation shall be performed as to whether such liquids are a hazardous waste prior to treatment or disposal of the liquids.

(5) If, at any time during operation, closure, or post-closure of the facility, the performance standards of this section are not being met, a corrective action program must be implemented, details of which must be specified or approved by the Department.

**F. Air, Ground Water and Surface Water Monitoring.** The Board may require ground water, surface water and air quality monitoring in accordance with the requirements of Sections 8D, 8E, and 8F of this rule if it determines that such monitoring is necessary to ensure protection of public health and safety or of the environment.

**G. Closure.** The requirements of 40 CFR 264.178 and 264.197 are hereby adopted and incorporated by reference, provided however, that references to other sections of subparts of 40 CFR Part 264 shall mean "this Chapter", and references to sections of 40 CFR Part 261 shall mean "Chapter 850", and no variance under 40 CFR 264.193(g) shall be allowed.

### 13. Additional Standards Applicable to Hazardous Waste Incinerators

A. Principal hazardous constituents (PHCs) and hazardous combustion by-products must be treated to the extent required by the performance standards specified in Section 13B below. For each waste feed to be burned, one or more PHCs and hazardous combustion by-products will be specified from among those constituents listed in Appendix VIII of Chapter 850. This specification will be based on the degree of difficulty of incineration of the hazardous constituents of the waste feed and its combustion by-products, their concentration or mass, considering the results of waste analyses and trial burns or alternative data submitted with the facility's license application. Hazardous constituents or by-products which represent the greatest degree of difficulty of incineration will be those most likely to be designated as PHCs or hazardous combustion by-products. Constituents are more likely to be designated as PHCs or hazardous combustion by-products if they are present in large quantities or concentrations. Trial PHCs will be designated for performance of trial burns in accordance with the procedure specified in 40 CFR 270.62 (or Chapter 856 of those rules) for obtaining trial burn permits. Trial hazardous combustion by-products will be designated under the same procedure.

**B. Performance Standards.** A hazardous waste incinerator must be established, constructed, altered, operated and maintained to meet the following performance standards:

(1) No hazardous waste or constituent or derivative thereof shall appear in the atmosphere in concentrations significantly above the background level nor exceed ambient air quality standards for Maine at any time. Background levels shall be established by monitoring or demonstrated to have been previously established by monitoring.

(2) An incinerator burning hazardous waste must achieve a Destruction Removal Efficiency (DRE) of 99.99 percent or greater (except as noted in (3) below) for each Principal Hazardous Constituent (PHC) designated in its license for each waste stream to be burned. The following equation is used to determine the DRE for each PHC:

$$\text{DRE} = \frac{W_{\text{in}} - W_{\text{out}}}{W_{\text{in}}} \times 100$$

$W_{\text{in}}$

Where:  $W_{\text{in}}$  = Mass feed rate of one PHC in the waste stream feeding the incinerator; and

W out= Mass emission rate of the same PHC present in exhaust emissions prior to release to the atmosphere.

(3) An incinerator burning hazardous wastes F020, F021, F022, F023, F026, or F027 must achieve a destruction and removal efficiency (DRE) of 99.9999% for each principal hazardous constituent (PHC) designated in its license. This performance must be demonstrated on PHCs that are more difficult to incinerate than tetra-, penta-, and hexachlorodibenzo-p-dioxins and dibenzofurans. In addition, the owner or operator of the incinerator must notify the Board of his intent to incinerate hazardous wastes F020, F021, F022, F023, F026 or F027.

(4) An incinerator burning hazardous waste containing more than 0.5% halogens must remove at least 99% of the hydrogen halides from the exhaust gas. The stack emissions of hydrogen chlorides from any hazardous waste incinerator shall not exceed 50 parts per million (ppm) by volume, adjusted to 7% oxygen by volume.

(5) An incinerator burning hazardous waste must not emit particulate matter exceeding 180 milligrams per dry standard cubic meter (0.08 grams per dry cubic foot) when corrected for 7% oxygen. Tests may be required, if applicable, using the procedures specified by 40 CFR 60.50, Subpart E (Clean Air Act Regulations, "Standards for Performance of Incinerators").

(6) No heavy metals shall appear in the atmosphere in concentrations significantly above the background level nor exceed ambient air quality standards for Maine at any time. Background levels shall be established by monitoring or demonstrated to have been previously established by monitoring.

(7) An incinerator must destroy hazardous combustion by-products designated in its license such that the total mass emission rate of these by-products emitted from the stack is 0.01% or less of the total mass feed rate of PHCs fed into the incinerator.

(8) All combustion residues, such as fly ash, must be handled in accordance with all Federal and State statutory and regulatory requirements for their handling.

### **C. Operation**

(1) An incinerator must be operated in accordance with operating requirements specified in the license. These will be specified on a case-by-case basis as those demonstrated (in a trial burn or in alternative data) to be

sufficient to maintain compliance with the performance standards of Section 13B above.

(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 will not affect compliance with the performance standards to which the operating requirements apply.) For each such waste feed, the license 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) Air feed rate;

(f) Such other operating requirements as are necessary to ensure that the performance standards are met.

(3) During start-up and shut-down of an incinerator, hazardous waste must not be fed into the incinerator unless the incinerator is operating within the conditions of operation (temperature, air feed rate, etc.) specified in the license.

(4) Fugitive emissions from the combustion zone must be controlled by:

(a) Keeping the combustion zone totally sealed against fugitive emissions; or

(b) Maintaining a combustion zone pressure lower than atmospheric pressure; or

(c) An alternate means of control demonstrated (as part of the permit application) to provide fugitive emissions control equivalent to maintenance of combustion zone pressure lower than atmospheric pressure.

(5) An incinerator must be operated with a functioning system designed to automatically cut off waste feed to the incinerator when operating conditions deviate from limits established under this section.

(6) An incinerator must cease operation when changes in waste feed, incinerator design or operating conditions exceed limits designated in its license.



(7) All hazardous waste incinerators in which halogenated wastes are burned must maintain, at a minimum, a combustion temperature of 1,000° C for a 2 second dwell time with 3% excess oxygen in the stack gas or 1,200° C for a 1.5 second dwell time with 2% excess oxygen in stack gas or an equivalent standard. More stringent operating requirements may be required by the Board, depending upon the waste involved, if it is determined by the Board to be necessary to protect the public health and safety or the environment.

(8) Hazardous waste incinerators which burn only non-halogenated wastes must maintain a combustion temperature of not less than 885° C. Specific combustion temperatures will be established in the license and will depend on the type of non-halogenated waste, its physical condition and the rate at which it is added to the normal fuel feedstock.

#### **D. Monitoring, Inspections, and Recordkeeping**

(1) The owner or operator must conduct waste analyses sufficient to verify that all waste feed to the incinerator is within the limits specified in his license.

(2) The owner or operator must monitor stack emissions to verify that the operating requirements established in the license achieve the performance standards.

(3) The owner or operator must monitor on a continuous basis:

(a) Combustion temperature, waste feed rate, combustion gas velocity and air feed rate;

(b) CO, at a point in the incinerator downstream of the combustion zone and prior to release to the atmosphere;

(c) Such other parameters, such as CO, CO<sub>2</sub>, O<sub>2</sub>, total hydrocarbons, and opacity, that the Board determines to be necessary to be monitored at the stack or at other locations in order to demonstrate compliance with the standards and requirements of this rule at all times.

(4) The incinerator and associated equipment (pumps, valves, conveyors, pipes, etc.) must be subjected to thorough visual inspection, at least daily, for leaks, spills, fugitive emissions and signs of tampering.

(5) The emergency waste feed cutoff system and associated alarms must be inspected daily and tested at least weekly to verify operability.

(6) The owner or operator of an incinerator must maintain and keep current for as long as the facility is operated a record of the types and quantities of

hazardous waste incinerated, dates of incineration, repairs, accidents or uncontrolled releases and any abatement measures taken.

(7) The monitoring and inspection data must be recorded and all records must be placed in the operating log required by Section 6C(9) of this rule. The Department may require that a current copy of those records be kept on file with the Department. Upon closure, the operating log must be delivered to the Department.

**E. Closure.** At closure, the owner or operator must remove all hazardous waste and residues (including, but not limited to, ash, scrubber waters, and scrubbers sludges) from the incinerator site.

#### **14. Additional Standards for Treatment in Tanks**

##### **A. Performance Standards**

(1) Facilities for treatment of hazardous waste in tanks must be constructed, altered and operated to meet the following performance standards:

(a) No hazardous waste or constituent or derivative thereof shall escape from the treatment facility to ground or surface waters or to adjacent subsurface soil at any time during the life of the facility.

(b) No hazardous waste or constituent or derivative thereof shall appear in the atmosphere in concentrations significantly above the background level nor exceed current ambient air quality standards for Maine at any time.

Background levels shall be established by monitoring or demonstrated to have been previously established by monitoring.

(c) The treatment of hazardous waste in an underground tank is prohibited.

(2) An applicant seeking a license to treat hazardous waste in a tank or tanks must demonstrate to the satisfaction of the Board that:

(a) The waste is capable of being treated in a tank or tanks using the processes proposed, based upon a trial test (a bench or small-scale pilot test), that determines the treatment technique, its effectiveness, and any limiting factors;

(b) The design measures and operating procedures will maximize the success of the treatment;

(c) The facility design and components are compatible with the hazardous waste and the treatment process; and

(d) The treatment process can and will be controlled at all times so as to prevent uncontrolled releases of hazardous waste or its constituents or derivatives and to protect the public health and safety and the environment.

**B. Design.** In addition to the requirements applicable to storage of hazardous waste in tanks under Section 12B, the following requirements apply to treatment in tanks:

(1) Materials used in the construction and operation of all parts of the treatment facility must be compatible with the wastes to be treated and with any treatment chemicals or reagents utilized in the treatment process.

(2) An alarm system to alert the operator to abnormal operations and to malfunctions must be installed prior to operation of the facility.

(3) The facility must have sufficient excess capacity to hold all wastes undergoing treatment if an equipment malfunction or breakdown occurs during the treatment process. The wastes must be able to be held securely until the treatment equipment is repaired.

(4) Fugitive emissions, including volatile organic compounds, from the facility must be controlled in accordance with a plan approved by the Board.

**C. Operation.** In addition to the requirements applicable to the storage of hazardous waste in tanks under Section 12C, the following requirement shall apply to treatment in tanks.

(1) All hazardous waste must be analyzed immediately prior to treatment, in order to ensure that:

(a) The proper treatment technique, feed rates of treatment chemicals and reagents, and operating conditions (temperature, pressure, flow rate, etc.) are known and will be adhered to;

(b) The treatment technique proposed will not have any detrimental effect upon any of the materials used to construct or operate the treatment apparatus;

(c) The waste contains no components or contaminants which might interfere with or have an adverse impact on the treatment process;

(d) The waste contains no components or contaminants which, when treated, may cause an uncontrolled release of wastes or toxic gases or fumes;

(e) The waste contains no components or contaminants which, when treated, would form substances or residues which the facility could not handle properly in accordance with State and Federal requirements.

(2) Demonstration of the treatment process must be made by trial test. The demonstration, appropriately modified for treatment in tanks, must comply with Chapter 856, Section 10G.

(3) All treatment chemicals and reagents must be stored in a manner that minimizes the potential for spills, fires, explosions or uncontrolled discharges or releases.

**D. Inspection, Surveying and Recordkeeping.** In addition to the requirements applicable to the storage of hazardous waste in tanks under Section 12D, the following requirements shall apply to treatment in tanks:

(1) The owner or operator must maintain and keep current a record of:

(a) All hazardous waste(s), by type and volume, received for treatment;

(b) Where at the facility each hazardous waste is being held prior to treatment;

(c) Date of treatment of each waste received, the volume treated and the method of treatment (if more than one method is permitted);

(d) Details of all accidents and spills at the facility; and

(e) All inspections.

This record must be maintained at the facility during operation and upon closure must be delivered to the Department. The Department may require that a current copy of that record be kept on file with the Department.

**E. Air, Ground Water and Surface Water Monitoring.** The Department may require ground water, surface water and air quality monitoring in accordance with the requirements of Sections 8D, 8E, and 8F of this rule if it determines that such monitoring is necessary to ensure protection of public health and safety or of the environment.

**F. Response to Leaks or Spills and Closure.** The requirements of Section 12E and 12G applicable to the storage of hazardous waste in tanks shall also apply to the treatment of hazardous waste in tanks.

## 15. Additional Standards Applicable to Miscellaneous Units

### A. Performance Standards

(1) A hazardous waste miscellaneous unit must be established, constructed, altered, and operated to meet the following performance standards:

(a) No hazardous waste or constituent or derivative thereof shall appear in ground or surface waters at a concentration above background level, or above current public health drinking water standards for Maine, including the Maximum Exposure Guidelines, or standards for aquatic toxicity, whichever is most stringent.

NOTE: Drinking water and aquatic toxicity standards are obtained from current manuals including but not limited to: State of Maine Rules of the Department of Health Services relating to Drinking Water; "Drinking Water and Health" published by the National Academy of Sciences; "Suggested No Adverse Response Levels as determined by the Environmental Protection Agency; and "Ambient Water Quality Criteria" manuals published by the Environmental Protection Agency.

(b) No hazardous waste or constituent or derivative thereof shall appear in the atmosphere in concentrations significantly above the background level nor exceed current ambient air quality standards for Maine at any time. Background levels shall be established by monitoring or demonstrated to have been previously established by monitoring.

(2) A miscellaneous unit shall also meet the appropriate performance standards applicable to other hazardous waste management units.

## **B. Design, Construction, Operation and Closure**

(1) A miscellaneous unit must be located, designed, constructed, operated, maintained, and closed in a manner that will ensure compliance with the performance standards in subsection (A) above. Permits for miscellaneous units shall contain such terms and conditions necessary to protect human health and the environment and ensure compliance with such performance standards, including but not limited to, as appropriate, design and operating requirements, detection and monitoring requirements, and requirements for responses to releases of hazardous waste or constituents from the unit. Permit terms and conditions shall include those requirements of this Chapter applicable to other hazardous waste management units that are appropriate for the unit being permitted. Protection of human health and the environment includes, but is not limited to, the factors specified in 40 CFR 264.601(a)-(c), which are hereby adopted and incorporated by reference.

## **C. Monitoring, Analysis, Inspection, Response, Reporting, and Corrective Action**

(1) Monitoring, testing, analytical data, inspections, response, and reporting procedures must ensure compliance with the performance standards of subsection (A) above, the general inspection, equipment testing and maintenance, annual reporting, unmanifested waste reporting, and additional reporting requirements specified in Section 6(C) of this Chapter; the corrective action requirements of Section 6(C)(18) of this Chapter; and any additional requirements necessary to protect human health and the environment as specified in the permit.

(2) The Board may require ground water monitoring, surface water monitoring, air monitoring, and/or soils monitoring in accordance with a plan approved by the Board. If, at any time during operation, closure, or post closure of the facility (where applicable), the monitoring demonstrates that the performance standards are not being met by the miscellaneous unit, a corrective action program must be implemented, details of which must be specified or approved by the Department.

**D. Post-Closure Care.** A miscellaneous unit that is a disposal unit must be maintained in a manner that complies with the performance standards of subsection (A) above and protects human health and the environment during the post-closure care period. In addition, if a treatment or storage unit has contaminated soils, surface waters, or ground water that cannot be completely removed or decontaminated during closure, then that unit must also meet the performance standards of subsection (A) above and protect human health and the environment during post-closure care. The post-closure requirements of Section 6(C)(15) of this chapter shall apply and the post-closure plan must specify the procedures that will be used to satisfy this requirement.

#### **E. Open Burning Units**

(1) In addition to the requirements applicable to miscellaneous units, the following requirements shall apply to a unit employed for the open burning or detonation of hazardous waste:

(a) The unit shall be designed, constructed, operated, and closed in a manner intended to prevent the migration of hazardous waste or constituents into the environment;

(b) Surface slopes of an active portion of the unit must not be greater than 5 percent so as to minimize erosion, but must be greater than 0 percent so as to prevent ponding for periods that will cause the area to be anaerobic;

(c) The distance from any natural soils barrier to the seasonal high water table at the site must be at least 5 feet;

(d) Food chain crops must not be grown within 300 feet of the unit unless the owner or operator demonstrates to the Board that hazardous waste:

(i) Will not be transferred to the food portion of the crop by plant uptake or direct contact and will not otherwise be ingested by food chain animals, or

(ii) Will not occur in greater concentrations in the crops grown within 300 feet of the unit than in the same crops grown on untreated soils under similar conditions elsewhere in the same region;

(e) All hazardous waste must be analyzed immediately prior to burning or detonation to ensure that:

(i) The waste contains no components or contaminants which might interfere with or have an adverse impact on the burning or detonation process,

(ii) The waste contains no components or contaminants which, when burned or detonated, may cause an uncontrolled release of waste or toxic gases or fumes, and

(iii) The waste contains no components or contaminants which, when burned or detonated, would form substances or residues that the facility could not handle properly in accordance with State and Federal requirements;

(f) Ground water monitoring of the unit shall be conducted in accordance with Section 8(D) of this Chapter;

(g) Soil monitoring shall be conducted in accordance with a program developed or approved by the Department, and if the presence of hazardous waste or constituents is detected at the edge of the unit in excess of background levels, corrective action shall be conducted in accordance with a program developed or approved by the Department;

(h) Detailed records of burning or detonation activities in the unit, and corrective action activities conducted at the site, shall be maintained as specified or approved by the Department; and

(i) At closure, the owner or operator shall remove or decontaminate all waste residues, contaminated containment system components, contaminated subsoils, and structures and equipment contaminated with waste and leachate, and manage them as hazardous waste unless Section 3(A)(3)(d) of Chapter 850 applies or, if after removing or decontaminating all residues and making all reasonable efforts to effect removal or decontamination of contaminated components, subsoils, structures and



equipment, the owner or operator finds that not all contaminated subsoils can be practicably removed or decontaminated, he must close the facility in accordance with the closure and post-closure requirements that apply to landfills.

**16. Additional Standards Applicable to Waste Facilities Located in a Flood Plain.** Any facility located or to be located within 300 feet of a 100 year flood plain may be constructed, operated or maintained only if the applicant:

A. Demonstrates to the satisfaction of the Board by persuasive evidence that the rebuttable presumption against constructing, operating, or maintaining a facility in such an area has been overcome; and

B. Constructs, operates, and maintains such facility:

(1) To prevent wash-out of any hazardous waste by a 100 year flood; or

(2) Has procedures that will be in effect which will cause the waste to be removed to a location where the waste will not be vulnerable to flood waters and to a location which is authorized to manage hazardous waste safely before flood water can reach the facility; and

(3) Complies with all other applicable facility standards in this Chapter.

**17. Additional Standards Applicable to Commercial Facilities.** For commercial facilities, the exposure information requirements of Chapter 856, Section 10(C)(13) shall apply.

**18. Variance Requests.** Consistent with Federal requirements for authorization to operate the State hazardous waste management program, the Board may, on its own motion or on request, modify or waive one or more of the requirements of Sections 8B, 9B, 11B, 12B, and 14B of this rule relating to design of a specified type of facility except that no performance standard may be made less stringent. Such modification or variance must be justified on the basis that greater protection to health, safety, welfare or the environment than that provided by the performance standards is required and will thereby be provided or on the basis that no less protection than that provided by the performance standards will thereby be provided in that the design is an alternate but equivalent one.

**19. Severability.** Should any provision of this rule be declared invalid or ineffective by court decision, the decision shall not invalidate any other provision of this rule.

After a public hearing on August 19, 1993, this rule as amended is adopted  
this 12 day of January, 1994.

AUTHORITY: 38 M.R.S.A., Section 1301, et seq.

EFFECTIVE DATE: March 23, 1983

Amended: February 10, 1985

Amended: November 30, 1986

Amended: March 16, 1994

EFFECTIVE DATE (ELECTRONIC CONVERSION): May 4, 1996

Correction: January 27, 2003 - § 8(B)(11)

Appendix IX of this rule corresponds to Appendix IX of 40 CFR Part 264.  
Additional constituents may be required by the Board or Department based  
upon the waste(s) being handled and the history of the facility.

#### **APPENDIX IX: GROUND-WATER MONITORING LIST<sup>1</sup>**

Chemical abstracts service index name<sup>4</sup>

<u>Common name<sup>2</sup></u>	<u>CAS RN<sup>3</sup></u>	<u>(The following symbols are in use:</u>	<u>Suggested</u>
		<u>a means Greek alpha and</u>	<u>methods<sup>5</sup></u>
		<u>B means Greek beta)</u>	

Acenaphthene..... 83-32-9 Acenaphthylene, 1,2-dihydro..... 8100

8270

Acenaphthylene..... 208-96-8 Acenaphthylene..... 8100

8270

Acetone..... 67-64-1 2-Propanone..... 8240

Acetophenone..... 98-86-2 Ethanone, 1-phenyl..... 8270

Acetonitrile; Methyl cyanide. 75-05-8 Acetonitrile..... 8015

2-Acetylaminofluorene-, 2-AAF. 53-96-3 Acetamide, N-9H-fluoren-2-yl....  
8270

Acrolein.....	107-02-8 2-Propenal.....	8030
8240		
Acrylonitrile.....	107-13-1 2-Propenenitrile.....	8030
8240		
Aldrin.....	309-00-2 1,4:5,8-Dimethanonaphthalene,	8080
1,2,3,4,10,10-hexachloro- 1,4,4a,. 8270		
5,8,8a-hexahydro-		
(1a,4a,4aB,5a,8a,8aB)-*		
Allyl chloride.....	107-05-1 1-Propene, 3-chloro.....	8010
8240		
4-Aminobiphenyl.....	92-67-1 [l,l'-Biphenyl]-4-amine.....	8270
Aniline.....	62-53-3 Benzenamine.....	8270
Anthracene.....	120-12-7 Anthracene.....	8100
8270		
Antimony.....	(Total) Antimony.....	6010
7040		
7041		
Aramite.....	140-57-8 Sulfurous acid, 2-chloroethyl 2-[4-(1,1-	8270
dimethylethyl)phenoxy]-l-methylethyl ester.		
Arsenic.....	(Total) Arsenic.....	6010
7060		
7061		
Barium.....	(Total) Barium.....	6010
7080		

Benzene.....	71-43-2 Benzene.....	8020
8240		
Benzo[a]anthracene;/ ...	56-55-3 Benz[a]anthracene.....	8100
Benanthracene.		8270
Benzo[b]fluoranthene.....	205-99-2 Benz[e]acephenanthrylene.....	8100
Benzo[k]fluoranthene.....	207-08-9 Benzo[k]fluoranthene.....	8100
8270		
Benzo[ghi]perylene.....	191-24-2 Benzo[ghi]perylene.....	8100
8270		
Benzo[a]pyrene.....	50-32-8 Benzo[a]pyrene.....	8100
8270		
Benzyl alcohol.....	100-51-6 Benzenemethanol.....	8270
Beryllium.....	(Total) Beryllium.....	6010
7090		
7091		
alpha-BHC.....	319-84-6 Cyclohexane, 1,2,3,4,5,6-hexachloro-	8080
(1a,2a,3B,4a,5B,6B)-		8250
beta-BHC.....	319-85-7 Cyclohexane, 1,2,3,4,5,6-hexachloro-	8080
(1a,2B,3a,4B,5a,6B)-		8250
delta-BHC.....	319-86-8 Cyclohexane, 1,2,3,4,5,6-hexachloro-	8080
(1a,2a,3a,4B,5a,6B)-		8250
gamma-BHC; Lindane.....	58-89-9 Cyclohexane, 1,2,3,4,5,6-hexachloro-	8080
(1a,2a,3B,4a,5a,6B)-		8250

Bis(2-chloroethoxy)methane. 111-91-1 Ethane, 1,1'-[methylenebis(oxy)]bis  
8270

[2-chloro-

Bis(2-chloroethyl)ether..... 111-44-4 Ethane, 1,1'-oxybis[2-chloro- 8270

Bis(2-chloro-1- 108-60-1 Propane, 2,2'-oxybis[1-chloro- 8010

methylethyl) ether; 8270

2,2'-Di- chlorodiisopropyl ether.

Bis(2-ethylhexyl) phthalate. 117-81-7 1,2-Benzenedicarboxylic acid, bis(2-  
8060

ethylhexyl)ester. 8270

Bromodichloromethane..... 75-27-4 Methane, bromodichloro.....  
8010

8240

Bromoform; Tribromomethane.. 75-25-2 Methane, tribromo.....  
8010

8240

4-Bromophenyl phenyl ether.. 101-55-3 Benzene, 1-bromo-4-phenoxy.....  
8270

Butyl benzyl phthalate;..... 85-68-7 1,2-Benzenedicarboxylic acid, butyl 8060

Benzyl butyl phthalate. phenylmethylester 8270

Cadmium..... (Total) Cadmium..... 6010

7130

7131

Carbon disulfide..... 75-15-0 Carbon disulfide..... 8240

Carbon tetrachloride..... 56-23-5 Methane, tetrachloro..... 8010

8240

Chlordane..... 57-74-9 4,7-Methano-1H-indene, 1,2,4,5,6,7, 8080

8,8-octachloro-2,3,3a,4,7,7a-hexahydro.	8250
p-Chloroaniline.....	106-47-8 Benzenamine, 4-chloro..... 8270
Chlorobenzene.....	108-90-7 Benzene, chloro..... 8010
8020	
8240	
Chlorobenzilate.....	510-15-6 Benzeneacetic acid, 4-chloro-a- 8270
(4-chlorophenyl)-a-hydroxy-, ethyl ester.	
p-Chloro-m-cresol.....	59-50-7 Phenol, 4-chloro-3-methyl..... 8040
8270	
Chloroethane; Ethyl chloride.	75-00-3 Ethane, chloro..... 8010
8240	
Chloroform.....	67-66-3 Methane, trichloro..... 8010
8240	
2-Chloronaphthalene.....	91-58-7 Naphthalene, 2-chloro..... 8120
8270	
2-Chlorophenol.....	95-57-8 Phenol, 2-chloro..... 8040
8270	
4-Chlorophenyl phenyl ether.	7005-72-3 Benzene, 1-chloro-4-phenoxy..
8270	
Chloroprene.....	126-99-8 1,3-Butadiene, 2-chloro..... 8010
8240	
Chromium.....	(Total) Chromium..... 6010
7190	
7191	
Chrysene.....	218-01-9 Chrysene..... 8100

8270

Cobalt..... (Total) Cobalt..... 6010

7200

7201

Copper..... (Total) Copper..... 6010

7210

m-Cresol..... 108-39-4 Phenol, 3-methyl..... 8270

o-Cresol..... 95-48-7 Phenol, 2-methyl..... 8270

p-Cresol..... 106-44-5 Phenol, 4-methyl..... 8270

Cyanide..... 57-12-5 Cyanide..... 9010

2,4-D; 2,4-Dichloropheno- 94-75-7 Acetic acid, (2,4-dichlorophenoxy). 8150  
xyacetic acid

4,4'-DDD..... 72-54-8 Benzene 1,1'-(2,2-dichloroethylidene) 8080  
bis[4-chloro- 8270

4,4'-DDE..... 72-55-9 Benzene, 1,1'-(dichloroethenylidene)... 8080  
bis[4-chloro- 8270

4,4'-DDT..... 50-29-3 Benzene,1,1'-(2,2,2-trichloroethylidene) 8080  
bis[4- chloro-. 8270

Diallate..... 2303-16-4 Carbamothioic acid, bis(l-methylethyl)-,  
8270

S- (2,3- dichloro-2-propenyl) ester..

Dibenz[a,h]anthracene..... 53-70-3 Dibenz[a,h]anthracene..... 8100

8270

Dibenzofuran..... 132-64-9 Dibenzofuran..... 8270



Dibromochloromethane;.... 124-48-1 Methane, dibromochloro.....  
8010

Chlorodibromomethane 8240

1,2-Dibromo-3-chloropropane;. 96-12-8 Propane, 1,2-dibromo-3-chloro..  
8010

DBCP. 8240

8270

1,2-Dibromoethane; Ethylene 106-93-4 Ethane, 1,2-dibromo..... 8010  
dibromide. 8240

Di-n-butyl phthalate..... 84-74-2 1,2-Benzenedicarboxylic acid, dibutyl. 8060  
ester 8270

o-Dichlorobenzene..... 95-50-1 Benzene, 1,2-dichloro..... 8010

8020

8120

8270

m-Dichlorobenzene..... 541-73-1 Benzene, 1,3-dichloro..... 8010

8020

8120

8270

p-Dichlorobenzene..... 106-46-7 Benzene, 1,4-dichloro..... 8010

8020

8120

8270

3,3'-Dichlorobenzidine..... 91-94-1 [1,1'-Biphenyl]-4,4'-diamine, 3,3' 8270

-dichloro

trans-1,4-Dichloro-2-butene. 110-57-6 2-Butene, 1,4-dichloro-, (E)... 8240

Dichlorodifluoromethane..... 75-71-8 Methane, dichlorodifluoro..... 8010

8240

1,1-Dichloroethane..... 75-34-3 Ethane, 1,1-dichloro..... 8010

8240

1,2-Dichloroethane; Ethylene 107-06-2 Ethane, 1,2-dichloro..... 8010

dichloride. 8240

1,1-Dichloroethylene;.... 75-35-4 Ethene, 1,1 -dichloro..... 8010

Vinylidenechloride 8240

trans-1,2-Dichloroethylene.. 156-60-5 Ethene, 1,2-dichloro-, (E)..... 8010

8240

2,4-Dichlorophenol..... 120-83-2 Phenol, 2,4-dichloro..... 8040

8270

2,6-Dichlorophenol..... 87-65-0 Phenol, 2,6-dichloro..... 8270

1,2-Dichloropropane..... 78-87-5 Propane, 1,2-dichloro..... 8010

8240

cis-1,3-Dichloropropene... 10061-01-5 1-Propene, 1,3-dichloro-, (Z)... 8010

8240

trans-1,3-Dichloropropene. 10061-02-6 1-Propene, 1,3-dichloro-, (E)....

8010

8240

Dieldrin..... 60-57-1 2,7:3,6-Dimethanonaphth[2,3-b]oxirene,. 8080

3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a- 8270

octahydro-, (1aa,2B,2aa,3B,6B,6aa,7B,7aa)-

Diethyl phthalate..... 84-66-2 1,2-Benzenedicarboxylic acid, diethyl ester.  
8060

8270

O,O-Diethyl o-2-pyrazinyl. 297-97-2 Phosphorothioic acid, O,O-diethyl .  
8270

phosphorothioate; Thionazin o-pyrazinylester.

Dimethoate..... 60-51-5 Phosphorodithioic acid, o,o-dimethyl 8270

S-[2-(methylamino)-2-oxoethyl] ester.

p-(Dimethylamino)azobenzene. 60-11-7 Benzenamine,  
N,N-dimethyl-4-(phenylazo) 8270

7,12-Dimethylbenz[alanthracene. 57-97-6 Benz[a]anthracene,  
7,12-dimethyl..... 8270

3,3'-Dimethylbenzidine.... 119-93-7 [1,1'-Biphenyl]-4,4'-diamine,  
3,3'-dimethyl. 8270

alpha, alpha-Dimethylphenethyla-. 122-09-8 Benzeneethanamine,  
a,a-dimethyl. 8270

mine.

2,4-Dimethylphenol..... 105-67-9 Phenol, 2,4-dimethyl..... 8040

8270

Dimethyl phthalate..... 131-11-3 1,2-Benzenedicarboxylic acid, 8060

dimethyl ester.

8270

m-Dinitrobenzene..... 99-65-0 Benzene, 1,3-dinitro..... 8270

4,6-Dinitro-o-cresol.... 534-52-1 Phenol, 2-methyl-4,6-dinitro..... 8040

8270

2,4-Dinitrophenol..... 51-28-5 Phenol, 2,4-dinitro..... 8040

8270

2,4-Dinitrotoluene..... 121-14-2 Benzene, 1-methyl-2,4-dinitro.. 8090  
8270

2,6-Dinitrotoluene..... 606-20-2 Benzene, 2-methyl-1,3-dinitro.... 8090  
8270

Dinoseb; DNBP; 2-sec-Butyl-. 88-85-7 Phenol, 2-(1 -methylpropyl)-4,6-  
dinitro. 8150

4,6-dinitrophenol 8270

Di-n-octyl phthalate..... 117-84-0 1,2-Benzenedicarboxylic acid, dioctyl.  
8060

ester 8270

1,4-Dioxane..... 123-91-1 1,4-Dioxane..... 8015

Diphenylamine..... 122-39-4 Benzenamine, N-phenyl..... 8270

Disulfoton..... 298-04-4 Phosphorodithioic acid, O,O-diethyl.. 8140

S-[2-(ethylthio)ethyl]ester 8270

Endosulfan I..... 959-98-8 6,9-Methano-2,4,3-benzodioxathiepin,.  
8080

6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a- 8250

hexahydro-, 3-oxide, (3a,5aB,6a,9a,9aB)-

Endosulfanil..... 33213-65-9 6,9-Methano-2,4,3-benzodioxathiepin,.  
8080

6,7,8,9,10,10-hexachloro- 1,5,5a,6,9,9a-

hexahydro-, 3-oxide, (3a,5aa,6B,9B,9aa)-

Endosulfan sulfate..... 1031-07-8 6,9-Methano-2,4,3-benzodioxathiepin,.  
8080

6,7,8,9,10,10-hexachloro- 1,5,5a,6,9,9a

-hexahydro-, 3,3-dioxide. 8270

Endrin..... 72-20-8 2,7:3,6-Dimethanonaphth[2,3-b]oxirene,.  
8080

3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a- 8250

octahydro-, (1aa,2B,2aB,3a,6a,6aB,7B,7aa)-

Endrin aldehyde..... 7421-93-4 1,2,4-Methenocyclopenta[cd]pentalene-  
5-.8080

carboxaldehyde, 2,2a,3,3,4,7-hexachlorodeca- 8270

hydro-, (1a,2B,2aB,4B,4aB,5B,6aB,6bB,7R\*)-

Ethylbenzene..... 100-41-4 Benzene, ethyl..... 8020

8240

Ethyl methacrylate..... 97-63-2 2-Propenoic acid, 2-methyl-, ethyl ester.  
8015

8240

8270

Ethyl methanesulfonate..... 62-50-0 Methanesulfonic acid, ethyl ester...  
8270

Famphur..... 52-85-7 Phosphorothioic acid, O-[4-..... 8270

[(dimethylamino)sulfonyl]phenyl]-O,O-dimethyl

ester.

Fluoranthene..... 206-44-0 Fluoranthene..... 8100

8270

Fluorene..... 86-73-7 9H-Fluorene..... 8100

8270

Heptachlor..... 76-44-8 4,7-Methano-1H-indene, ..... 8080

1,4,5,6,7,8,8-heptachloro

3a,4,7,7a-tetrahydro- 8270

Heptachlor epoxide..... 1024-57-3 2,5-Methano-2H-indeno[1,2-b]oxirene,  
8080

2,3,4,5,6,7,7-heptachloro-1a,1b,5,5a,6,6a, 8270

hexahydro-, (1a,1b,2a,5a,5aB,6B,6aa)

Hexachlorobenzen..... 118-74-1 Benzene, hexachloro..... 8120

8270

Hexachlorobutadiene..... 87-68-3 1,3-Butadiene, 1,1,2,3,4,4-hexachloro.  
8120

8270

Hexachlorocyclopentadiene.. 77-47-4 1,3-Cyclopentadiene, 1,2,3,4,5,5-  
hexachloro. 8120

8270

Hexachloroethane..... 67-72-1 Ethane, hexachloro..... 8120

8270

Hexachlorophene..... 70-30-4 Phenol, 2,2'-methylenebis[3,4,6-trichloro.  
8270

Hexachloropropene..... 1888-71-7 1-Propene, 1,1,2,3,3,3-hexachloro. 8270

2-Hexanone..... 591-78-6 2-Hexanone..... 8240

Indeno(1,2,3-cd)pyrene.... 193-39-5 Indeno[1,2,3-cd]pyrene..... 8100

8270

Isobutyl alcohol..... 78-83-1 1-Propanol, 2-methyl..... 8015

Isodrin..... 465-73-6 1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-  
8270

hexachloro-1,4,4a,5,8,8a hexahydro-.

(1a,4a,4aB,5B,8B,8aB)-.

Isophorone..... 78-59-1 2-Cyclohexen-1-one, 3,5,5-trimethyl. 8090

8270

Isosafrole..... 120-58-1 1,3-Benzodioxole, 5-(1-propenyl). 8270

Kepone..... 143-50-0 1,3,4-Metheno-2H-cyclobuta-  
[cd]pentalen-2-one,. 8270

l,la,3,3a,4,5,5a,5b,6-decachlorooctahydro-

Lead..... (Total) Lead..... 6010

7420

7421

Mercury..... (Total) Mercury..... 7470

Methacrylonitrile..... 126-98-7 2-Propenenitrile, 2-methyl..... 8015

8240

Methapyrilene..... 91-80-5 1,2,Ethanediamine, N,N-dimethyl-N'-2-.  
8270

pyridinyl-N'-(2-thienylmethyl)-.

Methoxychlor..... 72-43-5 Benzene,1,1'-(2,2,2,trichloroethylidene)  
8080

bis[4- methoxy- 8270

Methyl bromide; Bromomethane. 74-83-9 Methane, bromo.....  
8010

8240

Methyl chloride; Chloromethane. 74-87-3 Methane, chloro.....  
8010

8240

3-Methylcholanthrene..... 56-49-5 Benz[j]aceanthrylene,  
1,2-dihydro-3-methyl. 8270

Methylene bromide; Dibromomethane. 74-95-3 Methane, dibromo.....  
8010

8240



Methylene chloride; Dichlorometh-. 75-09-2 Methane, dichloro.....	
8010	
ane 8240	
Methyl ethyl ketone; MEK.. 78-93-3 2-Butanone.....	8015
8240	
Methyl iodide; iodomethane.. 74-88-4 Methane, iodo.....	8010
8240	
Methyl methacrylate..... 80-62-6 2-Propenoic acid, 2-methyl-, methyl ester. 8015	
8240	
Methyl methanesulfonate.... 66-27-3 Methanesulfonic acid, methyl ester..	
8270	
2-Methylnaphthalene..... 91-57-6 Naphthalene, 2-methyl.....	8270
Methyl parathion; Parathion methyl 298-00-0 Phosphorothioic acid, o,o-dimethyl . 8140	
O-(4-nitro-phenyl) ester 8270	
4-Methyl-2-pentanone;.. 108-10-1 2-Pentanone, 4-methyl.....	8015
Methyl isobutyl ketone. 8240	
Naphthalene..... 91-20-3 Naphthalene.....	8100
8270	
1,4-Naphthoquinone..... 130-15-4 1,4-Naphthalenedione.....	8270
1-Naphthylamine..... 134-32-7 1-Naphthalenamine.....	8270
2-Naphthylamine..... 91-59-8 2-Naphthalenamine.....	8270
Nickel..... (Total) Nickel.....	6010
7520	
o-Nitroaniline..... 88-74-4 Benzenamine, 2-nitro.....	8270

m-Nitroaniline.....	99-09-2 Benzenamine, 3-nitro.....	8270
p-Nitroaniline.....	100-01-6 Benzenamine, 4-nitro.....	8270
Nitrobenzene.....	98-95-3 Benzene, nitro.....	8090
		8270
o-Nitrophenol.....	88-75-5 Phenol, 2-nitro.....	8040
		8270
p-Nitrophenol.....	100-02-7 Phenol, 4-nitro.....	8040
		8270
4-Nitroquinoline 1-oxide.	56-57-5 Quinoline, 4-nitro-, 1-oxide....	8270
N-Nitrosodi-n-butylamine.	924-16-3 1-Butanamine, N-butyl-N-nitroso.	8270
		8270
N-Nitrosodiethylamine....	55-18-5 Ethanamine, N-ethyl-N-nitroso..	8270
N-Nitrosodimethylamine...	62-75-9 Methanamine, N-methyl-N-nitroso.	8270
		8270
N-Nitrosodiphenylamine...	86-30-6 Benzenamine, N-nitroso-N-phenyl	8270
		8270
N-Nitrosodipropylamine; Di-n-pro-. 621-64-7 1-Propanamine,		
N-nitroso-N-propyl		8270
pyl nitrosamine.		
N-Nitrosomethylethylamine.	10595-95-6 Ethanamine,	
N-methyl-N-nitroso...		8270
N-Nitrosomorpholine.....	59-89-2 Morpholine, 4-nitroso.....	8270
N-Nitrosopiperidine.....	100-75-4 Piperidine, 1 -nitroso.....	8270
N-Nitrosopyrrolidine.....	930-55-2 Pyrrolidine, 1-nitroso.....	8270
5-Nitro-o-toluidine.....	99-55-8 Benzenamine, 2-methyl-5-nitro....	8270
Parathion.....	56-38-2 Phosphorothioic acid, O,O-diethyl-O-	8270
(4-nitro-phenyl) ester		

Polychlorinated biphenyls; PCBs. See Note 6 1,1'-Biphenyl, chloro derivatives.. 8080

8250

Polychlorinated dibenzo-p-dioxins; See Note 7 Dibenzo[b,e][1,4]dioxin, chloro derivatives 8280

PCDDs.

Polychlorinated dibenzofurans; See Note 8 Dibenzofuran, chloro derivatives.. 8280

PCDFs.

Pentachlorobenzene..... 608-93-5 Benzene, pentachloro..... 8270

Pentachloroethane..... 76-01-7 Ethane, pentachloro..... 8240

8270

Pentachloronitrobenzene.... 82-68-8 Benzene, pentachloronitro..... 8270

Pentachlorophenol..... 87-86-5 Phenol, pentachloro..... 8040

8270

Phenacetin..... 62-44-2 Acetamide, N-(4-ethoxyphenyl)..... 8270

Phenanthrene..... 85-01-8 Phenanthrene..... 8100

8270

Phenol..... 108-95-2 Phenol..... 8040

8270

p-Phenylenediamine..... 106-50-3 1,4-Benzenediamine..... 8270

Phorate..... 298-02-2 Phosphorodithioic acid, O,O-diethyl S- 8140

[(ethylthio)methyl] ester 8270

2-Picoline..... 109-06-8 Pyridine, 2-methyl..... 8240

8270

Pronamide..... 23950-58-5 Benzamide, 3,5-dichloro-N-(1,1 8270

-dimethyl-2-pro-pynyl)-.

Propionitrile; Ethyl cyanide. 107-12-0 Propanenitrile..... 8015

8240

Pyrene..... 129-00-0 Pyrene..... 8100

8270

Pyridine..... 110-86-1 Pyridine..... 8240

8270

Safrole..... 94-59-7 1,3-Benzodioxole, 5-(2-propenyl). 8270

Selenium..... (Total) Selenium..... 6010

7740

7741

Silver..... (Total) Silver..... 6010

7760

Silvex; 2,4,5-TP..... 93-72-1 Propanoic acid, 2-(2,4,5-trichlorophenoxy)  
8150

Styrene..... 100-42-5 Benzene, ethenyl-..... 8020

8240

Sulfide..... 18496-25-8 Sulfide..... 9030

2,4,5-T; 2,4,5-Trichlorophenoxyace- 93-76-5 Acetic acid,  
(2,4,5-trichlorophenoxy) 8150

tic acid.

2,3,7,8-TCDD; 2,3,7,8-Tetrachloro- 1746-0 1-6 Dibenzo[b,e][1,4]dioxin, ...  
8280

2,3,7,8-tetrachlorodibenzo-p-dioxin

1,2,4,5-Tetrachlorobenzene 95-94-3 Benzene, 1,2,4,5-tetrachloro..... 8270

1,1,1,2-Tetrachloroethane. 630-20-6 Ethane, 1,1,1,2-tetrachloro..... 8010

8240

1,1,2,2-Tetrachloroethane. 79-34-5 Ethane, 1,1,2,2-tetrachloro..... 8010

8240

Tetrachloroethylene; Perchloroeth-. 127-18-4 Ethene, tetrachloro.....  
8010

ylene; Tetrachloroethene. 8240

2,3,4,6-Tetrachlorophenol.. 58-90-2 Phenol, 2,3,4,6-tetrachloro..... 8270

Tetraethyl dithiopyrophosphate;. 3689-24-5 Thiodiphosphoric acid  
([(HO)<sub>2</sub>P(S)]<sub>2</sub>O), 8270

Sulfotep tetraethyl ester

Thallium..... (Total) Thallium..... 6010

7840

7841

Tin..... (Total) Tin..... 7870

Toluene..... 108-88-3 Benzene, methyl..... 8020

8240

o-Toluidine..... 95-53-4 Benzenamine, 2-methyl..... 8270

Toxaphene..... 8001-35-2 Toxaphene..... 8080

8250

1,2,4-Trichlorobenzene.. 120-82-1 Benzene, 1,2,4-trichloro..... 8270

1,1,1-Trichloroethane; Methylchlor- 71-55-6 Ethane, 1,1,1-trichloro..... 8240

oform.

1,1,2-Trichloroethane. 79-00-5 Ethane, 1,1,2-trichloro..... 8010

8240

Trichloroethylene; Trichloroethene 79-01-6 Ethene, trichloro..... 8010

8240

Trichlorofluoromethane.... 75-69-4 Methane, trichlorofluoro..... 8010

8240

2,4,5-Trichlorophenol..... 95-95-4 Phenol, 2,4,5-trichloro..... 8270

2,4,6-Trichlorophenol..... 88-06-2 Phenol, 2,4,6-trichloro..... 8040

8270

1,2,3-Trichloropropane.... 96-18-4 Propane, 1,2,3-trichloro..... 8010

8240

O,O,O-Triethyl phosphorothioate.. 126-68-1 Phosphorothioic acid,  
o,o,o-triethyl ester 8270

sym-Trinitrobenzene..... 99-35-4 Benzene, 1,3,5-trinitro..... . 8270

Vanadium..... (Total) Vanadium..... 6010

7910

7911

Vinyl acetate..... 108-05-4 Acetic acid, ethenyl ester..... 8240

Vinyl chloride..... 75-01-4 Ethene, chloro..... 8010

8240

Xylene (total)..... 1330-20-7 Benzene, dimethyl..... 8020

8240

Zinc..... (Total) Zinc..... 6010

7950

1 The regulatory requirements pertain only to the list of substances; the right hand columns (Methods and PQL) are given for informational purposes only. See also footnotes 5 and 6.

2 Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

3 Chemical Abstracts Service registry number. Where "Total" is entered, all species in the ground water that contain this element are included.

4 CAS index names are those used in the 9th Cumulative Index.

5 Suggested Methods refer to analytical procedure numbers used in EPA Report SW-846 "Test Methods for Evaluating Solid Waste" third edition, November 1986. Analytical details can be found in SW-846 and in documentation on file at EPA. CAUTION: The methods listed are representative SW-846 procedures and may not always be the most suitable method(s) for monitoring an analyte under the regulations.

6 Polychlorinated biphenyls (CAS RN 1336-36-3); this category contains congener chemicals, including constituents of Aroclor-1016 (CAS RN 12674-11-2), Aroclor-1221 (CAS RN 11104-28-2), Aroclor-1232 (CAS RN 11141-16-5), Aroclor-1242 (CAS RN 53469-21-9), Aroclor-1248 (CAS RN 12672-29-6), Aroclor-1254 (CAS RN 11097-69-1), and Aroclor-1260 (CAS RN 11096-82-5).

7 This category contains congener chemicals, including tetrachlorodibenzo-p-dioxins (see also 2,3,7,8-TCDD), pentachlorodibenzo-p-dioxins, and hexachlorodibenzo-p-dioxins.

8 This category contains congener chemicals including tetrachlorodibenzofurans, pentachlorodibenzofurans, and hexachlorodibenzofurans.