

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DIVISION OF MATERIALS MANAGEMENT

625 Broadway

Albany, NY 12233

6 NYCRR SUBPART 373-3

INTERIM STATUS STANDARDS REGULATIONS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE AND DISPOSAL FACILITIES

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SUBPART 373-3

INTERIM STATUS STANDARDS REGULATIONS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE AND DISPOSAL FACILITIES

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**373-3 – Interim Status Standards for Owners and Operators of
Hazardous Waste Treatment, Storage & Disposal Facilities**

Section 373-3.1 General.

(a) Purpose, scope and applicability.

- (1) The purpose of this Subpart is to establish minimum statewide standards that define the acceptable management of hazardous waste during the period of interim status and until certification of final closure or, if the facility is subject to post-closure requirements, until post-closure responsibilities are fulfilled.
- (2) Except as provided in section 373-3.29(a)(2) of this Subpart, the standards in this Subpart, and of section 373-2.19(a), (b) and (c) of this Part, apply to owners and operators of facilities which treat, store or dispose of hazardous waste who have fully complied with the requirements for interim status under section 373-1.3 of this Part, until final disposition of their permit application is made, or until applicable Subpart 373-3 closure and post-closure responsibilities are fulfilled, and to those owners and operators of facilities in existence on November 19, 1980, who have failed to provide timely notification as required by Subpart 373-1 of this Part and/or failed to file part A of the permit application as required by section 373-1.3(b), (d), (e) and (i) of this Part. These standards apply to all treatment, storage or disposal of hazardous waste at these facilities after November 19, 1980, except as specifically provided otherwise in Part 371 of this Title.

Note: After the effective date of November 19, 1980, and as stated in Subpart 373-1 of this Part, the treatment, storage or disposal of hazardous waste at a new facility is prohibited except in accordance with a permit or at those facilities which qualify for interim status after this date.

- (3) The requirements of this Subpart apply to a person disposing of hazardous waste by means of ocean disposal, subject to a permit issued under the Marine Protection, Research, and Sanctuaries Act, only to the extent they are required by the exemption granted to such a person under section 373-1.1(d) of this Part.

Note: These Subpart 373-3 regulations do apply to the treatment or storage of hazardous waste before it is loaded onto an ocean vessel for incineration or disposal at sea.

- (4) Reserved
- (5) The requirements of this Subpart apply to a person whose facilities or portion of facilities are exempted under section 373-1.1(d) of this Part only to the extent they are required by an exemption granted to such a person under section 373-1.1(d).
- (6) The requirements of this Subpart apply to those portions of a facility managing the recyclable materials described in subparagraphs 371.1(g)(1)(ii), (iii) and (iv) of this Title only to the extent that requirements of this Subpart are referred to in sections 374-1.3, 374-1.6, 374-1.7 or 374-1.8 or Subpart 374-2 of this Title.
- (7) The following hazardous wastes must not be managed at facilities subject to regulation under this Subpart:
 - (i) EPA hazardous waste number F020, F021, F022, F023, F026 or F027 unless:

373-3.1(a)

- (a) the wastewater treatment sludge is generated in a surface impoundment as part of the facility's wastewater treatment system;
 - (b) the waste is stored in tanks or containers;
 - (c) the waste is stored or treated in waste piles that meet the requirements of section 373-2.12(a)(3) of this Part as well as all other applicable requirements of section 373-3.12 of this Subpart;
 - (d) the waste is burned in incinerators that are certified pursuant to the standards and procedures in section 373-3.15(f) of this Subpart; or
 - (e) the waste is burned in facilities that thermally treat the waste in a device other than an incinerator and that are certified pursuant to the standards and procedures in section 373-3.16(g) of this Subpart.
- (8) The requirements of this Part apply to owners or operators of all facilities which treat, store or dispose of hazardous waste referred to in Part 376 of this Title, and the Part 376 standards are considered material conditions or requirements of this Subpart.
- (9) Universal waste handlers and transporters (as defined in section 370.2(b) of this Title) are subject to regulation under Subpart 374-3 of this Title, when handling the below-listed universal wastes:
- (i) batteries as described in section 374-3.1(b) of this Title;
 - (ii) pesticides as described in section 374-3.1(c) of this Title;
 - (iii) mercury-containing equipment as described in section 374-3.1(d) of this Title;
 - (iv) lamps as described in section 374-3.1(e) of this Title;
 - (v) aerosol cans as described in section 374-3.1(f) of this Title; and
 - (vi) paint as described in section 374-3.1(g) of this Title.
- (10) Section 374-1.13(f) of this Title identifies when the requirements of this Subpart apply to the storage of military munitions classified as solid waste under section 374-1.13(c) of this Title. The treatment and disposal of hazardous waste military munitions are subject to the applicable permitting, procedural, and technical standards in Parts 370 through Subpart 374-1 and Part 376 of this Title.

(b) Imminent hazard action.

Notwithstanding any other provisions of these regulations, enforcement actions may be brought pursuant to section 71-0301 of the ECL or section 7003 of RCRA (see section 370.1(e) of this Title).

Section 373-3.2 General facility standards.

(a) Applicability.

- (1) The regulations in this section apply to owners and operators of all hazardous waste facilities, except as section 373-3.1 provides otherwise.

373-3.2(b)

(b) Identification number.

Every facility owner or operator must apply to EPA for an EPA identification number in accordance with the EPA notification procedures (45 FR 12746, et seq.) (see section 370.1(e) of this Title).

(c) Required notices.

- (1) The owner or operator of a facility that has arranged to receive hazardous waste from a source outside of the United States must notify the department in writing at least four weeks in advance of the date on which the first shipment of the hazardous waste is expected to arrive at the facility. The owner or operator of a facility that has arranged to receive hazardous waste from an OECD country, as defined in section 372.5(h)(1) of this Title must also notify the EPA regional administrator in writing at least four weeks in advance of the date on which the first shipment of the hazardous waste is expected to arrive at the facility. Notice of subsequent shipments of the same waste from the same foreign source is not required.

Note: for purposes of reference only: The owner or operator of a recovery facility that has arranged to receive hazardous waste from an OECD Member country, as defined in section 372.5(h)(1) of this Title must also meet the requirement of 40 CFR 265.12(a)(2) (see section 370.1(e) of this Title).

- (2) Before transferring ownership or operation of a facility during its operating life, or of a disposal facility during the post-closure care period, the owner or operator must notify the new owner or operator, in writing, of the requirements of this Subpart and Subpart 373-1 of this Part.

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

(d) General waste analysis.

- (1)
 - (i) Before an owner or operator treats, stores or disposes of any hazardous waste, or nonhazardous waste if applicable under section 373-3.7(d)(4) of this Subpart, the owner or operator must obtain a detailed chemical and physical analysis of a representative sample of the wastes. At a minimum, this analysis must contain all the information which must be known to treat, store or dispose of the waste in accordance with the requirements of this Subpart and Part 376 of this Title.
 - (ii) The analysis may include data developed under Part 371 of this Title and existing published or documented data on the hazardous waste or on hazardous waste generated from similar processes.

Note: For example, the facility's records of analyses performed on the waste before the effective date of these regulations, or studies conducted on hazardous waste generated from processes similar to that which generated the waste to be managed at the facility, may be included in the data base required to comply with subparagraph (i) of this paragraph. The owner or operator of an offsite facility may arrange for the generator of the hazardous waste

373-3.2(d)

to supply part or all of the information required by subparagraph (i) of this paragraph, except as otherwise specified in section 376.1(g)(2) and (3) of this Title. If the generator does not supply the information, and the owner or operator chooses to accept a hazardous waste, the owner or operator is responsible for obtaining the information required to comply with this subdivision.

- (iii) The analysis must be repeated as necessary to ensure that it is accurate and up-to-date. At a minimum, the analysis must be repeated:
 - ('a') when the owner or operator is notified, or has reason to believe, that the process or operation generating the hazardous waste or nonhazardous waste, if applicable, under section 373-3.7(d)(4) of this Subpart has changed; and
 - ('b') for offsite facilities, when the results of the inspection required in subparagraph (iv) of this paragraph indicate that the hazardous waste received at the facility does not match the waste designated on the accompanying manifest or shipping paper.
- (iv) The owner or operator of an offsite facility must inspect and, if necessary, analyze each hazardous waste movement received at the facility to determine whether it matches the identity of the waste specified on the accompanying manifest or shipping paper.
- (2) The owner or operator must develop and follow a written waste analysis plan which describes the procedures which will be carried out to comply with paragraph (1) of this subdivision. This plan must be kept at the facility. At a minimum, the plan must specify:
 - (i) the parameters for which each hazardous waste, or nonhazardous waste, if applicable, under section 373-3.7(d)(4) of this Subpart will be analyzed and the rationale for the selection of these parameters (i.e., how analysis for these parameters will provide sufficient information on the waste's properties to comply with paragraph (1) of this subdivision);
 - (ii) the test methods which will be used to test for these parameters;
 - (iii) the sampling method which will be used to obtain a representative sample of the waste to be analyzed. A representative sample may be obtained using either:
 - ('a') one of the sampling methods described in Appendix 19 of this Title; or
 - ('b') an equivalent sampling method;

Note: See section 371.3(a) of this Title for related discussion.

 - (iv) the frequency with which the initial analysis of the waste will be reviewed or repeated to ensure that the analysis is accurate and up-to-date;
 - (v) for offsite facilities, the waste analyses that hazardous waste generators have agreed to supply;

373-3.2(d)

- (vi) where applicable, the methods which will be used to meet the additional waste analysis requirements for specific waste management methods as specified in sections 373-3.10(k), 373-3.11(d), 373-3.12(c), 373-3.13(c), 373-3.14(g), 373-3.15(b), 373-3.16(c), 373-3.17(c), 373-3.27(e)(4), 373-3.28(n)(4), 373-3.29(e) and 376.1(g) of this Title; and
 - (vii) for surface impoundments exempted from land disposal restrictions under 376.1(d)(1) of this Title, the procedures and schedule for:
 - ('a') the sampling of impoundment contents;
 - ('b') the analysis of test data; and
 - ('c') the annual removal of residues which are not delisted under 40 CFR 260.22 and 370.3(c) of this Title and do exhibit a characteristic of hazardous waste or which do not meet the treatment standards of section 376.4 of this Title;
 - (viii) for owners and operators seeking an exemption to the air emission standards of section 373-3.29 of this Subpart in accordance with section 373-3.29(d) of this Subpart:
 - ('a') if direct measurement is used for the waste determination, the procedures and schedules for waste sampling and analysis, and the results of the analysis of test data to verify the exemption; and
 - ('b') if knowledge of the waste is used for the waste determination, any information prepared by the facility owner or operator or by the generator of the hazardous waste, if the waste is received from off-site, that is used as the basis for knowledge of the waste.
- (3) For offsite facilities, the waste analysis plan required in paragraph (2) of this subdivision must also specify the procedures which will be used to inspect and, if necessary, analyze each movement of hazardous waste received at the facility to ensure that it matches the identity of the waste designated on the accompanying manifest or shipping paper. At a minimum, the plan must describe:
- (i) the procedures which will be used to determine the identity of each movement of waste managed at the facility;
 - (ii) the sampling method which will be used to obtain a representative sample of the waste to be identified, if the identification method includes sampling; and
 - (iii) the procedures that the owner or operator of an off-site landfill receiving containerized hazardous waste will use to determine whether a hazardous waste generator or treater has added a biodegradable sorbent to the waste in the container.

(e) **Security.**

- (1) The owner or operator must prevent the unknowing entry, and minimize the possibility for the unauthorized entry, of persons or livestock onto the active portion of a facility, unless:

373-3.2(e)

- (i) physical contact with the waste, structures or equipment within the active portion of the facility will not injure unknowing or unauthorized persons or livestock which may enter the active portion of a facility; and
 - (ii) disturbance of the waste or equipment, by the unknowing or unauthorized entry of persons or livestock onto the active portion of a facility, will not cause a violation of the requirements of this Subpart.
- (2) Unless the owner or operator has made a successful demonstration under subparagraphs (1)(i) and (ii) of this subdivision, a facility must have:
- (i) a 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel) which continuously monitors and controls entry onto the active portion of the facility; or
 - (ii)
 - ('a') an artificial or natural barrier (e.g., a fence in good repair or a fence combined with a cliff), which completely surrounds the active portion of the facility; and
 - ('b') a means to control entry, at all times, through the gates or other entrances to the active portion of the facility (e.g., an attendant, television monitors, locked entrance, or controlled roadway access to the facility).

Note: The requirements of paragraph (2) of this subdivision are satisfied if the facility or plant within which the active portion is located itself has a surveillance system, or a barrier and a means to control entry, which complies with the requirements of subparagraph (i) or (ii) of this paragraph.

- (3) Unless exempt under subparagraphs (1)(i) and (ii) of this subdivision, a sign with the legend, “Danger—Unauthorized Personnel Keep Out,” must be posted at each entrance to the active portion of a facility, and at other locations, in sufficient numbers to be seen from any approach to this active portion. The legend must be written in English and in any other language predominant in the area surrounding the facility (e.g., facilities in counties bordering the Canadian Province of Quebec must post signs in French), and must be legible from a distance of at least 25 feet. Existing signs with a legend other than “Danger—Unauthorized Personnel Keep Out” may be used if the legend on the sign indicates that only authorized personnel are allowed to enter the active portion, and that entry onto the active portion can be dangerous.

Note: See section 373-3.7(g) of this Subpart for discussion of security requirements at disposal facilities during the post-closure care period.

(f) General inspection requirements.

- (1) The owner or operator must inspect the facility for malfunctions and deterioration, operator errors, and discharges which may be causing or may lead to:
 - (i) release of hazardous waste constituents to the environment; or

373-3.2(f)

- (ii) a threat to human health.

The owner or operator must conduct these inspections often enough to identify problems in time to correct them before they harm human health or the environment.

(2)

- (i) The owner or operator must develop and follow a written schedule for inspecting all monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment (such as dikes and sump pumps) that are important to preventing, detecting, responding to environmental or human health hazards.
- (ii) This schedule must be kept at the facility.
- (iii) The schedule must identify the types of problems (e.g., malfunctions or deterioration) which are to be looked for during the inspection (e.g., inoperative sump pump, leaking fitting, eroding dike, etc.).
- (iv) The frequency of inspection may vary for the items on the schedule. However, the frequency should be based on the rate of deterioration of the equipment and the probability of an environmental or human health incident if the deterioration, malfunction, or any operator error goes undetected between inspections. Areas subject to spills, such as loading and unloading areas, must be inspected daily when in use. At a minimum, the inspection schedule must include the items and frequencies called for in sections 373-3.9(e), 373-3.10(d) and (f), 373-3.11(e), 373-3.12(k), 373-3.13(e), 373-3.14(l), 373-3.15(d), 373-3.16(d), 373-3.17(d), 373-3.27(d), 373-3.28(c), (d) and (i), and 373-3.29(e) through (k) of this Subpart, where applicable.

Note: See sections 373-3.7(i), 373-3.13(f) and 373-3.14(c) of this Subpart for related requirements.

- (3) The owner or operator must remedy any deterioration or malfunction of equipment or structures which the inspection reveals, on a schedule which ensures that the problem does not lead to an environmental or human health hazard. Where a hazard is imminent or has already occurred, remedial action must be taken immediately.
- (4) The owner or operator must record inspection in an inspection log or summary. The owner or operator must keep these records for at least three years from the date of inspection. At a minimum, these records must include the date and time of the inspection, the name of the inspector, a notation of the observations made, and the date and nature of any repairs or other remedial actions.

(g) Personnel training.

(1)

- (i) Facility personnel must successfully complete a program of classroom instruction or on-the-job training that teaches them to perform their duties in a way that ensures the facility's

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compliance with the requirements of this Subpart. The owner or operator must ensure that this program includes all the elements described in the document required under subparagraph (4)(iii) of this subdivision.

- (ii) This program must be directed by a person trained in hazardous waste management procedures, and must include instruction which teaches facility personnel hazardous waste management procedures (including contingency plan implementation) relevant to the positions in which they are employed.
 - (iii) At a minimum, the training program must be designed to ensure that facility personnel are able to respond effectively to emergencies by familiarizing them with emergency procedures, emergency equipment and emergency systems, including where applicable:
 - ('a') procedures for using, inspecting, repairing and replacing facility emergency and monitoring equipment;
 - ('b') key parameters for automatic waste feed cutoff systems;
 - ('c') communication or alarm systems;
 - ('d') response to fires or explosions;
 - ('e') response to ground-water contamination incidents; and
 - ('f') shutdown of operations.
 - (iv) For facility employees that receive emergency response training pursuant to Occupational Safety and Health Administration (OSHA) regulations 29 CFR 1910.120(p)(8) and 1910.120(q) (see section 370.1(e) of this Title), the facility is not required to provide separate emergency response training pursuant to this section, provided that the overall facility training meets all the requirements of this section.
- (2) Facility personnel must successfully complete the program required in paragraph (1) of this subdivision within six months after the date of their employment or an assignment to a facility, or to a new position at a facility. Employees must not work in unsupervised positions until they have completed the training requirements of paragraph (1) of this subdivision.
 - (3) Facility personnel must take part in an annual review of the initial training required in paragraph (1) of this subdivision.
 - (4) The owner or operator must maintain the following documents and records at the facility:
 - (i) the job for each position at the facility related to hazardous waste management, and the name of the employee filling each job;
 - (ii) a written job description for each position listed under subparagraph (i) of this paragraph. This description may be consistent in its degree of specificity with descriptions for other similar positions in the same company location or bargaining unit, but must include the requisite skill, education or other qualifications, and duties of employees assigned to each position;

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- (iii) a written description of the type and amount of both introductory and continuing training that will be given to each person filing a position listed under subparagraph (i) of this paragraph;
 - (iv) records that document that the training or job experience required under paragraphs (1), (2) and (3) of this subdivision has been given to, and completed by facility personnel.
- (5) Training records on current personnel must be kept until closure of the facility. Training records on former employees must be kept for at least three years from the date the employee last worked at the facility. Personnel training records may accompany personnel transferred within the same company.

(h) General requirements for ignitable, reactive, or incompatible wastes.

- (1) The owner or operator must take precautions to prevent accidental ignition or reaction of ignitable or reactive waste. This waste must be separated and protected from sources of ignition or reaction, including but not limited to: open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks (static, electrical or mechanical), spontaneous ignition (e.g., from heat-producing chemical reactions), and radiant heat. While ignitable or reactive waste is being handled, the owner or operator must confine smoking and open flame to specially designated locations. "No Smoking" signs must be conspicuously placed wherever there is a hazard from ignitable or reactive waste.
- (2) Where specifically required by other sections of this Subpart, the treatment, storage or disposal of ignitable or reactive waste, and the mixture or commingling of incompatible wastes, or incompatible wastes and materials, must be conducted so that it does not:
 - (i) generate extreme heat or pressure, fire or explosions, or violent reactions;
 - (ii) produce uncontrolled toxic mists, fumes, dusts or gases in sufficient quantities to threaten human health;
 - (iii) produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions;
 - (iv) damage the structural integrity of the device or facility containing the waste; or
 - (v) through other like means threaten human health or the environment.

(i) Location standards.

The placement of any hazardous waste in a salt dome, salt bed formation, underground mine or cave is prohibited.

(j) Construction quality assurance program.

- (1) CQA program.
 - (i) A construction quality assurance (CQA) program is required for all surface impoundment, waste pile, and landfill units that are required to comply with sections 373-3.11(i)(1), 373-3.12(h), and 373-3.14(j)(1) of this Subpart. The program must ensure that the constructed unit

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meets or exceeds all design criteria and specifications in the permit. The program must be developed and implemented under the direction of a CQA officer who is a professional engineer registered in New York State.

- (ii) The CQA program must address the following physical components, where applicable:
 - ('a') foundations;
 - ('b') dikes;
 - ('c') low-permeability soil liners;
 - ('d') geomembranes (flexible membrane liners);
 - ('e') leachate collection and removal systems and leak detection systems; and
 - ('f') final cover systems.
- (2) Written CQA plan. Before construction begins on a unit subject to the CQA program under paragraph (1) of this subdivision, the owner or operator must develop a written CQA plan. The plan must identify steps that will be used to monitor and document the quality of materials and the condition and manner of their installation. The CQA plan must include:
 - (i) identification of applicable units, and a description of how they will be constructed;
 - (ii) identification of key personnel in the development and implementation of the CQA plan, and CQA officer qualifications; and
 - (iii) a description of inspection and sampling activities for all unit components identified in subparagraph (1)(ii) of this subdivision, including observations and tests that will be used before, during, and after construction to ensure that the construction materials and the installed unit components meet the design specifications. The description must cover: sampling size and locations; frequency of testing; data evaluation procedures; acceptance and rejection criteria for construction materials; plans for implementing corrective measures; and data or other information to be recorded and retained in the operating record under section 373-3.5(c) of this Subpart.
- (3) Contents of program.
 - (i) The CQA program must include observations, inspections, tests, and measurements sufficient to ensure:
 - ('a') structural stability and integrity of all components of the unit identified in subparagraph (1)(ii) of this subdivision;
 - ('b') proper construction of all components of the liners, leachate collection and removal system, leak detection system, and final cover system, according to permit specifications and good engineering practices, and proper installation of all components (e.g., pipes) according to design specifications;

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- (c) conformity of all materials used with design and other material specifications under sections 373-2.12(b), and 373-2.14(c) of this Part.
- (ii) The CQA program shall include test fills for compacted soil liners, using the same compaction methods as in the full-scale unit, to ensure that the liners are constructed to meet the hydraulic conductivity requirements of sections 373-2.11(b)(3)(i), 373-2.12(b)(3)(i), and 373-2.14(c)(3)(i) of this Part in the field. Compliance with the hydraulic conductivity requirements must be verified by using in situ testing on the constructed test fill. The test fill requirement is waived where data are sufficient to show that a constructed soil liner meets the hydraulic conductivity requirements of sections 373-2.11(b)(3)(i), 373-2.12(b)(3)(i), and 373-2.14(c)(3)(i) of this Part in the field.
- (4) Certification. The owner or operator of units subject to this subdivision must submit to the commissioner, by certified mail or hand delivery, at least 30 days prior to receiving waste, a certification signed by the CQA officer that the CQA plan has been successfully carried out and that the unit meets the requirements of section 373-3.11(i)(1), 373-3.12(h), or 373-3.14(j)(1) of this Subpart. The owner or operator may receive waste in the unit after 30 days from the commissioner's receipt of the CQA certification unless the commissioner determines in writing that the construction is not acceptable, or extends the review period for a maximum of 30 more days, or seeks additional information from the owner or operator during this period. Documentation supporting the CQA officer's certification must be furnished to the commissioner upon request.

Section 373-3.3 Preparedness and prevention.

(a) Applicability.

The regulations in this section apply to owners and operators of all hazardous waste facilities, except as section 373-3.1(a) provides otherwise.

(b) Maintenance and operation of facility.

Facilities must be maintained and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil or surface water which could threaten human health or the environment.

(c) Required equipment.

All facilities must be equipped with the following, unless none of the hazards posed by waste handled at the facility could require a particular kind of equipment specified below:

- (1) an internal communications or alarm system capable of providing immediate emergency instruction (voice or signal) to facility personnel;
- (2) a device, such as a telephone (immediately available at the scene of operations) or a hand-held two-way radio, capable of summoning emergency assistance from local police departments, fire departments, or State or local emergency response teams;

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- (3) portable fire extinguishers, fire control equipment (including special extinguishing equipment such as that using foam, inert gas or dry chemicals), spill control equipment and decontamination equipment; and
- (4) water at adequate volume and pressure to supply water hose streams, foam-producing equipment, automatic sprinklers, or water spray systems.

(d) Testing and maintenance of equipment.

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

(e) Access to communications or alarm system.

- (1) Whenever hazardous waste is being poured, mixed, spread or otherwise handled, all personnel involved in the operation must have immediate access to an internal alarm or emergency communication device either directly or through visual or voice contact with another employee, unless such a device is not required under subdivision (c) of this section.
- (2) If there is ever just one employee on the premises while the facility is operating, that employee must have immediate access to a device, such as a telephone (immediately available at the scene of operation) or a hand-held two-way radio, capable of summoning external emergency assistance, unless such a device is not required under subdivision (c) of this section.

(f) Required aisle space.

The owner or operator must maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment and decontamination equipment to any area of facility operation in an emergency, unless aisle space is not needed for any of these purposes.

(g) Arrangements with local authorities.

- (1) The owner or operator must attempt to make the following arrangements as appropriate for the type of waste handled at the owner or operator's facility and the potential need for the services of these organizations:
 - (i) arrangements to familiarize police, fire departments and emergency response teams with the layout of the facility, properties of hazardous waste handled at the facility and associated hazards, places where facility personnel would normally be working, entrances to and roads inside the facility, and possible evacuation routes;
 - (ii) where more than one police and fire department might respond to an emergency, agreements designating primary emergency authority to a specific police and a specific fire department, and agreements with any others to provide support to the primary emergency authority;
 - (iii) agreements with State emergency response teams, emergency response contractors and equipment suppliers; and

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- (iv) arrangements to familiarize local hospitals with the properties of hazardous waste handled at the facility and the types of injuries or illnesses which could result from fires, explosions or releases at the facility.
- (2) Where State or local authorities decline to enter into such arrangements, the owner or operator must document the refusal in the operating record.

Section 373-3.4 Contingency plan and emergency procedures.

(a) Applicability.

The regulations in this section apply to owners and operators of all hazardous waste facilities, except as section 373-3.1(a) of this Subpart provides otherwise.

(b) Purpose and implementation of contingency plan.

- (1) Each owner or operator must have a contingency plan for the facility. The contingency plan must be designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or nonsudden release of hazardous waste or hazardous waste constituents to air, soil or surface water.
- (2) The provisions of the plan must be carried out immediately whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment.

(c) Content of contingency plan.

- (1) The contingency plan must describe the actions facility personnel must take to comply with subdivisions (b) and (g) of this section in response to fires, explosions, or any unplanned sudden or nonsudden release of hazardous waste or hazardous waste constituents to air, soil or surface water at the facility.
- (2) If the owner or operator has already prepared a Spill Prevention, Control and Countermeasure (SPCC) plan as defined in section 610.2(j) of this Title and 40 CFR part 300 (see section 370.1(e) of this Title), or some other emergency or contingency plan, that plan need only be amended to incorporate hazardous waste management provisions that are sufficient to comply with the requirements of this Subpart. The owner or operator may develop one contingency plan which meets all regulatory requirements. When modifications are made to the non-Part 370 through 374 and Part 376 provisions in an integrated contingency plan, the changes do not trigger the need for a Part 373 permit modification.
- (3) The plan must describe arrangements agreed to by local police departments, fire departments, hospitals, contractors, and State and local emergency response teams to coordinate emergency services, pursuant to section 373-3.3(g) of this Subpart.
- (4) The plan must list names, addresses and phone numbers (office and home) of all persons qualified to act as emergency coordinator (see subdivision (f) of this section), and this list must be kept up-to-date. Where more than one person is listed, one must be named as primary emergency coordinator

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and others must be listed in the order in which they will assume responsibility as alternates.

- (5) The plan must include a list of all emergency equipment at the facility (such as fire-extinguishing systems, spill control equipment, communications and alarm systems (internal and external) and decontamination equipment), where this equipment is required. This list must be kept up-to-date. In addition, the plan must include the location and a physical description of each item on the list, and a brief outline of its capabilities.
- (6) The plan must include an evacuation plan for facility personnel where there is a possibility that evacuation could be necessary. This plan must describe the signal(s) to be used to begin evacuation, evacuation routes, and alternate evacuation routes (in cases where the primary routes could be blocked by releases of hazardous waste or fires).

(d) Copies of contingency plan.

A copy of the contingency plan and all revisions to the plan must be:

- (1) maintained at the facility; and
- (2) submitted to all local police departments, fire departments, hospitals, and State and local emergency response teams that may be called upon to provide emergency services.

(e) Amendment of contingency plan.

The contingency plan must be reviewed, and immediately amended, if necessary, whenever:

- (1) Applicable regulations are revised;
- (2) the plan fails in an emergency;
- (3) the facility changes—in its design, construction, operation, maintenance or other circumstances—in a way that materially increases the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or changes the response necessary in an emergency;
- (4) the list of emergency coordinators changes; or
- (5) the list of emergency equipment changes.

(f) Emergency coordinator.

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

(g) Emergency procedures.

- (1) Whenever there is an imminent or actual emergency situation, the emergency coordinator (or the

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emergency coordinator's designee when the emergency coordinator is on call) must immediately:

- (i) activate internal facility alarms or communication systems, where applicable, to notify all facility personnel; and
 - (ii) notify appropriate State or local agencies with designated response roles if their help is needed.
- (2) Whenever there is a release, fire or explosion, the emergency coordinator must immediately identify the character, exact source, amount, and areal extent of any released materials. This may be done by observation or review of facility records or manifests and, if necessary, by chemical analysis.
- (3) Concurrently, the emergency coordinator must assess possible hazards to human health or the environment that may result from the release, fire or explosion. This assessment must consider both direct and indirect effects of the release, fire or explosion (e.g., the effects of any toxic, irritating or asphyxiating gases that are generated, or the effects of any hazardous surface water runoff from water or chemical agents used to control fire and heat-induced explosions).
- (4) If the emergency coordinator determines that the facility has had a release, fire or explosion which could threaten human health, or the environment, outside the facility, the emergency coordinator's findings must be reported as follows:
- (i) if the assessment indicates that evacuation of local areas may be advisable, appropriate local authorities must be notified immediately. The emergency coordinator must be available to help appropriate officials decide whether local areas should be evacuated; and
 - (ii) The emergency coordinator must immediately notify both the department (using the New York State 24-hour oil and hazardous material spill notification number, 518/457-7362), and either the government official designated as the on-scene coordinator for that geographical area (in the applicable regional contingency plan under 40 CFR part 300) (see 6 NYCRR 370.1(e)), or the National Response Center (using their 24-hour toll free number, 800/424-8802) must be notified immediately. The report must include:
 - ('a') name and telephone number of reporter;
 - ('b') name and address of facility;
 - ('c') time and type of incident (e.g., release, fire);
 - ('d') name and quantity of material(s) involved, to the extent known;
 - ('e') the extent of injuries, if any; and
 - ('f') the possible hazards to human health, or the environment, outside the facility.
- (5) During an emergency, the emergency coordinator must take all reasonable measures necessary to ensure that fires, explosions and releases do not occur, recur, or spread to other hazardous waste at the facility. These measures must include, where applicable, stopping processes and operations, collecting and containing released waste, and removing or isolating containers.

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- (6) If the facility stops operations in response to a fire, explosion or release, the emergency coordinator must monitor for leaks, pressure buildup, gas generation or ruptures in valves, pipes or other equipment, wherever this is appropriate.
- (7) Immediately after an emergency, the emergency coordinator must provide for treating, storing or disposing of recovered waste, contaminated soil or surface water, or any other material that results from a release, fire or explosion at the facility.

Note: Unless the owner or operator can demonstrate, in accordance with 6 NYCRR 371.1(d)(3) or (4), that the recovered material is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and must manage it in accordance with all applicable requirements of 6 NYCRR Part 372 and Subpart 373-2.

- (8) The emergency coordinator must ensure that, in the affected area(s) of the facility:
 - (i) no waste that may be incompatible with the released material is treated, stored or disposed of until cleanup procedures are completed; and
 - (ii) all emergency equipment listed in the contingency plan is cleaned and fit for its intended use before operations are resumed.
- (9) The owner or operator must notify the commissioner, and appropriate State and local authorities, that the facility is in compliance with paragraph (8) of this subdivision before operations are resumed in the affected area(s) of the facility.
- (10) The owner or operator must note in the operating record the time, date and details of any incident that requires implementing the contingency plan. Within 15 days after the incident, a written report on the incident must be submitted to the commissioner. The report must include:
 - (i) name, address and telephone number of the owner or operator;
 - (ii) name, address and telephone number of the facility;
 - (iii) date, time and type of incident (e.g., fire, explosion);
 - (iv) name and quantity of material(s) involved;
 - (v) the extent of injuries, if any;
 - (vi) an assessment of actual or potential hazards to human health or the environment, where this is applicable; and
 - (vii) estimated quantity and disposition of recovered material that resulted from the incident.

Section 373-3.5 Manifest system, recordkeeping and reporting.

(a) Applicability.

The regulations in this section apply to owners and operators of both onsite and offsite facilities, except that subdivisions (b) and (f) do not apply to owners and operators of onsite facilities that do not receive any hazardous waste from offsite sources.

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(b) Manifest requirements.

A treatment, storage or disposal facility shipping hazardous wastes off-site or offering hazardous wastes for shipment off-site must comply with all generator standards as specified in section 372.2 of this Title. If a facility receives hazardous waste accompanied by a manifest, the owner or operator, or his or her agent, must comply with the requirements of this subdivision.

(1) Use of manifest system.

(i)

('a') If a facility receives hazardous waste accompanied by a manifest, the owner, operator or his/her agent must:

('1') complete line 19 of the manifest, hazardous waste report management method codes, for each waste received and accepted, using the codes established in the annual report instructions and forms referenced in subdivision (e) of this section; and

('2') sign and date the manifest as indicated in clause ('b') of this subparagraph to certify that the hazardous waste covered by the manifest was received, that the hazardous waste was received except as noted in the discrepancy space of the manifest, or that the hazardous waste was rejected as noted in the manifest discrepancy space.

('b') If a facility receives a hazardous waste shipment accompanied by a manifest, the owner, operator or his/her agent must:

('1') determine that all portions of the manifest, except that portion filled out by the owner or operator of the facility, have been completed. For example, if the facility is not providing a hazardous waste management code in item 19 that reflects the ultimate disposal method for the waste, the State code in box 13 designating the ultimate disposal method for the hazardous waste is completed. A completed form includes signatures and all certifications required from the generator and the initial and delivering transporters. In those cases where the owner or operator completes any of the generator's portions of the manifest (items 1-14), the owner or operator assumes joint responsibility with the generator for the accuracy and completeness of those portions he or she completed;

('2') sign and date, by hand, each copy of the manifest;

('3') note any discrepancies (as defined in clause ('d') of this subparagraph) on each copy of the manifest;

('4') immediately give the transporter at least one copy of the manifest;

('5') within 10 calendar days of delivery, mail a copy of the manifest to the generator, the generator state and the destination state (if different from the generator state),

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making legible photocopies as necessary. Mail the department copy to New York State Department of Environmental Conservation, 625 Broadway, Albany, NY 12233-7252. Facilities do not need to distribute manifest copies to states other than New York, if those states do not require such a copy be submitted to them; and

- (6) retain at the facility a copy of each manifest for a least three years from the date of delivery.
- (c) If a facility receives hazardous waste imported from a foreign source, the receiving facility must also mail a copy of the manifest and documentation confirming EPA's consent to the import of hazardous waste to the following address within 30 days of delivery:

Office of Enforcement and Compliance Assurance,
Office of Federal Activities, International Compliance Assurance
Division (2254A),
U.S. Environmental Protection Agency,
1200 Pennsylvania Avenue NW, Washington, DC 20460

Note: for purposes of reference only: The owner or operator of a recovery facility that has arranged to receive hazardous waste from an OECD Member country, as defined in section 372.5(h)(1) of this Title, must also meet the requirement of 40 CFR 265.71(d) (see section 370.1(e) of this Title).

- (d) Manifest discrepancies are:
 - (1) significant differences between the quantity (as defined by clause ('e') of this subparagraph) or type (as defined by clause ('f') of this subparagraph) of hazardous waste designated on the manifest or shipping paper, and the quantity or type of hazardous waste a facility actually receives;
 - (2) rejected wastes, which may be a full or partial shipment of hazardous waste that the facility cannot accept; or
 - (3) container residues, which are residues that exceed the quantity limits for "empty" containers set forth in section 371.1(h)(2) of this Title.
- (e) Significant differences in quantity are:
 - (1) for bulk waste, variations greater than 10 percent in weight; and
 - (2) for batch waste, any variation in piece count, such as a discrepancy of one drum in a truckload.
- (f) Significant differences in type are obvious differences which can be discovered by inspections or waste analysis, such as waste solvent substituted for waste acid, or toxic constituents not reported on the manifest or shipping paper.

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- (ii) The facility owner or operator must perform or obtain an analysis of a representative sample of each hazardous waste shipment as specified in the waste analysis plan required by section 373-2.2(e)(2) of this Part. The purpose of this analysis is to identify discrepancies between the actual composition of the waste and its description on the manifest.
- (iii) Upon discovering a significant difference in quantity or type, the owner or operator of the facility must attempt to reconcile the discrepancy with the waste generator or transporter (e.g., with telephone conversations). If the discrepancy is not resolved within 15 days after receiving the waste, the owner or operators must immediately submit a letter to the generator state and the disposer state describing the discrepancy and attempts to reconcile it, and a copy of the manifest or shipper paper at issue.
- (iv)
 - ('a') Upon rejecting waste or identifying a container residue that exceeds the quantity limits for “empty” containers set forth in section 371.1(h)(2) of this Title, the facility must consult with the generator prior to forwarding the waste to another facility that can manage the waste. If it is impossible to locate an alternative facility that can receive the waste, the facility may return the rejected waste or residue to the generator. The facility must send the waste to the alternative facility or to the generator within 60 days of the rejection or the container residue identification.
 - ('b') While the facility is making arrangements forwarding rejected wastes or residues to another facility under this subparagraph, it must ensure that either the delivering transporter retains custody of the waste, or the facility must provide for secure, temporary custody of the waste, pending delivery of the waste to the first transporter designated on the manifest prepared under subparagraph (v) or (vi) of this paragraph.
- (v) Except as provided in clause ('g') of this subparagraph, for full or partial load rejections and residues that are to be sent off-site to an alternate facility, the facility is required to prepare a new manifest for each manifest with a full or partial load rejection in accordance with section 372.2(b) of this Title and the following instructions:
 - ('a') Write the generator's U.S. EPA ID number in item 1 of the new manifest. Write the generator's name and mailing address in item 5 of the new manifest. If the mailing address is different from the generator's site address, then write the generator's site address in the designated space for item 5.
 - ('b') Write the name of the alternate designated facility and the facility's U.S. EPA ID number in the designated facility block (item 8) of the new manifest.
 - ('c') Copy the manifest tracking number found in item 4 of the old manifest to the special handling and additional information block of the new manifest (item 14), and indicate that the shipment is a residue or reject waste from the previous shipment.
 - ('d') Copy the manifest tracking number found in item 4 of the new manifest to the manifest

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reference number line in the discrepancy block of the old manifest (item 18a).

- (e') Write the DOT description for the rejected load or the residue in item 9 (U.S. DOT description) of the new manifest and write the container types, quantity and volume(s) of waste.
 - (f') Sign the generator's/offeror's certification to certify, as the offeror of the shipment, that the waste has been property packaged, marked and labeled and is in proper condition for transportation, and mail a signed copy of the manifest to the generator identified in item 5 of the new manifest.
 - (g') For full load rejections that are made while the transporter remains present at the facility, the facility may forward the rejected shipment to the alternate facility by completing item 18b of the original manifest and supplying the information on the next destination facility in the alternate facility space. The facility must retain a copy of this manifest for its records, and then give the remaining copies of the manifest to the transporter to accompany this shipment. If the original manifest is not used, then the facility must use a new manifest and comply with clauses ('a'), ('b'), ('c'), ('d'), ('e') and ('f') of this subparagraph.
- (vi) Except as provided in clause ('g') of this subparagraph, for rejected wastes and residues that must be sent back to the generator, the facility is required to prepare a new manifest for each manifest with a full or partial load rejection in accordance with section 372.2(b) of this Title and the following instructions:
- (a') Write the facility's U.S. EPA ID number in item 1 of the new manifest. Write the facility's name and mailing address in item 5 of the new manifest. If the mailing address is different from the facility's site address, then write the facility's site address in the designated space for item 5 of the new manifest.
 - (b') Write the name of the initial generator and the generator's U.S. EPA ID number in the designated facility block (item 8) of the new manifest.
 - (c') Copy the manifest tracking number found in item 4 of the old manifest to the item 14 special handling and additional information block of the new manifest, and indicate that the shipment is a residue or rejected waste from the previous shipment.
 - (d') Copy the manifest tracking number found in item 4 of the new manifest to the manifest reference number line in the discrepancy block of the old manifest (item 18a).
 - (e') Write the DOT description for the rejected load or the residue in item 9 (U.S. DOT description) of the new manifest and write the container types, quantity and volume(s) of waste.
 - (f') Sign the generator's/offeror's certification to certify, as the offeror of the shipment, that the waste has been properly packaged, marked and labeled and is in proper condition

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for transportation, and transmit a signed copy of the manifest to the generator identified in item 5 of the new manifest.

- (g) For full load rejections that are made while the transporter remains at the facility, the facility may return the shipment to the generator with the original manifest by completing item 18b of the manifest and supplying the generator's information in the alternate facility space. The facility must retain a copy for its records, and then give the remaining copies of the manifest to the transporter to accompany this shipment. If the original manifest is not used, then the facility must use a new manifest and comply with clauses ('a'), ('b'), ('c'), ('d'), ('e'), ('f'), and ('h') of this subparagraph.
 - (h) For full or partial load rejections and container residues contained in non-empty containers that are returned to the generator, the facility must also comply with the exception reporting requirements in section 372.2(c)(3)(i) of this Title.
- (vii) If a facility rejects a waste or identifies a container residue that exceeds the quantity limits for "empty" containers set forth in section 371.1(h)(2) of this Title after it has signed, dated, and returned a copy of the manifest to the delivering transporter, the generator, the generator state, or the destination state, the facility must amend its copy of the manifest to indicate the rejected wastes or residues in the discrepancy space of the amended manifest. The facility must also copy the manifest tracking number from item 4 of the new manifest to the discrepancy space (item 18a) of the amended manifest, and must re-sign and date the manifest to certify to the information as amended. The facility must retain the amended manifest for at least three years from the date of amendment, and must within 10 calendar days of the amendment, send a copy of the amended manifest to the transporter, generator, generator state and destination state that received copies prior to their being amended. The facility must retain a copy of the new manifest for at least three years from the date of shipment, and must within 10 calendar days, send a copy of the new manifest to their state, the generator, generator state and destination state.
- (viii) The requirements of this subdivision do not apply to hazardous waste produced by generators of greater than 100 kilograms but less than 1,000 kilograms in a calendar month where:
- (a) the waste is being transported pursuant to a reclamation agreement as provided in section 373.2(b)(7) of this Title, provided that:
 - (1) the owner or operator records the following information for each shipment:
 - (i) the name, address and U.S. E.P.A. identification number of the generator of the waste;
 - (ii) the hazardous waste number and quantity of waste accepted; and
 - (iii) the date the waste is accepted;
 - (2) the owner or operator retains these records for a period of at least three years after termination or expiration of the agreement; and

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- (3') quarterly summaries (unless otherwise specified by the department) of these records must be submitted to the department. These summaries must include the waste types and quantities received from each generator.
- (ix) A facility must determine whether the consignment state for a shipment regulates any additional wastes (beyond those regulated federally) as hazardous wastes under its state hazardous waste program. Facilities must also determine whether the consignment state or generator state requires the facility to submit any copies of the manifest to these states.
- (2) Unmanifested shipments. Upon receipt of an unmanifested shipment of hazardous waste, the owner or operator of the facility must:
 - (i) where possible determine the reason why the shipment is not accompanied by a manifest (e.g., small generator exemption, rail transportation);
 - (ii) accept the waste for treatment, storage or disposal if:
 - ('a') the reason the shipment is unmanifested is that it originated from a conditionally exempt small quantity generator (see section 371.1(f) of this Title); or
 - ('b') the shipment is transported in whole or in part by a rail or water (bulk) transporter and the requirements of section 372.7 of this Title are satisfied;
 - (iii)
 - ('a') accept the waste for treatment, storage and disposal and file an unmanifested waste report with the department in accordance with subparagraph (3)(i) of this subdivision within 15 calendar days of receipt of the shipment if the shipment was transported in whole or in part by a rail or water (bulk) transporter and the manifest is not received by the facility within 15 calendar days of receipt of the shipment; or
 - ('b') accept the waste for treatment, storage and disposal and file an unmanifested waste report with the department in accordance with subparagraph (3)(ii) of this subdivision within 10 calendar days of receipt of the shipment if the situation is not specifically set forth in subparagraph (ii) and clause (iii)(‘a’) of this paragraph and the conditions of paragraph (5) of this subdivision are met;
 - (iv) reject the shipment of hazardous waste, and:
 - ('a') manage the hazardous waste pursuant to subparagraph (1)(iv) of this subdivision;
 - ('b') manifest the hazardous waste pursuant to subparagraph (1)(v) or (1)(vi) of this subdivision as appropriate, except that, instead of the old manifest number, the phrase “unmanifested shipment from” and the generator's EPA ID number (if known) or the generator's name and address will be inserted into item 14 “Special Handling and Additional Information” block of the new manifest; and
 - ('c') file an unmanifested waste report in accordance with subparagraph (3)(ii) of this subdivision.

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- (3) Recordkeeping and reporting requirements.
- (i) Manifest discrepancy reports. The facility owner or operator must report to the disposer state and generator state concerning any manifest discrepancies in accordance with subparagraph (1)(iii) of this subdivision.
 - (ii) Unmanifested waste report. In those situations requiring submission of an unmanifested waste report, as identified in paragraph (2) of this subdivision, the report must include the following information:
 - ('a') the EPA identification number, name, and address of the facility;
 - ('b') the date the facility received the waste;
 - ('c') the EPA identification number, name, and address of the generator and of the transporter, if available;
 - ('d') the transporter's license plate number;
 - ('e') the transporter's Part 364 permit number if available;
 - ('f') a description of and the quantity of each unmanifested hazardous waste the facility received including EPA waste type;
 - ('g') the method of treatment, storage, or disposal for each hazardous waste (if accepted);
 - ('h') a brief explanation of why the waste was unmanifested, if known; and
 - ('i') certification signed by the owner or operator of the facility or his/her authorized representative.
 - (iii) Availability, retention and disposition of records.
 - ('a') Reports and records required by this subdivision must be retained for a period of three years from the date of submittal.
 - ('b') All records required under this subdivision must be furnished to the department upon request and must be postmarked within five business days of receipt of a written request. These records must be made available at all reasonable times for inspection by any officer, employee, or representative of the department who is duly designated by the commissioner.
 - ('c') The three-year retention period for all records required under this subdivision is extended automatically for the duration of any unresolved enforcement action regarding the facility or as requested by the commissioner.
- (4) Special conditions. Rail and water (bulk) shipments. Facilities which receive shipments of hazardous waste transported in whole or in part by rail or water (bulk) must comply with the treatment, storage, or disposal facility requirements in section 372.7 of this Title.

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(5) Prohibitions. No facility shall:

- (i) accept a particular hazardous waste unless it is authorized to accept such waste; or
- (ii) accept a hazardous waste for which it does not have adequate treatment, storage or disposal capacity available.

(c) Operating record.

(1) The owner or operator must keep a written operating record at the facility.

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

- (i) 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 25, *infra*;
- (ii) the location of each hazardous waste within the facility and the quantity at each location. For disposal facilities, the location and quantity of each hazardous waste must be recorded on a map or diagram of each cell or disposal area. For all facilities, this information must include cross-references to specific manifest document numbers, if the waste was accompanied by a manifest;

Note: See sections 373-3.7(i), 373-3.13(f) and 373-3.14(c) of this Subpart for related requirements.

- (iii) records and results of waste analyses, waste determinations and trial tests performed as specified in sections 373-3.2(d), 373-3.10(k), 373-3.11(d), 373-3.12(c), 373-3.13(c), 373-3.14(g), 373-3.15(b), 373-3.16(c), 373-3.17(c), 373-3.27(e), 373-3.28(n) and 373-3.29(e) of this Subpart, and section 376.1(d)(1) and (g) of this Title;
- (iv) summary reports and details of all incidents that require implementing the contingency plan as specified in section 373-3.4(g) of this Subpart;
- (v) records and results of inspections as required by section 373-3.2(f) of this Subpart (except these data need be kept only three years);
- (vi) monitoring, testing, or analytical data, and corrective action where required by sections 373-3.2(j), 373-3.6, 373-3.6(a) and (e), 373-3.10(b), (d) and (f), 373-3.11(b), (e) and (j), 373-3.12(i)-(k), 373-3.13(d), (e) and (g)(4)(i), 373-3.14(b), (k) and (l), 373-3.15(d), 373-3.16(d), 373-3.27(e)(3) through (6) and (f), 373-3.28(n)(4) through (9) and (o), 373-3.29(d) through (k) of this Subpart;

Note: As required by section 373-3.6(e) of this Subpart, monitoring data at disposal facilities must be kept throughout the post-closure period.

- (vii) all closure cost estimates under section 373-3.8(c) of this Subpart and, for disposal facilities, all post-closure cost estimates under section 373-3.8(e).

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- (viii) records of the quantities (and date of placement) for each shipment of hazardous waste placed in land disposal units under an extension to the effective date of any land disposal restriction granted pursuant to section 376.1(e) of this Title monitoring data required pursuant to a petition under section 376.1(f), and the applicable notice required by a generator under section 376.1(g)(1);
- (ix) for an off-site treatment facility, a copy of the notice, and the certification and demonstration if applicable, required by the generator or the owner or operator under section 376.1(g) of this Title;
- (x) for an on-site treatment facility, the information contained in the notice (except the manifest number), and the certification and demonstration if applicable, required by the generator or the owner or operator under section 376.1(g) of this Title;
- (xi) for an off-site land disposal facility, a copy of the notice, and the certification and demonstration if applicable, required by the generator or the owner or operator of a treatment facility under section 376.1(g) of this Title;
- (xii) for an on-site land disposal facility, the information contained in the notice (except the manifest number), and the certification and demonstration if applicable, required by the generator or the owner or operator of a treatment facility under section 376.1(g) of this Title;
- (xiii) for an off-site storage facility, a copy of the notice, and the certification and demonstration if applicable, required by the generator or the owner or operator under section 376.1(g) of this Title; and
- (xiv) for an on-site storage facility, the information contained in the notice (except the manifest number), and the certification and demonstration if applicable, required by the generator or the owner or operator of a treatment facility under section 376.1(g) of this Title.
- (xv) monitoring, testing or analytical data, and corrective action where required by section 373-3.6(a), and (d)(4)(ii) and (v) of this Subpart, and the certification as required by section 373-3.10(g)(6) of this Subpart.

(d) Availability, retention and disposition of records.

- (1) All records, including plans, required under this Part must be kept at the facility and furnished upon request, and made available at all reasonable times for inspection, by any officer, employee or representative of the department who is duly designated by the commissioner.
- (2) The retention period for all records required under this Part is extended automatically during the course of any unresolved enforcement action regarding the facility or as requested by the commissioner.
- (3) A copy of records of waste disposal locations and quantities under subparagraph (c)(2)(ii) of this section must be submitted to the commissioner and local land authority upon closure of the facility.

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(e) Annual report.

The owner or operator must prepare and submit a single copy of an annual report to the commissioner by March 1st of each year. The annual report must cover facility activities during the previous calendar year, and must at a minimum include:

- (1) the EPA identification number, name and address of the facility;
- (2) the calendar year covered by the report;
- (3) for offsite facilities, the EPA identification number of each hazardous waste generator from which the facility received a hazardous waste during the year; for imported shipments, the report must give the name and address of the foreign generator;
- (4) a description and the quantity of each hazardous waste the facility received during the year. For offsite facilities, this information must be listed by EPA identification number of each generator;
- (5) the method of treatment, storage or disposal for each hazardous waste;
- (6) monitoring data under sections 373-3.6(e)(1)(ii)('b')-(‘c’) and 373-3.6(e)(2)(ii) of this Subpart, where required;
- (7) the most recent closure cost estimate under section 373-3.8(c) of this Subpart and, for disposal facilities, the most recent post-closure cost estimate under section 373-3.8(e) of this Subpart;
- (8) for generators who treat, store or dispose of hazardous waste onsite, a description of the efforts undertaken during the year to reduce the volume and toxicity of waste generated;
- (9) for generators who treat, store or dispose of hazardous waste onsite, a description of the changes in volume and toxicity of waste actually achieved during the year in comparison to previous years to the extent such information is available for the years prior to 1984; and
- (10) the certification signed by the owner or operator of the facility or the owner or operator's authorized representative.

(f) Unmanifested waste report.

The facility must comply with the requirements for unmanifested wastes specified in paragraphs (b)(2) and (3) of this section.

(g) Additional reports.

In addition to submitting the annual report described in subdivision (e) of this section, the owner or operator must also report to the commissioner:

- (1) releases, fires and explosions as specified in section 373-3.4(g)(10) of this Subpart;
- (2) ground water contamination and monitoring data as specified in section 373-3.6(d) and (e) of this Subpart;
- (3) facility closure as specified in section 373-3.7(f) of this Subpart; and

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- (4) as otherwise required by sections 373-3.27, 373-3.28 and 373-3.29 of this Subpart.

Section 373-3.6 Ground-water monitoring.

(a) Applicability.

- (1) The owner or operator of a surface impoundment, landfill or land treatment facility which is used to manage hazardous waste must implement a ground-water monitoring program capable of determining the facility's impact on the quality of ground water in the uppermost aquifer underlying the facility, except as section 373-3.1(a) of this Subpart and paragraph (3) of this subdivision provide otherwise.
- (2) Except as paragraphs (3) and (4) of this subdivision provide otherwise, the owner or operator must install, operate and maintain a ground-water monitoring system which meets the requirements of subdivision (b) of this section and must comply with subdivisions (c)-(e). This ground-water monitoring program must be carried out during the active life of the facility, and for disposal facilities, excluding thermal treatment, incineration and energy recovery facilities, during the post-closure care period as well.
- (3) All or part of the ground-water monitoring requirements of this section may be waived if the owner or operator can demonstrate that there is a low potential for migration of hazardous waste or hazardous waste constituents from the facility via the uppermost aquifer to water supply wells (domestic, industrial or agricultural) or to surface water. This demonstration must be in writing, and must be kept at the facility. This demonstration must be certified by a qualified geologist or geotechnical engineer and must establish the following:
 - (i) the potential for migration of hazardous waste or hazardous waste constituents from the facility to the uppermost aquifer, by an evaluation of:
 - ('a') a water balance of precipitation, evapotranspiration, runoff and infiltration; and
 - ('b') unsaturated zone characteristics (i.e., geologic materials, physical properties, and depth to ground water); and
 - (ii) the potential for hazardous waste or hazardous waste constituents which enter the uppermost aquifer to migrate to a water supply well or surface water, by an evaluation of:
 - ('a') saturated zone characteristics (i.e., geologic materials, physical properties, and rate of ground-water flow); and
 - ('b') the proximity of the facility to water supply wells or surface water.
- (4) If an owner or operator assumes (or knows) that ground-water monitoring of indicator parameters in accordance with subdivisions (b) and (c) of this section would show statistically significant increases (or decreases, in the case of pH) when evaluated under subdivision (d) of this section, an alternate ground-water monitoring system (other than the one described in subdivisions (b) and (c)) may be installed, operated and maintained. If the owner or operator decides to use an alternate ground-water monitoring system, the owner or operator must:

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- (i) prepare and submit to the department a specific plan, certified by a qualified geologist or geotechnical engineer, which satisfies the requirements of subparagraph (d)(4)(iii) of this section for an alternate ground-water monitoring system. This plan is to be placed in the facility's operating record and maintained until closure of the facility;
 - (ii) initiate the determinations specified in subparagraph (d)(4)(iv) of this section;
 - (iii) prepare a report in accordance with subparagraph (d)(4)(v) of this section and place it in the facility's operating record and maintain until closure of the facility; and
 - (iv) continue to make the determinations specified in subparagraph (d)(4)(iv) of this section on a quarterly basis until final closure of the facility; and
 - (v) comply with the recordkeeping and reporting requirements in paragraph (e)(2) of this section.
- (5) The ground-water monitoring requirements of this section may be waived with respect to any surface impoundment that:
- (i) is used to neutralize wastes which are hazardous solely because they exhibit the corrosivity characteristic under section 371.3(c) of this Title or are listed as hazardous wastes in section 371.4 of this Title only for this reason; and
 - (ii) contains no other hazardous wastes, if the owner or operator can demonstrate that there is no potential for migration of hazardous wastes from the impoundment. The demonstration must establish, based upon consideration of the characteristics of the wastes and the impoundment, that the corrosive wastes will be neutralized to the extent that they no longer meet the corrosivity characteristic before they can migrate out of the impoundment. The demonstration must be in writing and must be certified by a qualified professional.
- (6) The department may replace all or part of the requirements of this Subpart applying to a regulated unit (as defined in section 373-2.6(a) of this Part), with alternative requirements developed for groundwater monitoring set out in an approved closure or post-closure plan or in an enforceable document (as defined in section 373-1.2(e)(3) of this Part), where the department determines that:
- (i) a regulated unit is situated among solid waste management units (or areas of concern), a release has occurred, and both the regulated unit and one or more solid waste management unit(s) (or areas of concern) are likely to have contributed to the release; and
 - (ii) it is not necessary to apply the requirements of this section because the alternative requirements will protect human health and the environment. The alternative standards for the regulated unit must meet the requirements of section 373-2.6(1)(1) of this Part.

(b) Ground-water monitoring system.

- (1) A ground-water monitoring system must be capable of yielding ground-water samples for analysis and must consist of:

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- (i) monitoring wells (at least one) installed hydraulically upgradient (i.e., in the direction of increasing static head) from the limit of the waste management area. Their number, locations and depths must be sufficient to yield ground-water samples that are:
 - ('a') representative of background ground-water quality in the uppermost aquifer near the facility; and
 - ('b') not affected by the facility; and
 - (ii) monitoring wells (at least three) installed hydraulically downgradient (i.e., in the direction of decreasing static head) at the limit of the waste management area. Their number, locations and depths must ensure that they immediately detect any statistically significant amounts of hazardous waste or hazardous waste constituents that migrate from the waste management area to the uppermost aquifer.
 - (iii) The facility owner or operator may demonstrate that an alternate hydraulically downgradient monitoring well location will meet the criteria outlined below. The demonstration must be in writing and kept at the facility. The demonstration must be certified by a qualified ground-water scientist and establish that:
 - ('a') an existing physical obstacle prevents monitoring well installation at the hydraulically downgradient limit of the waste management area; and
 - ('b') the selected alternate downgradient location is as close to the limit of the waste management area as practical; and
 - ('c') the location ensures detection that, given the alternate location, is as early as possible of any statistically significant amounts of hazardous waste or hazardous waste constituents that migrate from the waste management area to the uppermost aquifer; and
 - ('d') lateral expansion, new or replacement units are not eligible for an alternate downgradient location under this paragraph.
- (2) Separate monitoring systems for each waste management component of a facility are not required, provided that provisions for sampling upgradient and downgradient water quality will detect any discharge from the waste management area. The commissioner may require separate monitoring systems for separate waste management components.
- (i) In the case of a facility consisting of only one surface impoundment, landfill or land treatment area, the waste management area is described by the waste boundary (perimeter).
 - (ii) In the case of a facility consisting of more than one surface impoundment, landfill or land treatment area, the waste management area is described by an imaginary boundary line which circumscribes the several waste management components.
- (3) All monitoring wells must be cased in a manner that maintains the integrity of the monitoring well bore hole. This casing must be screened or perforated, and packed with gravel or sand where necessary, to enable sample collection at depths where appropriate aquifer flow zones exist. The

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annular space (i.e., the space between the bore hole and well casing) above the sampling depth must be sealed with a suitable material (e.g., cement grout or bentonite slurry) to prevent contamination of samples and the ground water.

(c) Sampling and analysis.

(1) The owner or operator must obtain and analyze samples from the installed ground-water monitoring system. The owner or operator must develop and follow a ground-water sampling and analysis plan. This plan must be kept at the facility. The plan must include procedures and techniques for:

- (i) sample collection;
- (ii) sample preservation and shipment;
- (iii) analytical procedures; and
- (iv) chain of custody control.

Note: See “Procedures Manual For Groundwater Monitoring At Solid Waste Disposal Facilities,” EPA-530/SW-611, August 1977, and “Methods for Chemical Analysis of Water and Wastes,” EPA-600/4-79-020, March 1979, for discussions of sampling and analysis procedures (see 6 NYCRR 370.1(e)).

(2) The owner or operator must determine the concentration or value of the following parameters in ground-water samples in accordance with paragraphs (3) and (4) of this subdivision:

- (i) parameters characterizing the suitability of the ground water as a drinking water supply, as specified in Appendix 27, *infra*; and
- (ii) parameters establishing ground-water quality:
 - ('a') chloride;
 - ('b') iron;
 - ('c') manganese;
 - ('d') phenols;
 - ('e') sodium; and
 - ('f') sulfate; and
- (iii) parameters used as indicators of ground-water contamination:
 - ('a') pH;
 - ('b') specific conductance;
 - ('c') total organic carbon; and

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('d') total organic halogen.

Note: These parameters are to be used as a basis for comparison in the event a ground-water quality assessment is required under paragraph (d)(4) of this section.

(3)

- (i) For all monitoring wells, the owner or operator must establish initial background concentrations or values of all parameters specified in paragraph (2) of this subdivision. This must be done quarterly for one year.
- (ii) For each of the indicator parameters specified in subparagraph (2)(iii) of this subdivision, at least four replicate measurements must be obtained for each sample, and the initial background arithmetic mean and variance must be determined by pooling the replicate measurements for the respective parameter concentrations or values in samples obtained from upgradient wells during the first year.

(4) After the first year, all monitoring wells must be sampled and the samples analyzed with the following frequencies:

- (i) Samples collected to establish ground-water quality must be obtained and analyzed for the parameters specified in subparagraph (2)(ii) of this subdivision at least annually.
- (ii) Samples collected to indicate ground-water contamination must be obtained and analyzed for the parameters specified in subparagraph (2)(iii) of this subdivision at least semiannually.

(5) Elevation of the ground-water surface at each monitoring well must be determined each time a sample is obtained.

(d) Preparation, evaluation, and response.

(1) The owner or operator must prepare an outline of the ground-water quality assessment program. The outline must describe a more comprehensive ground-water monitoring program (than that described in subdivisions (b) and (c) of this section), capable of determining:

- (i) whether hazardous waste or hazardous waste constituents have entered the ground water;
- (ii) the rate and extent of migration of hazardous waste or hazardous waste constituents in the ground water; and
- (iii) the concentrations of hazardous waste or hazardous waste constituents in the ground water.

(2) For each indicator parameter specified in subparagraph (c)(2)(iii) of this section, the owner or operator must calculate the arithmetic mean and variance, based on at least four replicate measurements on each sample, for each well monitored in accordance with subparagraph (c)(4)(ii), and compare these results with its initial background arithmetic mean. The comparison must consider individually each of the wells in the monitoring system, and must use the student's t-test at the 0.01 level of significance (see Appendix 28, *infra*) to determine statistically significant increases (and decreases, in the case of pH) over initial background.

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(3)

- (i) If the comparisons for the upgradient wells made under paragraph (2) of this subdivision show a significant increase (or pH decrease), the owner or operator must submit this information in accordance with clause (e)(1)(ii)(‘b’) of this section.
- (ii) If the comparisons for downgradient wells made under paragraph (2) of this subdivision show a significant increase (or pH decrease), the owner or operator must then immediately obtain additional ground-water samples from those downgradient wells where a significant difference was detected, split the samples in two, and obtain analyses of all additional samples to determine whether the significant difference was a result of laboratory error.

(4)

- (i) If the analyses performed under subparagraph (3)(ii) of this subdivision confirm the significant increase (or pH decrease), the owner or operator must provide written notice to the commissioner, within seven days of the date of such confirmation, that the facility may be affecting ground-water quality.
- (ii) Within 15 days after the notification under subparagraph (i) of this paragraph, the owner or operator must develop and submit to the department a specific plan, based on the outline required under paragraph (1) of this subdivision and certified by a qualified geologist or geotechnical engineer, for a ground-water quality assessment at the facility. This plan must be placed in the facility operating record and be maintained until closure of the facility.
- (iii) The plan to be submitted under subparagraph (a)(4)(i) of this section, or subparagraph (ii) of this paragraph, must specify:
 - (‘a’) the number, location and depth of wells;
 - (‘b’) sampling and analytical methods for those hazardous wastes or hazardous waste constituents in the facility;
 - (‘c’) evaluation procedures, including any use of previously gathered ground-water quality information; and
 - (‘d’) a schedule of implementation.
- (iv) The owner or operator must implement the ground-water quality assessment plan which satisfies the requirements of subparagraph (iii) of this paragraph and, at a minimum, determine:
 - (‘a’) the rate and extent of migration of the hazardous waste or hazardous waste constituents in the ground water; and
 - (‘b’) the concentrations of the hazardous waste or hazardous waste constituents in the ground water.

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- (v) The owner or operator must make the first determination under subparagraph (iv) of this paragraph as soon as technically feasible, and, within 15 days after that determination, submit to the department a written report containing an assessment of the ground-water quality. This report must be placed in the facility operating record and be maintained until closure of the facility.
- (vi) If the owner or operator determines, based on the results of the first determination under subparagraph (iv) of this paragraph, that no hazardous waste or hazardous waste constituents from the facility have entered the ground water, then the owner or operator may reinstate the indicator evaluation program described in subdivision (c) of this section and paragraph (2) of this subdivision; the owner or operator must so notify the commissioner in the report submitted under subparagraph (v) of this paragraph.
- (vii) If the owner or operator determines, based on the first determination under subparagraph (iv) of this paragraph, that hazardous waste or hazardous waste constituents from the facility have entered the ground water, then the owner or operator:
 - ('a') must continue to make the determinations required under subparagraph (iv) of this paragraph on a quarterly basis until final closure of the facility, if the ground-water quality assessment plan was implemented prior to final closure of the facility; or
 - ('b') may cease to make the determinations required under subparagraph (iv) of this paragraph, if the ground-water quality assessment plan was implemented during the post-closure care period.

- (5) Notwithstanding any other provision of this section, any ground-water quality assessment to satisfy the requirements of subparagraph (4)(iv) of this subdivision which is initiated prior to final closure of the facility must be completed and reported in accordance with subparagraph (4)(v).
- (6) Unless the ground water is monitored to satisfy the requirements of subparagraph (4)(iv) of this subdivision, at least annually the owner or operator must evaluate the data on ground-water surface elevations obtained under paragraph (c)(5) of this section to determine whether the requirements under paragraph (b)(1) of this section for locating the monitoring wells continue to be satisfied. If the evaluation shows that paragraph (b)(1) is no longer satisfied, the owner or operator must immediately modify the number, location or depth of the monitoring wells to bring the ground-water monitoring system into compliance with this requirement.

(e) Recordkeeping and reporting.

- (1) Unless the ground water is monitored to satisfy the requirements of subparagraph (d)(4)(iv) of this section, the owner or operator must:
 - (i) keep records of the analyses required in paragraphs (c)(3) and (4) of this section, the associated ground-water surface elevations required in paragraph (c)(5), and the evaluations required in paragraph (d)(2) throughout the active life of the facility, and, for disposal facilities, throughout the post-closure care period as well; and

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- (ii) report the following ground-water monitoring information to the commissioner;
 - ('a') during the first year when initial background concentrations are being established for the facility: concentrations or values of the parameters listed in subparagraph (c)(2)(i) of this section for each ground-water monitoring well within 15 days after completing each quarterly analysis. The owner or operator must separately identify for each monitoring well any parameters whose concentration or value has been found to exceed the maximum contaminant levels listed in Appendix 27, *infra*;
 - ('b') annually: concentrations or values of the parameters listed in subparagraph (c)(2)(iii) of this section for each ground-water monitoring well, along with the required evaluations for these parameters under paragraph (d)(2). The owner or operator must separately identify any significant differences from initial background found in the upgradient wells, in accordance with subparagraph (d)(3)(i). During the active life of the facility, this information must be submitted as part of the annual report required under section 373-3.5(e) of this Subpart; and
 - ('c') as a part of the annual report required under section 373-3.5(e) of this Subpart: results of the evaluations of ground-water surface elevations under paragraph (c)(5) of this section, and a description of the response to that evaluation, where applicable.
- (2) If the ground water is monitored to satisfy the requirements of subparagraph (d)(4)(iv) of this section, the owner or operator must:
 - (i) keep records of the analyses and evaluations specified in the plan, which satisfy the requirements of subparagraph (d)(4)(iii) of this section, throughout the active life of the facility, and, for disposal facilities, throughout the post-closure care period as well; and
 - (ii) annually, until final closure of the facility, submit to the commissioner a report containing the results of his or her ground water quality assessment program which includes, but is not limited to, the calculated (or measured) rate of migration of hazardous waste or hazardous waste constituents in the ground water during the reporting period. This information must be submitted no later than March 1st of the following calendar year.

Section 373-3.7 Closure and post-closure.

(a) Applicability.

Except as section 373-3.1 of this Subpart provides otherwise:

- (1) subdivision (b) through paragraph (f)(1) of this section (which concern closure) apply to the owners and operators of all hazardous waste management facilities;
- (2) paragraph (f)(2) through subdivision (j) of this section (which concern post-closure care) apply to the owners and operators of:
 - (i) all hazardous waste disposal facilities;

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- (ii) waste piles and surface impoundments from which the owner or operator intends to remove the wastes at closure to the extent that these sections are made applicable to such facilities in sections 373-3.11(f) and 373-3.12(g) of this Subpart;
 - (iii) tank systems that are required under section 373-3.10(h) of this Subpart to meet the requirements for landfills; and
 - (iv) start containment buildings that are required under section 373-3.30(c) of this Subpart to meet the requirement for landfills;
- (3) subdivision (k) of this section applies to owners and operators of units that are subject to the requirements of section 373-1.2(e)(3) of this Part and are regulated under an enforceable document (as defined in section 373-1.2(e)(3) of this Part); and
- (4) the department may replace all or part of the requirements of this section (and the unit-specific standards in paragraph (b)(3) of this section) applying to a regulated unit (as defined in section 373-2.6(a) of this Part), with alternative requirements for closure set out in an approved closure or post-closure plan, or in an enforceable document (as defined in section 373-1.2(e)(3) of this Part), where the department determines that:
- (i) a regulated unit is situated among solid waste management units (or areas of concern), a release has occurred, and both the regulated unit and one or more solid waste management unit(s) (or areas of concern) are likely to have contributed to the release; and
 - (ii) it is not necessary to apply the closure requirements of this section (and/or those referenced herein) because the alternative requirements will protect human health and the environment, and will satisfy the closure performance standard of paragraphs (b)(1) and (2) of this section.

(b) Closure performance standard.

The owner or operator must close the facility in a manner that:

- (1) minimizes the need for further maintenance;
- (2) controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products to the ground or surface waters or to the atmosphere; and
- (3) complies with the closure requirements of this Subpart, including but not limited to the requirements of sections 373-3.10(h), 373-3.11(f), 373-3.12(g), 373-3.13(g), 373-3.14(d), 373-3.15(e), 373-3.16(e), 373-3.17(e) and 373-3.30(c).

(c) Closure plan; amendment of plan.

- (1) Written plan.
 - (i) By May 19, 1981, or by six months after the effective date of the rule that first subjects a facility to provisions of this section, the owner or operator of a hazardous waste management

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facility must have a written closure plan. Until final closure is completed and certified in accordance with paragraph (f)(1) of this section, a copy of the most current plan must be furnished to the commissioner upon request, including request by mail. In addition, for facilities without approved plans, it must also be provided during site inspections, on the day of inspection, to any officer, employee or representative of the department who is duly designated by the commissioner.

- (2) Content of plan. The plan must identify steps necessary to perform partial and/or final closure of the facility at any point during its active life. The closure plan must include, at least:
- (i) a description of how each hazardous waste management unit at the facility will be closed in accordance with subdivision (b) of this section;
 - (ii) a description of how final closure of the facility will be conducted in accordance with subdivision (b) of this section. The description must identify the maximum extent of the operations which will be unclosed during the active life of the facility;
 - (iii) an estimate of the maximum inventory of hazardous wastes ever onsite over the active life of the facility and a detailed description of the methods to be used during partial closures and final closure, including but not limited to methods for removing, transporting, treating, storing or disposing of all hazardous wastes, and identification of and the types of the offsite hazardous waste management units to be used, if applicable;
 - (iv) a detailed description of the steps needed to remove or decontaminate all hazardous waste residues and contaminated containment system components, equipment, structures and soils during partial and final closure, including but not limited to procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard;
 - (v) a detailed description of other activities necessary during the partial and final closure periods to ensure that all partial closures and final closure satisfy the closure performance standards, including but not limited to groundwater monitoring, leachate collection, and run-on and runoff control;
 - (vi) a schedule for closure of each hazardous waste management unit and for final closure of the facility. The schedule must include, at a minimum, the total time required to close each hazardous waste management unit and the time required for intervening closure activities which will allow tracking of the progress of partial and final closure (for example, in the case of a landfill unit, estimates of the time required to treat or dispose of all hazardous waste inventory and of the time required to place a final cover must be included);
 - (vii) an estimate of the expected year of final closure for facilities that use trust funds to demonstrate financial assurance under section 373-3.8(d) or (f) of this Subpart and whose remaining operating life is less than 20 years, and for facilities without approved closure plans; and

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- (viii) for facilities where the department has applied alternative requirements at a regulated unit under sections 373-3.6(a)(6), and/or 373-3.8(a)(4) of this Subpart and/or paragraph (a)(4) of this section, either the alternative requirements applying to the regulated unit, or a reference to the enforceable document containing those alternative requirements.
- (3) Amendment of plan. The owner or operator may amend the closure plan at any time prior to the notification of partial or final closure of the facility. An owner or operator with an approved closure plan must submit a written request to the commissioner to authorize a change to the approved closure plan. The written request must include a copy of the amended closure plan for approval by the commissioner.
- (i) The owner or operator must amend the closure plan whenever:
- (a) changes in operating plans or facility design affect the closure plan;
 - (b) there is a change in the expected year of closure, if applicable;
 - (c) in conducting partial or final closure activities, unexpected events require a modification of the closure plan; or
 - (d) the owner or operator request the department to apply alternative requirements to a regulated unit under sections 373-3.6(a)(6), and/or 373-3.8(a)(4) of this Subpart and/or paragraph (a)(4) of this section.
- (ii) The owner or operator must amend the closure plan at least 60 days prior to the proposed change in facility design or operation, or no later than 60 days after an unexpected event has occurred which has affected the closure plan. If an unexpected event occurs during the partial or final closure period, the owner or operator must amend the closure plan no later than 30 days after the unexpected event. These provisions also apply to owners or operators of surface impoundments or waste piles who intend to remove all hazardous waste at closure but are required to close as landfills in accordance with section 373-3.14(d) of this Subpart.
- (iii) An owner or operator with an approved closure plan must submit the modified plan to the commissioner at least 60 days prior to the proposed change in facility design or operation, or no more than 60 days after an unexpected event has occurred which has affected the closure plan. If an unexpected event has occurred during the partial or final closure period, the owner or operator must submit the modified plan no more than 30 days after the unexpected event. These provisions also apply to owners or operators of surface impoundments and waste piles who intended to remove all hazardous waste at closure but are required to close as landfills in accordance with section 373-3.14(d) of this Subpart. If the amendment to the plan is a major modification according to the criteria in Subpart 373-1 of this Part, the modification to the plan will be approved according to the procedures in paragraph (4) of this subdivision.
- (iv) The commissioner may request modifications to the plan under the conditions described in subparagraph (i) of this paragraph. An owner or operator with an approved closure plan must submit the modified plan within 60 days of the commissioner's request, or within 30 days if

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the unexpected event occurs during partial or final closure. If the amendment is considered a major modification according to the criteria in Subpart 373-1 of this part, the modification to the plan will be approved in accordance with the procedures in paragraph (4) of this subdivision.

(4) Notification of partial closure and final closure.

- (i) The owner or operator must submit the closure plan to the commissioner at least 180 days prior to the date on which the owner or operator expects to begin closure of the first surface impoundment, waste pile, land treatment or landfill unit, or final closure if it involves such a unit, whichever is earlier. The owner or operator must submit the closure plan to the commissioner at least 45 days prior to the date on which the owner or operator expects to begin partial or final closure of a boiler or industrial furnace. The owner or operator must submit the closure plan to the commissioner at least 45 days prior to the date on which the owner or operator expects to begin final closure of a facility with only tanks, container storage, or incinerator units. Owners or operators with approved closure plans must notify the commissioner in writing at least 60 days prior to the date on which the owner or operator expects to begin closure of a surface impoundment, waste pile, landfill, or land treatment unit, or final closure of a facility involving such a unit. Owners and operators with approved closure plans must notify the commissioner in writing at least 45 days prior to the date on which the owner or operator expects to begin partial or final closure of a boiler or industrial furnace. Owners or operators with approved closure plans must notify the commissioner in writing at least 45 days prior to the date on which the owner or operator expects to begin final closure of a facility with only tanks, container storage, or incinerator units.
- (ii) The date when the owner or operator “expects to begin closure” must be either:
 - (‘a’) within 30 days after the date on which any hazardous waste management unit receives the known final volume of hazardous wastes, or, if there is a reasonable possibility that the hazardous waste management unit will receive additional hazardous wastes, no later than one year after the date on which the unit received the most recent volume of hazardous waste. If the owner or operator of a hazardous waste management unit can demonstrate to the commissioner that the hazardous waste management unit or facility has the capacity to receive additional hazardous wastes and the owner or operator has taken, and will continue to take, all steps to prevent threats to human health and the environment, including compliance with all interim status requirements, the commissioner may approve an extension to this one-year limit; or
 - (‘b’) for units meeting the requirements of paragraph (d)(4) of this section, no later than 30 days after the date on which the hazardous waste management unit receives the known final volume of nonhazardous wastes, or if there is a reasonable possibility that the hazardous waste management unit will receive additional nonhazardous wastes, no later than one year after the date on which the unit received the most recent volume of nonhazardous wastes. If the owner or operator can demonstrate to the commissioner

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that the hazardous waste management unit has the capacity to receive additional nonhazardous wastes and the owner or operator has taken, and will continue to take, all steps to prevent threats to human health and the environment, including compliance with all interim status requirements, the commissioner may approve an extension to this one-year limit.

- (iii) The owner or operator must submit the closure plan to the commissioner no later than 15 days after:
 - ('a') issuance of a judicial decree or final order, under article 71 of ECL, to cease receiving hazardous wastes or to close; or
 - ('b') termination of interim status except when a permit is issued simultaneously with termination of interim status.
- (iv) The commissioner will provide the owner or operator and the public, through a newspaper notice, the opportunity to submit written comments on the plan and request modifications of the plan within 30 days of the date of the notice. The commissioner will also, in response to a request or at his or her own discretion, hold a public hearing whenever such a hearing might clarify one or more issues concerning a closure plan. The commissioner will give public notice of the hearing at least 30 days before it occurs. (Public notice of the hearing may be given at the same time as notice of the opportunity for the public to submit written comments, and the two notices may be combined.) The commissioner will approve, modify or disapprove the plan within 90 days of its receipt. If the commissioner does not approve the plan, the owner or operator shall be provided with a detailed written statement of the reasons for refusal, and the owner or operator must modify the plan or submit a new plan for approval within 30 days after receiving such written statement. The commissioner will approve or modify this plan in writing within 60 days. If the commissioner modifies the plan, this modified plan becomes the approved closure plan. The commissioner must assure that the approved closure plan is consistent with subdivisions (b)-(f) of this section and the applicable requirements of sections 373-3.6, 373-3.10(h), 373-3.11(f), 373-3.12(g), 373-3.13(g), 373-3.14(d), 373-3.15(e), 373-3.16(e), 373-3.17(e) and 373-3.30(c) of this Subpart. A copy of this modified plan with a detailed statement of reasons for the modifications must be mailed to the owner or operator.
- (5) Removal of wastes and decontamination or dismantling of equipment. Nothing in this subdivision shall preclude the owner or operator from removing hazardous wastes and decontaminating or dismantling equipment in accordance with the approved partial or final closure plan at any time before or after notification of partial or final closure.

(d) Closure; time allowed for closure.

- (1) Within 90 days after receiving the final volume of hazardous wastes, or the final volume of nonhazardous wastes if the owner or operator complies with all applicable requirements in paragraphs (4) and (5) of this subdivision, at a hazardous waste management unit or facility, or

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within 90 days after approval of the closure plan, whichever is later, the owner or operator must treat, remove from the unit or facility, or dispose of onsite, all hazardous wastes in accordance with the approved closure plan. The commissioner may approve a longer period if the owner or operator demonstrates that:

- (i)
 - ('a') the activities required to comply with this paragraph will, of necessity, take longer than 90 days to complete; or
 - ('b')
 - ('1') the hazardous waste management unit or facility has the capacity to receive additional hazardous wastes, or has the capacity to receive nonhazardous wastes if the facility owner or operator complies with paragraphs (4) and (5) of this subdivision; and
 - ('2') there is a reasonable likelihood that the owner or operator or another person will recommence operation of the hazardous waste management unit or the facility within one year; and
 - ('3') closure of the hazardous waste management unit or facility would be incompatible with continued operation of the site; and
 - (ii) the owner or operator has taken and will continue to take all steps to prevent threats to human health and the environment, including compliance with all applicable interim status requirements.
- (2) The owner or operator must complete partial and final closure activities in accordance with the approved closure plan and within 180 days after receiving the final volume of hazardous wastes, or the final volume of nonhazardous wastes if the owner or operator complies with all applicable requirements in paragraphs (4) and (5) of this subdivision, at the hazardous waste management unit or facility, or 180 days after approval of the closure plan, if that is later. The commissioner may approve an extension to the closure period if the owner or operator demonstrates that:
- (i)
 - ('a') the partial or final closure activities will, of necessity, take longer than 180 days to complete; or
 - ('b')
 - ('1') the hazardous waste management unit or facility has the capacity to receive additional hazardous wastes, or nonhazardous wastes if the facility owner or operator complies with paragraphs (4) and (5) of this subdivision; and
 - ('2') there is reasonable likelihood that the owner or operator or another person will recommence operation of the hazardous waste management unit or the facility

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within one year; and

- (3') closure of the hazardous waste management unit or facility would be incompatible with continued operation of the site; and
 - (ii) the owner or operator has taken and will continue to take all steps to prevent threats to human health and the environment from the unclosed but not operating hazardous waste management unit or facility, including compliance with all applicable interim status requirements.
- (3) The demonstrations referred to in subparagraphs (1)(i) and (2)(i) of this subdivision must be made as follows:
- (i) the demonstrations in subparagraph (1)(i) must be made at least 30 days prior to the expiration of the 90-day period in paragraph (1); and
 - (ii) the demonstration in subparagraph (2)(i) must be made at least 30 days prior to the expiration of the 180-day period in paragraph (2), unless the owner or operator is otherwise subject to the deadlines in paragraph (4).
- (4) The commissioner may allow an owner or operator to receive nonhazardous wastes in a landfill, land treatment, or surface impoundment unit after the final receipt of hazardous wastes at that unit if:
- (i) the owner or operator submits an amended Part 373 application, or a Part 373 application, if not previously required, and demonstrates that:
 - ('a') the unit has the existing design capacity as indicated on the Part A application to receive nonhazardous wastes; and
 - ('b') there is a reasonable likelihood that the owner or operator or another person will receive nonhazardous wastes in the unit within one year after the final receipt of hazardous wastes; and
 - ('c') the nonhazardous wastes will not be incompatible with any remaining wastes in the unit or with the facility design and operating requirements of the unit or facility under this Part; and
 - ('d') closure of the hazardous waste management unit would be incompatible with continued operation of the unit or facility; and
 - ('e') the owner or operator is operating and will continue to operate in compliance with all interim status requirements; and
 - (ii) the Part 373 application includes an amended waste analysis plan, groundwater monitoring and response program, human exposure assessment required under section 373-1.5(d) and (h) of this Part, and closure and post-closure plans, and updated cost estimates and demonstrations of financial assurance for closure and post-closure care as necessary and appropriate to reflect any changes due to the presence of hazardous constituents in the

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nonhazardous wastes, and changes in closure activities, including the expected year of closure if applicable under subparagraph (c)(2)(vii) of this section, as a result of the receipt of nonhazardous wastes following the final receipt of hazardous wastes; and

- (iii) the Part 373 application is amended, as necessary and appropriate, to account for the receipt of nonhazardous wastes following receipt of the final volume of hazardous wastes; and
 - (iv) the Part 373 application and the demonstrations referred to in subparagraphs (i) and (ii) of this paragraph are submitted to the commissioner no later than 180 days prior to the date on which the owner or operator of the facility receives the known final volume of hazardous wastes, or no later than 90 days after the effective date of this rule in New York State, whichever is later.
- (5) In addition to the requirements in paragraph (4) of this subdivision, an owner or operator of a hazardous waste surface impoundment that is not in compliance with the liner and leachate collection system requirements in sections 373-2.11 and 373-2.14 of this Part, or section 373-3.11 or 373-3.14 of this Subpart must:
- (i) submit with the Part 373 application:
 - ('a') a contingent corrective measures plan; and
 - ('b') a plan for removing hazardous wastes in compliance with subparagraph (ii) of this paragraph; and
 - (ii) remove all hazardous wastes from the unit by removing all hazardous liquids and removing all hazardous sludges to the extent practicable without impairing the integrity of the liner(s), if any;
 - (iii) removal of hazardous wastes must be completed no later than 90 days after the final receipt of hazardous wastes. The commissioner may approve an extension to this deadline if the owner or operator demonstrates that the removal of hazardous wastes will, of necessity, take longer than the allotted period to complete and that an extension will not pose a threat to human health and the environment;
 - (iv) if a release that is a statistically significant increase (or decrease in the case of pH) in hazardous constituents over background levels is detected in accordance with the requirements in section 373-3.6 of this Subpart, the owner or operator of the unit:
 - ('a') must implement corrective measures in accordance with the approved contingent corrective measures plan required by subparagraph (i) of this paragraph no later than one year after detection of the release, or approval of the contingent corrective measures plan, whichever is later;
 - ('b') may receive wastes at the unit following detection of the release only if the approved corrective measures plan includes a demonstration that continued receipt of wastes will not impede corrective action; and

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(c) may be required by the commissioner to implement corrective measures in less than one year or to cease receipt of wastes until corrective measures have been implemented if necessary to protect human health and the environment.

(v) during the period of corrective action, the owner or operator shall provide annual reports to the commissioner describing the progress of the corrective action program, compile all groundwater monitoring data, and evaluate the effect of the continued receipt of nonhazardous wastes on the effectiveness of the corrective action. The department may require the owner or operator to report semi-annually as needed to evaluate the progress of the corrective action program;

(vi) the commissioner may require the owner or operator to commence closure of the unit if the owner or operator fails to implement corrective action measures in accordance with the approved contingent corrective measures plan within one year as required in subparagraph (iv) of this paragraph, or fails to make substantial progress in implementing corrective action and achieving the facility's background levels; and

(vii) if the owner or operator fails to implement corrective measures as required in subparagraph (iv) of this paragraph, or if the commissioner determines that substantial progress has not been made pursuant to subparagraph (vi) of this paragraph the commissioner shall:

(a) notify the owner or operator in writing that the department is terminating interim status, pursuant to Part 621 of this Title, to require the initiation of closure in accordance with the deadline in paragraphs (1) and (2) of this subdivision and provide a detailed statement of reasons for this determination.

(e) **Disposal or decontamination of equipment, structures and soils.**

During the partial and final closure periods, all contaminated equipment, structures and soils must be properly disposed of or decontaminated unless otherwise specified in sections 373-3.10(h), 373-3.11(f), 373-3.12(g), 373-3.13(g) and 373-3.14(d) of this Subpart. By removing any hazardous wastes or hazardous constituents during partial and final closure, the owner or operator may become a generator of hazardous waste and must handle that waste in accordance with all applicable requirements of Part 372 of this Title.

(f) **Certification of closure and survey plat.**

(1) Certification of closure. Within 60 days of completion of final closure of a facility, or within 60 days of partial closure of any hazardous waste management unit, the owner or operator must submit to the commissioner, by registered mail, a certification that the hazardous waste management unit or facility, as applicable, has been closed in accordance with the specifications in the approved closure plan. The certification must be signed by the owner or operator and by an independent professional engineer registered in New York. Documentation supporting the independent registered professional engineer's certification must be furnished to the commissioner upon request until the commissioner releases the owner or operator from the financial assurance requirements for closure under section 373-3.8(d) of this Subpart.

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- (2) Survey plat. No later than the submission of the certification of closure of each hazardous waste disposal unit, the owner or operator must submit to the local zoning authority, or the authority with jurisdiction over local land use, and to the county clerk in the county in which the facility is located, and to the commissioner, a survey plat indicating the location and dimensions of landfill cells or other hazardous waste disposal units with respect to permanently surveyed benchmarks. This plat must be prepared and certified by a professional land surveyor registered in New York. The plat filed with the local zoning authority, or the authority with jurisdiction over local land use, and with the county clerk in the county in which the facility is located, must contain a note, prominently displayed, which states the owner's or operator's obligation to restrict disturbance of the hazardous waste disposal unit in accordance with the applicable regulations of this section.

(g) Post-closure care and use of property.

(1)

- (i) Post-closure care for each hazardous waste management unit subject to the requirements of subdivisions (g) through (j) of this section must begin after completion of closure of the unit and continue for 30 years after that date, and must consist of at least the following:
- ('a') monitoring and reporting in accordance with the requirements of sections 373-3.6, 373-3.11, 373-3.12, 373-3.13 and 373-3.14 of this Subpart; and
 - ('b') maintenance and monitoring of waste containment systems in accordance with the requirements of sections 373-3.6, 373-3.11, 373-3.12, 373-3.13 and 373-3.14 of this Subpart.
- (ii) Any time preceding closure of a hazardous waste management unit subject to post-closure care requirements or final closure, or any time during the post-closure period for a particular hazardous waste disposal unit, the commissioner may:
- ('a') shorten the post-closure care period applicable to the hazardous waste management unit, or facility (if all disposal units have been closed), if the commissioner finds that the reduced period is sufficient to protect human health and the environment (e.g., leachate or groundwater monitoring results, characteristics of the hazardous wastes, application of advanced technology, or alternative disposal, treatment or reuse techniques indicate that the hazardous waste management unit or facility is secure); or
 - ('b') extend the post-closure care period applicable to the hazardous waste management unit or facility if the commissioner finds that the extended period is necessary to protect human health and the environment (e.g., leachate or groundwater monitoring results indicate a potential for migration of hazardous wastes at levels which may be harmful to human health and the environment).
- (2) The commissioner may require, at partial and final closure, continuation of any of the security requirements of section 373-3.2(e) of this Subpart during part or all of the post-closure period when:
- (i) hazardous wastes may remain exposed after completion of partial or final closure; or

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- (ii) access by the public or domestic livestock may pose a hazard to human health.
- (3) Post-closure use of property on or in which hazardous wastes remain after partial or final closure must never be allowed to disturb the integrity of the final cover, liners, or any other components of the containment system, or the function of the facility's monitoring system, unless the commissioner finds that the disturbance:
 - (i) is necessary to the proposed use of the property, and will not increase the potential hazard to human health or the environment; or
 - (ii) is necessary to reduce a threat to human health or the environment.
- (4) All post-closure care activities must be in accordance with the provisions of the approved post-closure plan as specified in subdivision (h) of this section.

(h) Post-closure plan; amendment of plan.

- (1) Written plan. By May 19, 1981, the owner or operator of a hazardous waste disposal unit must have a written post-closure plan. An owner or operator of a surface impoundment or waste pile from which the owner or operator intends to remove all hazardous wastes at closure must prepare a post-closure plan and submit it to the commissioner within 90 days of the date that the owner or operator or commissioner determines that the hazardous waste management unit or facility must be closed as a landfill, subject to the requirements of subdivisions (g) through (j) of this section.
- (2) Until final closure of the facility, a copy of the most current post-closure plan must be furnished to the commissioner upon request, including request by mail. In addition, for facilities without approved post-closure plans, it must also be provided during site inspections, on the day of inspection, to any officer, employee or representative of the department who is duly designated by the commissioner. After final closure has been certified, the person or office specified in paragraph (3) of this subdivision must keep the approved post-closure plan during the post-closure period.
- (3) For each hazardous waste management unit subject to the requirements of this subdivision, the post-closure plan must identify the activities that will be carried on after closure of each disposal unit and the frequency of these activities, and include at least:
 - (i) a description of the planned monitoring activities and frequencies at which they will be performed to comply with sections 373-3.6, 373-3.11, 373-3.12, 373-3.13 and 373-3.14 of this Subpart during the post-closure care period;
 - (ii) a description of the planned maintenance activities, and frequencies at which they will be performed, to ensure:
 - ('a') the integrity of the cap and final cover or other containment systems in accordance with the requirements of sections 373-3.11, 373-3.12, 373-3.13 and 373-3.14 of this Subpart; and
 - ('b') the function of the monitoring equipment in accordance with the requirements of sections 373-3.6, 373-3.11, 373-3.12, 373-3.13 and 373-3.14 of this Subpart;

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- (iii) the name, address and phone number of the person or office to contact about the hazardous waste disposal unit or facility during the post-closure care period;
 - (iv) for facilities subject to subdivision (k) of this section, provisions that satisfy the requirements of subparagraphs (k)(1)(i) and (iii) of this section; and
 - (v) for facilities where the department has applied alternative requirements at a regulated unit under sections 373-3.6(a)(6), and/or 373-3.8(a)(4) of this Subpart and/or paragraph (a)(4) of this section, either the alternative requirements that apply to the regulated unit, or a reference to the enforceable document containing those requirements.
- (4) Amendment of plan. The owner or operator may amend the post-closure plan at any time during the active life of the facility or during the post-closure care period. An owner or operator with an approved post-closure plan must submit a written request to the commissioner to authorize a change in the approved post-closure plan. The written request must include a copy of the amended post-closure plan for approval by the commissioner.
- (i) The owner or operator must amend the post-closure plan whenever:
 - ('a') changes in operating plans or facility design affect the post-closure plan;
 - ('b') events which occur during the active life of the facility, including partial and final closures, affect the post-closure plan; or
 - ('c') the owner or operator requests the department to apply alternative requirements to a regulated unit under sections 373-3.6(a)(6), and/or 373-3.8(a)(4) of this Subpart and/or paragraph (a)(4) of this section.
 - (ii) The owner or operator must amend the post-closure plan at least 60 days prior to the proposed change in facility design or operation, or no later than 60 days after an unexpected event has occurred which has affected the post-closure plan.
 - (iii) An owner or operator with an approved post-closure plan must submit the modified plan to the commissioner at least 60 days prior to the proposed change in facility design or operation, or no later than 60 days after an unexpected event has occurred which has affected the post-closure plan. If an owner or operator of a surface impoundment or waste pile who intended to remove all hazardous waste at closure in accordance with sections 373-3.11(f) and 373-3.12(g) of this Subpart is required to close as a landfill in accordance with section 373-3.14(d), the owner or operator must submit a post-closure plan to the commissioner within 90 days of the determination by the owner or operator or commissioner that the unit must be closed as a landfill. If the amendment to the post-closure plan is a major modification according to the criteria in Subpart 373-1 of this Part, the modification to the plan will be approved according to the procedures in paragraph (6) of this subdivision and Part 621 of this Title.
 - (iv) The commissioner may request modifications to the plan under the conditions described in subparagraph (i) of this paragraph. An owner or operator with an approved post-closure plan

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must submit the modified plan no later than 60 days after the commissioner's request. If the amendment to the plan is considered a major modification according to the criteria in Subpart 373-1 of this Part, the modifications to the post-closure plan will be approved in accordance with the procedures in paragraph (6) of this subdivision. If the commissioner determines that an owner or operator of a surface impoundment or waste pile who intended to remove all hazardous wastes at closure must close the facility as a landfill, the owner or operator must submit a post-closure plan for approval to the commissioner within 90 days of the determination.

- (5) The owner or operator of a facility with hazardous waste management units subject to these requirements must submit the post-closure plan to the commissioner at least 180 days before the date the owner or operator expects to begin partial or final closure of the first hazardous waste disposal unit. The date the owner or operator “expects to begin closure” of the first hazardous waste disposal unit must be either within 30 days after the date on which the hazardous waste management unit receives the known final volume of hazardous waste or, if there is a reasonable possibility that the hazardous waste management unit will receive additional hazardous wastes, no later than one year after the date on which the unit received the most recent volume of hazardous wastes. The owner or operator must submit the post-closure plan to the commissioner no later than 15 days after:
 - (i) termination of interim status (except when a permit is issued to the facility simultaneously with termination of interim status); or
 - (ii) issuance of a judicial decree or final orders under article 71 of ECL to cease receiving wastes or close.
- (6) The commissioner will provide the owner or operator and the public, through a newspaper notice, the opportunity to submit written comments on the post-closure plan and request modifications to the plan no later than 30 days from the date of the notice. The commissioner will also, in response to a request or at his or her own discretion, hold a public hearing whenever such a hearing might clarify one or more issues concerning a post-closure plan. The commissioner will give public notice of the hearing at least 30 days before it occurs. (Public notice of the hearing may be given at the same time as notice of the opportunity for the public to submit written comments, and the two notices may be combined.) The commissioner will approve, modify or disapprove the plan within 90 days of its receipt. If the commissioner does not approve the plan, the owner or operator shall be provided with a detailed written statement of reasons for the refusal, and the owner or operator must modify the plan or submit a new plan for approval within 30 days after receiving such written statement. The commissioner will approve or modify this plan in writing within 60 days. If the commissioner modifies the plan, this modified plan becomes the approved post-closure plan. The commissioner must ensure that the approved post-closure plan is consistent with subdivisions (g)-(j) of this section. A copy of the modified plan with a detailed statement of reasons for the modifications must be mailed to the owner or operator.
- (7) The post-closure plan and length of the post-closure care period may be modified any time prior to

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the end of the post-closure care period in either of the following two ways:

- (i) The owner or operator or any member of the public may petition the commissioner to extend or reduce the post-closure care period applicable to a hazardous waste management unit or facility based on cause, or alter the requirements of the post-closure care period based on cause.
 - ('a') The petition must include evidence demonstrating that:
 - ('1') the secure nature of the hazardous waste management unit or facility makes the post-closure care requirements unnecessary or supports reduction of the post-closure care period specified in the current post-closure plan (e.g., leachate or groundwater monitoring results, characteristics of the wastes, application of advanced technology, or alternative disposal, treatment or reuse techniques indicating that the facility is secure); or
 - ('2') the requested extension in the post-closure care period or alteration of post-closure care requirements is necessary to prevent threats to human health and the environment (e.g., leachate or groundwater monitoring results indicate a potential for migration of hazardous wastes at levels which may be harmful to human health and the environment).
 - ('b') These petitions will be considered by the commissioner only when they present new and relevant information not previously considered by the commissioner. Whenever the commissioner is considering a petition, the commissioner will provide the owner or operator and the public, through a newspaper notice, the opportunity to submit written comments within 30 days of the date of the notice. The commissioner will also, in response to a request or at his or her own discretion, hold a public hearing whenever a hearing might clarify one or more issues concerning the post-closure plan. The commissioner will give the public notice of the hearing at least 30 days before it occurs. (Public notice of the hearing may be given at the same time as notice of the opportunity for written public comments, and the two notices may be combined.) After considering the comments, the commissioner will issue a final determination, based upon the criteria set forth in subparagraph (i) of this paragraph.
 - ('c') If the commissioner denies the petition, the commissioner will send the petitioner a brief written response giving a reason for the denial.
- (ii) The commissioner may tentatively decide to modify the post-closure plan if the commissioner deems it necessary to prevent threats to human health and the environment. The commissioner may propose to extend or reduce the post-closure care period applicable to a hazardous waste management unit or facility based on cause, or alter the requirements of the post-closure care period based on cause.
 - ('a') The commissioner will provide the owner or operator and the affected public, through a newspaper notice, the opportunity to submit written comments within 30 days of the

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date of the notice and the opportunity for a public hearing as in clause (i)(‘b’) of this paragraph. After considering the comments, the commissioner will issue a final determination.

- (‘b’) The commissioner will base the final determination upon the same criteria as required for petitions under clause (i)(‘a’) of this paragraph. A modification of the post- closure plan may include, where appropriate, the temporary suspension rather than permanent deletion of one or more post-closure care requirements. At the end of the specified period of suspension, the commissioner would then determine whether the requirements should be permanently discontinued or reinstated to prevent threats to human health and the environment.

(i) **Post-closure notices.**

- (1) No later than 60 days after certification of closure of each hazardous waste disposal unit, the owner or operator must submit to the local zoning authority, or the authority with jurisdiction over local land use, and to the county clerk in the county in which the facility is located, and to the commissioner, a record of the type, location and quantity of hazardous wastes disposed of within each cell or other disposal unit of the facility. For hazardous wastes disposed of before January 12, 1981, the owner or operator must identify the type, location and quantity of the hazardous wastes to the best of his or her knowledge and in accordance with any records the owner or operator has kept.
- (2) Within 60 days of certification of closure of the first hazardous waste disposal unit, and within 60 days of certification of closure of the last hazardous waste disposal unit, the owner or operator must:
 - (i) record with the county clerk, in the county in which the facility is located, a notation on the deed to the facility property—or on some other instrument which is normally examined during title search—that will in perpetuity notify any potential purchaser of the property that:
 - (‘a’) the land has been used to manage hazardous wastes;
 - (‘b’) its use is restricted under 6 NYCRR 373-3.7; and
 - (‘c’) the survey plat and record of the type, location and quantity of hazardous wastes disposed of within each cell or other hazardous waste disposal unit of the facility required by this subdivision and subdivision (f) of this section have been filed with the local zoning authority, or the authority with jurisdiction over local land use, and with the county clerk in the county in which the facility is located, and with the commissioner; and
 - (ii) submit a certification, signed by the owner or operator, that the notation specified in subparagraph (i) of this paragraph has been made, including a copy of the document in which the notation has been placed, to the commissioner.
- (3) If the owner or operator, or any subsequent owner or operator, of the land upon which a hazardous waste disposal unit is located wishes to remove hazardous wastes and hazardous waste residues, the liner, if any, and all contaminated structures, equipment and soils, the owner or operator must

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request a modification to the approved post-closure plan in accordance with the requirements of paragraph (h)(7) of this section. The owner or operator must demonstrate that the removal of hazardous wastes will satisfy the criteria of paragraph (g)(3) of this section. By removing hazardous waste, the owner or operator may become a generator of hazardous waste and must manage it in accordance with all applicable requirements of Parts 372 and 373 of this Title. If the owner or operator is granted a permit modification or otherwise granted approval to conduct such removal activities, the owner or operator may request that the commissioner approve either:

- (i) the removal of the notation on the deed to the facility property or other instrument normally examined during title search; or
- (ii) the addition of a notation to the deed or instrument, indicating the removal of the hazardous waste.

(j) Certification of completion of post-closure care.

No later than 60 days after completion of the established post-closure care period for each hazardous waste disposal unit, the owner or operator must submit to the commissioner, by registered mail, a certification that the post-closure care period for the hazardous waste disposal unit was performed in accordance with the specifications in the approved post-closure plan. The certification must be signed by the owner or operator and an independent professional engineer registered in New York. Documentation supporting the professional engineer's certification must be furnished to the commissioner upon request until the commissioner releases the owner or operator from the financial assurance requirements for post-closure care under section 373-3.8(f)(8) of this Subpart.

(k) Post-closure requirements for facilities that obtain enforceable documents in lieu of post-closure permits.

- (1) Owners and operators who are subject to the requirement to obtain a post-closure permit under section 373-1.2(e) of this Part, but who obtain enforceable documents in lieu of post-closure permits, as provided under section 373-1.2(e)(3) of this Part, must comply with the following requirements:
 - (i) the requirements to submit information about the facility in section 373-1.5(o) of this Part;
 - (ii) the requirements for facility-wide corrective action in section 373-2.6(l) of this Part;
 - (iii) the requirements of section 373-2.6(b) through (k) of this Part.
- (2)
 - (i) The department, in issuing enforceable documents under this subdivision in lieu of permits, will assure a meaningful opportunity for public involvement which, at a minimum, includes public notice and opportunity for public comment:
 - ('a') when the department becomes involved in a remediation at the facility as a regulatory or enforcement matter;
 - ('b') on the proposed preferred remedy and the assumptions upon which the remedy is based,

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in particular those related to land use and site characterization; and

- (c) at the time of a proposed decision that remedial action is complete at the facility. These requirements must be met before the department may consider that the facility has met the requirements of section 373-1.2(e)(3) of this Part, unless the facility qualifies for a modification to these public involvement procedures under subparagraph (ii) or (iii) of this paragraph.
- (ii) If the department determines that even a short delay in the implementation of a remedy would adversely affect human health or the environment, the department may delay compliance with the requirements of subparagraph (i) of this paragraph and implement the remedy immediately. However, the department must assure involvement of the public at the earliest opportunity, and, in all cases, upon making the decision that additional remedial action is not needed at the facility.
- (iii) The department may allow a remediation initiated prior to October 22, 1998 to substitute for corrective action required under a post-closure permit even if the public involvement requirements of subparagraph (i) of this paragraph have not been met so long as the department assures that notice and comment on the decision that no further remediation is necessary to protect human health and the environment takes place at the earliest reasonable opportunity after October 22, 1998.

Section 373-3.8 Financial requirements.

(a) Applicability.

- (1) The requirements of subdivisions (c), (d), (h) and (i) of this section and section 373-2.8(j) of this Part apply to owners and operators of all hazardous waste facilities, except as provided otherwise in this section or in section 373-3.1 of this Subpart.
- (2) The requirements of subdivisions (e) and (f) of this section apply only to owners and operators of:
 - (i) disposal facilities;
 - (ii) tank systems that are required under section 373-3.10(h) of this Subpart to meet the requirements for landfills; and
 - (iii) containment buildings that are required under section 373-3.30(c) of this Subpart to meet the requirements for landfills.
- (3) States and the Federal government are exempt from the requirements of this section.
- (4) The department may replace all or part of the requirements of this section applying to a regulated unit with alternative requirements for financial assurance set out in the permit or in an enforceable document (as defined in section 373-1.2(e)(3) of this Part), where the department:
 - (i) prescribes alternative requirements for the regulated unit under sections 373-3.6 and/or 373-3.7(a)(4) of this Subpart; and

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- (ii) determines that it is not necessary to apply the requirements of this section because the alternative financial assurance requirements will protect human health and the environment.

(b) Definitions of terms as used in this section.

- (1) **'Closure plan'** means the plan for closure prepared in accordance with the requirements of section 373-3.7(c) of this Subpart.
- (2) **'Current closure cost estimate'** means the most recent of the estimates prepared in accordance with paragraphs (c)(1), (2) and (3) of this section.
- (3) **'Current post-closure cost estimate'** means the most recent of the estimates prepared in accordance with paragraphs (e)(1), (2) and (3) of this section.
- (4) **'Parent corporation'** means a corporation which directly owns at least 50 percent of the voting stock of the corporation which is the facility owner or operator; the latter corporation is deemed a subsidiary of the parent corporation.
- (5) **'Post-closure plan'** means the plan for post-closure care prepared in accordance with the requirements of section 373-3.7(g)-(j) of this Subpart.
- (6) **'Revenue-oriented,'** or **'revenue-oriented hazardous waste management facility,'** means any facility (as defined in section 27-0917(7) of the ECL or 6 NYCRR 370.2(b)) for which a majority of both its operating revenues and profits after tax at that facility for the prior three years and for the current and next year have been and are expected to be attributable to the transportation, storing, handling, disposal, treatment or management of solid and hazardous wastes or related activities or to the ownership of or leasehold or other interest in any persons, facilities or other assets engaged in or used for such activities. In making such calculations under this provision, all sources of operating revenues and profits (both before and after tax) shall be included. The commissioner may request any person to show to the satisfaction of the commissioner, that the facility is not a revenue-oriented hazardous waste management facility by this definition. The commissioner may require a person to present its statements of account, independently audited by a certified public accountant, and other records to make this showing.
- (7) The following terms are used in the specifications for the financial tests for closure, post-closure care and liability coverage. The definitions are intended to assist in the understanding of these regulations and are not intended to limit the meanings of terms in a way that conflicts with generally accepted accounting practices.
 - (i) **'Assets'** means all existing and all probable future economic benefits obtained or controlled by a particular entity.
 - (ii) **'Current assets'** means cash or other assets or resources commonly identified as those which are reasonably expected to be realized in cash or sold or consumed during the normal operating cycle of the business.

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- (iii) ***'Current liabilities'*** means obligations whose liquidation is reasonably expected to require the use of existing resources properly classifiable as current assets or the creation of other current liabilities.
 - (iv) ***'Current plugging and abandonment cost estimate'*** means the most recent of the estimates prepared in accordance with 40 CFR 144.62 (see section 370.1(e) of this Title).
 - (v) ***'Independently audited'*** refers to an audit performed by an independent certified public accountant in accordance with generally accepted auditing standards.
 - (vi) ***'Liabilities'*** means probable future sacrifices of economic benefits arising from present obligations to transfer assets or provide services to other entities in the future as a result of past transactions or events.
 - (vii) ***'Net working capital'*** means current assets minus current liabilities.
 - (viii) ***'Net worth'*** means total assets minus total liabilities and is equivalent to owner's equity.
 - (ix) ***'Tangible net worth'*** means the tangible assets that remain after deducting liabilities; such assets would not include intangibles such as good will and rights to patents or royalties.
- (8) In the liability insurance requirements the terms ***'bodily injury'*** and ***'property damage'*** shall have the meanings given these terms by applicable State law. However, these terms do not include those liabilities which, consistent with standard industry practices, are excluded from coverage in liability policies for bodily injury and property damage. The department intends the meanings of other terms used in the liability insurance requirements to be consistent with their common meanings within the insurance industry. The definitions given below of several of the terms are intended to assist in the understanding of these regulations and are not intended to limit their meanings in a way that conflicts with general insurance industry usage.
- (i) ***'Accidental occurrence'*** means an accident, including continuous or repeated exposure to conditions, which results in bodily injury or property damage neither expected nor intended from the standpoint of the insured.
 - (ii) ***'Legal defense costs'*** means any expenses that an insurer incurs in defending against claims of third parties brought under the terms and conditions of an insurance policy.
 - (iii) ***'Nonsudden accidental occurrence'*** means an occurrence which takes place over time and involves continuous or repeated exposure.
 - (iv) ***'Sudden accidental occurrence'*** means an occurrence which is not continuous or repeated in nature.
- (9) ***'Substantial business relationship'*** means the extent of a business relationship necessary under applicable State law to make a guarantee contract issued incident to that relationship valid and enforceable. A substantial business relationship must arise from a pattern of recent or ongoing business transactions, in addition to the guarantee itself, such that a currently existing business

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relationship between the guarantor and the owner or operator is demonstrated to the satisfaction of the commissioner.

(c) Cost estimates for facility closure.

- (1) The owner or operator must have a detailed written estimate, in current dollars, of the cost of closing the facility in accordance with the requirements in section 373-3.7(b)-(f) and applicable closure requirements in sections 373-3.9(i), 373-3.10(e), 373-3.11(f), 373-3.12(g), 373-3.13(g), 373-3.14(d), 373-3.15(e), 373-3.16(e), 373-3.17(e) and 373-3.30(c) of this Subpart.
 - (i) The estimate must equal the cost of final closure at the point in the facility's active life when the extent and manner of its operation would make closure the most expensive, as indicated by its closure plan (see section 373-3.7(c)(2) of this Subpart).
 - (ii) The closure cost estimate must be based on the costs to the owner or operator of hiring a third party to close the facility. A *'third party'* is a party who is neither a parent nor a subsidiary of the owner or operator. (See definition of parent corporation in subdivision (b) of this section.) The owner or operator may use costs for onsite disposal if the owner or operator can demonstrate that onsite disposal capacity will exist at all times over the life of the facility.
 - (iii) The closure cost estimate may not incorporate any salvage value that may be realized with the sale of hazardous wastes, or nonhazardous wastes if applicable under section 373-3.7(d)(4) of this Subpart, facility structures or equipment, land or other assets associated with the facility at the time of partial or final closure.
 - (iv) The owner or operator may not incorporate a zero cost for hazardous wastes, or nonhazardous wastes if applicable under section 373-3.7(d)(4) of this Subpart, that might have economic value.
- (2) During the active life of the facility, the owner or operator must adjust the closure cost estimate for inflation within 60 days prior to the anniversary date of the establishment of the financial instruments used to comply with subdivision (d) of this section. For owners and operators using the financial test or guarantee, the closure cost estimate must be updated for inflation within 30 days after the close of the firm's fiscal year and before submission of updated information to the commissioner as specified in section 373-3.8(d)(5)(iii) of this Subpart. The adjustment may be made by recalculating the maximum costs of closure in current dollars, or by using an inflation factor derived from the most recent *Implicit Price Deflator for Gross National Product* published by the U.S. Department of Commerce in its *Survey of Current Business*, as specified in subparagraphs (i) and (ii) of this paragraph. The inflation factor is the result of dividing the latest published annual deflator by the deflator for the previous year.
 - (i) The first adjustment is made by multiplying the closure cost estimate by the inflation factor. The result is the adjusted closure cost estimate.
 - (ii) Subsequent adjustments are made by multiplying the latest adjusted closure cost estimate by the latest inflation factor.

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- (3) During the active life of the facility, the owner or operator must revise the closure cost estimate no later than 30 days after a revision has been made to the closure plan which increases the cost of closure. If the owner or operator has an approved closure plan, the closure cost estimate must be revised no later than 30 days after the commissioner has approved the request to modify the closure plan, if the change in the closure plan increases the cost of closure. The revised closure cost estimate must be adjusted for inflation as specified in paragraph (2) of this subdivision.
- (4) The owner or operator must keep the following at the facility during the operating life of the facility: the latest closure cost estimate prepared in accordance with paragraphs (1) and (3) of this subdivision and, when this estimate has been adjusted in accordance with paragraph (2) of this subdivision, the latest adjusted closure cost estimate.

(d) Financial assurance for facility closure.

An owner or operator of each facility must establish financial assurance for closure of the facility. The owner or operator must choose from the options as specified in paragraphs (1) through (5) of this subdivision. An owner or operator may also use a combination of the options specified in paragraphs (1) through (5) to provide the total amount of financial assurance for the closure of the facility.

- (1) Closure trust fund.
 - (i) An owner or operator may satisfy the requirements of this subdivision by establishing a closure trust fund which conforms to the requirements of this paragraph and submitting an originally signed duplicate of the trust agreement to the commissioner. The trustee must be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a Federal or State agency.
 - (ii) The wording of the trust agreement must be identical to the wording specified in section 373-2.8(j)(1) of this Part, and the trust agreement must be accompanied by a formal certification of acknowledgment (for example, see section 373-2.8(j)(1)). Schedule A of the trust agreement must be updated within 60 days after a change in the amount of the current closure cost estimate covered by the agreement.
 - (iii) Payments into the trust fund must be made annually by the owner or operator over the first five years of operation or over the remaining operating life of the facility as estimated in the closure plan, whichever period is shorter; this period is hereinafter referred to as the “pay-in period.” The payments into the closure trust fund must be made as follows:
 - (a) For a new or revenue-oriented facility, the first payment must be equal to the total closure cost estimate, or an alternative mechanism must be provided which, when combined with the trust fund, provides financial assurance for an amount at least equal to the current closure cost estimate. For a revenue-oriented facility, the first payment is due 90 days after the date that these regulations are promulgated. For a new facility, this payment will be made before the initial receipt of hazardous waste for treatment, storage or disposal.

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- (b) For an existing facility which is not revenue-oriented, the first payment must be at least equal to the current closure cost estimate, except as provided in paragraph (2) of this subdivision, divided by the number of years in the pay-in period.
- (c) Subsequent payments must be made no later than 30 days after each anniversary date of the first payment. The amount of each subsequent payment must be determined by this formula:

$$\text{Next payment} = \frac{\text{CE} - \text{CV}}{\text{Y}}$$

Where CE is the current closure cost estimate, CV is the current value of the trust fund, and Y is the number of years remaining in the pay-in period.

- (iv) The owner or operator may accelerate payments into the trust fund or may deposit the full amount of the current closure cost estimate at the time the fund is established. However, the owner or operator must maintain the value of the fund at no less than the value that the fund would have if annual payments were made as specified in subparagraph (iii) of this paragraph.
- (v) If the owner or operator established a closure trust fund after having used one or more alternate mechanisms specified in this subdivision, the first payment must be in at least the amount that the fund would contain if the trust fund were established initially and annual payments made as specified in subparagraph (iii) of this paragraph.
- (vi) After the pay-in period is completed or whenever the current closure cost estimate changes, the owner or operator must compare the new estimate with the trustee's most recent annual valuation of the trust fund. If the value of the fund is less than the amount of the new estimate, the owner or operator, within 60 days after the change in the cost estimate, must either deposit an amount into the fund so that its value after this deposit at least equals the amount of the current closure cost estimate, or obtain other financial assurance as specified in this subdivision to cover the difference.
- (vii) If the value of the trust fund is greater than the total amount of the current closure cost estimate, the owner or operator may submit a written request to the commissioner for release of the amount in excess of the current closure cost estimate.
- (viii) If an owner or operator substitutes other financial assurance as specified in this subdivision for all or part of the trust fund, the owner or operator may submit a written request to the commissioner for release of the amount in excess of the current closure cost estimate covered by the trust fund.
- (ix) Within 60 days after receiving a request from the owner or operator for release of funds as specified in subparagraph (vii) or (viii) of this paragraph, the commissioner will instruct the trustee to release to the owner or operator such funds as the commissioner specifies in writing.
- (x) After beginning partial or final closure, an owner or operator or another person authorized to conduct partial or final closure may request reimbursements for partial or final closure

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expenditures by submitting itemized bills to the commissioner. The owner or operator may request reimbursements for partial closure only if sufficient funds are remaining in the trust fund to cover the maximum costs of closing the facility over its remaining operating life. Within 60 days after receiving bills for partial or final closure activities, the commissioner will instruct the trustee to make reimbursements in those amounts as the commissioner specifies in writing, if the commissioner determines that the partial or final closure expenditures are in accordance with the approved closure plan, or otherwise justified. If the commissioner has reason to believe that the maximum cost of closure over the remaining life of the facility will be significantly greater than the value of the trust fund, the commissioner may withhold reimbursements of such amounts as he or she deems prudent until the commissioner determines, in accordance with paragraph (8) of this subdivision, that the owner or operator is no longer required to maintain financial assurance for final closure of the facility. If the commissioner does not instruct the trustee to make such reimbursements, the commissioner will provide the owner or operator with a detailed written statement of reasons.

- (xi) The commissioner will agree to termination of the trust when:
 - ('a') an owner or operator substitutes alternate financial assurance as specified in this subdivision; or
 - ('b') the commissioner releases the owner or operator from the requirements of this subdivision in accordance with paragraph (8) of this subdivision.

(2) Surety bond.

- (i) An owner or operator may satisfy the requirements of this subdivision by obtaining a surety bond which conforms to the requirements of this paragraph and submitting the bond to the commissioner. The surety company issuing the bond must, at a minimum, be among those listed as acceptable sureties on Federal bonds in Circular 570 of the U.S. Department of the Treasury.
- (ii) The wording of the surety bond must be identical to the wording specified in section 373-2.8(j)(2) of this Part.
- (iii) The owner or operator who uses a surety bond to satisfy the requirements of this subdivision must also establish a standby trust fund. Under the terms of the bond, all payments made thereunder will be deposited by the surety directly into the standby trust fund in accordance with instructions from the commissioner. The standby trust fund must meet the requirements specified in paragraph (1) of this subdivision, except that:
 - ('a') an originally signed duplicate of the trust agreement must be submitted to the commissioner with the surety bond; and
 - ('b') until the standby trust fund is funded pursuant to the requirements of this subdivision, the following are not required by these regulations:
 - ('1') payments into the trust fund as specified in paragraph (1) of this subdivision;

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- (2) updating of Schedule A of the trust agreement (see section 373-2.8(j)(1) of this Part) to show current closure cost estimates;
 - (3) annual valuations as required by the trust agreement; and
 - (4) notices of nonpayment as required by the trust agreement.
- (iv) The bond must guarantee that the owner or operator will:
- (a) fund the standby trust fund in an amount equal to the penal sum of the bond before the beginning of final closure of the facility; or
 - (b) fund the standby trust fund in an amount equal to the penal sum within 15 days after an order to begin final closure is issued by the commissioner or a United States district court or other court of competent jurisdiction; or
 - (c) provide alternate financial assurance as specified in this subdivision, and obtain the commissioner's written approval of the assurance provided, within 90 days after receipt by both the owner or operator and the commissioner of a notice of cancellation of the bond from the surety.
- (v) Under the terms of the bond, the surety will become liable on the bond obligation when the owner or operator fails to perform as guaranteed by the bond.
- (vi) The penal sum of the bond must be in an amount at least equal to the current closure cost estimate, except as provided in paragraph (6) of this subdivision.
- (vii) Whenever the current closure cost estimate increases to an amount greater than the penal sum, the owner or operator, within 60 days after the increase, must either cause the penal sum to be increased to an amount at least equal to the current closure cost estimate and submit evidence of such increase to the commissioner, or obtain other financial assurance as specified in this subdivision to cover the increase. Whenever the current closure cost estimate decreases, the penal sum may be reduced to the amount of the current closure cost estimate following written approval by the commissioner.
- (viii) Under the terms of the bond, the surety may cancel the bond by sending notice of cancellation by certified mail, return receipt requested to the owner or operator and to the commissioner. Cancellation may not occur, however, during the 120 days beginning on the date of receipt of the notice of cancellation by both the owner or operator and the commissioner, as evidenced by the return receipts.
- (ix) The owner or operator may cancel the bond if the commissioner has given prior written consent based on the receipt of evidence of alternate financial assurance as specified in this subdivision.
- (3) Closure letter of credit.
- (i) An owner or operator may satisfy the requirements of this subdivision by obtaining an

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irrevocable letter of credit which conforms to the requirements of this paragraph and submitting the letter to the commissioner. The issuing institution must be an entity which has the authority to issue letters of credit and whose letter of credit operations are regulated and examined by a Federal or State agency.

- (ii) The wording of the letter of credit must be identical to the wording specified in section 373-2.8(j)(3) of this Part.
- (iii) An owner or operator who uses a letter of credit to satisfy the requirements of this subdivision must also establish a standby trust fund. Under the terms of the letter of credit, all amounts paid pursuant to a draft by the commissioner will be deposited by the issuing institution directly into the standby trust fund in accordance with instructions from the commissioner. This standby trust fund must meet the requirements of the trust fund specified in paragraph (1) of this subdivision, except that:
 - ('a') an originally signed duplicate of the trust agreement must be submitted to the commissioner with the letter of credit; and
 - ('b') unless the standby trust fund is funded pursuant to the requirements of this subdivision, the following are not required by these regulations:
 - ('1') payments into the trust fund as specified in paragraph (1) of this subdivision;
 - ('2') updating of Schedule A of the trust agreement (see section 373-2.8(j)(1) of this Part) to show current closure cost estimates;
 - ('3') annual valuations as required by the trust agreement; and
 - ('4') notices of nonpayment as required by the trust agreement.
- (iv) The letter of credit must be accompanied by a letter from the owner or operator referring to the letter of credit by number, issuing institution, and date, and providing the following information: the EPA identification number, name and address of the facility, and the amount of funds assured for closure of the facility by the letter of credit.
- (v) The letter of credit must be irrevocable and issued for a period of at least one year. The letter of credit must provide that the expiration date will be automatically extended for a period of at least one year unless, at least 120 days before the current expiration date, the issuing institution notifies both the owner or operator and the commissioner, by certified mail, return receipt requested, of a decision not to extend the expiration date. Under the terms of the letter of credit, the 120 days will begin on the date when both the owner or operator and the commissioner have received the notice, as evidenced by the return receipts.
- (vi) The letter of credit must be issued in an amount at least equal to the current closure cost estimate, except as provided in paragraph (6) of this subdivision.
- (vii) Whenever the current closure cost estimate increases to an amount greater than the amount of the credit, the owner or operator, within 60 days after the increase, must either cause the

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amount of the credit to be increased so that it at least equals the current closure cost estimate, and submit evidence of such increase to the commissioner, or obtain other financial assurance as specified in this subdivision to cover the increase. Whenever the current closure cost estimate decreases, the amount of the credit may be reduced to the amount of the current closure cost estimate following written approval by the commissioner.

- (viii) Following a determination, pursuant to section 373-3.7 of this Subpart, that the owner or operator has failed to perform final closure in accordance with the closure plan and other interim status requirements when required to do so, the commissioner may draw on the letter of credit.
 - (ix) If the owner or operator does not establish alternate financial assurance, as specified in this subdivision, and obtain written approval of such alternate assurance from the commissioner within 90 days after receipt by both the owner or operator and the commissioner of a notice from the issuing institution that it has decided not to extend the letter of credit beyond the current expiration date, the commissioner will draw on the letter of credit. The commissioner may delay the drawing if the issuing institution grants an extension of the term of the credit. During the last 30 days of any such extension, the commissioner will draw on the letter of credit if the owner or operator has failed to provide alternate financial assurance as specified in this subdivision and obtain written approval of such assurance from the commissioner.
 - (x) The commissioner will return the letter of credit to the issuing institution for termination when:
 - ('a') an owner or operator substitutes alternate financial assurance as specified in this subdivision; or
 - ('b') the commissioner releases the owner or operator from the requirements of this section in accordance with paragraph (8) of this subdivision.
- (4) Closure insurance.
- (i) An owner or operator may satisfy the requirements of this subdivision by obtaining closure insurance which conforms to the requirements of this paragraph and submitting a certificate of such insurance to the department. The owner or operator must submit to the department a letter from an insurer stating that the insurer is considering issuance of closure insurance conforming to the requirements of this paragraph to the owner or operator. Within 90 days after the effective date of these regulations, the owner or operator must submit the certificate of insurance to the department or establish other financial assurance as specified in this section. At a minimum, the insurer must be authorized by the Superintendent of the New York State Department of Financial Services to conduct the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in New York State.
 - (ii) The wording of the certificate of insurance must be identical to the wording specified in section 373-2.8(j)(4) of this Part.

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- (iii) The closure insurance policy must be issued for a limit of liability at least equal to the current closure cost estimate, except as provided in paragraph (6) of this subdivision. The term *'limits of liability'* means the total amount the insurer is obligated to pay under the policy. Actual payments by the insurer will not change the limits of liability, although the insurer's future liability will be lowered by the amount of the payments.
- (iv) The closure insurance policy must guarantee that funds will be available to close the facility whenever final closure occurs. The policy must also guarantee that once final closure begins, the insurer will be responsible for paying out funds, up to an amount equal to the limits of liability of the policy, upon the direction of the commissioner, to such party or parties as the commissioner specifies.
- (v) After beginning partial or final closure, an owner or operator or any other person authorized to conduct closure may request reimbursements for closure expenditures by submitting itemized bills to the commissioner. The owner or operator may request reimbursements for partial closure only if the remaining value of the policy is sufficient to cover the maximum costs of closing the facility over its remaining operating life. Within 60 days after receiving bills for closure activities, the commissioner will instruct the insurer to make reimbursements in such amounts as the commissioner specifies in writing, if the commissioner determines that the partial or final closure expenditures are in accordance with the approved closure plan or otherwise justified. If the commissioner has reason to believe that the maximum cost of closure over the remaining life of the facility will be significantly greater than the face amount of the policy, the commissioner may withhold reimbursements of such amounts as he or she deems prudent until the commissioner determines, in accordance with paragraph (8) of this subdivision, that the owner or operator is no longer required to maintain financial assurance for final closure of the particular facility. If the commissioner does not instruct the insurer to make such reimbursements, the commissioner will provide the owner or operator with a detailed written statement of reasons.
- (vi) The owner or operator must maintain the policy in full force and effect until the commissioner consents to termination of the policy by the owner or operator as specified in subparagraph (x) of this paragraph. Failure to pay the premium, without substitution of alternate financial assurance as specified in this subdivision, will constitute a significant violation of these regulations, warranting such remedy as the commissioner deems necessary. Such violation will be deemed to begin upon receipt by the commissioner of a notice of future cancellation, termination or failure to renew due to nonpayment of the premium, rather than upon the date of expiration.
- (vii) Each policy must contain a provision allowing assignment of the policy to a successor owner or operator. Such assignment may be conditional upon consent of the insurer, provided such consent is not unreasonably refused.
- (viii) The policy must provide that the insurer may not cancel, terminate or fail to renew the policy except for failure to pay the premium. The automatic renewal of the policy must, at a

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minimum, provide the insured with the option of renewal at the limits of liability of the expiring policy. If there is a failure to pay the premium, the insurer may elect to cancel, terminate or fail to renew the policy by sending notice, by certified mail, return receipt requested, to the owner or operator and the commissioner. Cancellation, termination or failure to renew may not occur, however, during the 120 days beginning with the date of receipt of the notice by both the commissioner and the owner or operator, as evidenced by the return receipts. Cancellation, termination or failure to renew may not occur and the policy will remain in full force and effect, in the event that on or before the date of expiration:

- (a) the commissioner deems the facility abandoned; or
 - (b) interim status is terminated or revoked; or
 - (c) closure is ordered by the commissioner or a United States district court or other court of competent jurisdiction; or
 - (d) the owner or operator is named as debtor in a voluntary or involuntary proceeding under 11 USCA (Bankruptcy); or
 - (e) the premium due is paid.
- (ix) Whenever the current closure cost estimate increases to an amount greater than the limits of liability of the policy, the owner or operator, within 60 days after the increase, must either cause the limits of liability face amount to be increased to an amount at least equal to the current closure cost estimate and submit evidence of such increase to the commissioner, or obtain other financial assurance as specified in this subdivision to cover the increase. Whenever the current closure cost estimate decreases, the limits of liability may be reduced to the amount of the current closure cost estimate following written approval by the commissioner.
- (x) The commissioner will give written consent to the owner or operator that the insurance policy may be terminated when:
- (a) an owner or operator substitutes alternate financial assurance as specified in this subdivision; or
 - (b) the commissioner releases the owner or operator from the requirements of this section in accordance with paragraph (8) of this subdivision.
- (5) Financial test and guarantee for closure.
- (i) An owner or operator of a facility which is not a revenue-oriented facility may satisfy the requirements of this section by demonstrating that the owner or operator passes a financial test as specified in this paragraph. No revenue-oriented facilities will be allowed to use this financial assurance mechanism. To pass this test, the owner or operator must meet the criteria of either clause ('a') or ('b') of this subparagraph.
 - (a) The owner or operator must have:

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- (1') two of the following three ratios: a ratio of total liabilities to net worth less than 2.0; a ratio of the sum of net income plus depreciation, depletion and amortization to total liabilities greater than 0.1; and a ratio of current assets to current liabilities greater than 1.5;
 - (2') net working capital and tangible net worth each at least six times the sum of the current closure and post-closure cost estimates and the current plugging and abandonment cost estimates;
 - (3') tangible net worth of at least \$10 million; and
 - (4') assets in the United States amounting to at least 90 percent of the total assets or at least six times the sum of the current closure and post-closure cost estimates and the current plugging and abandonment cost estimates.
- (b') The owner or operator must have:
- (1') a current rating for their most recent bond issuance of AAA, AA, A or BBB as issued by Standard and Poor's, or Aaa, Aa, A or Baa as issued by Moody's;
 - (2') tangible net worth at least six times the sum of the current closure and post-closure cost estimates and the current plugging and abandonment costs;
 - (3') tangible net worth of at least \$10 million; and
 - (4') assets located in the United States amounting to at least 90 percent of the total assets or at least six times the sum of the current closure and post-closure cost estimates and the current plugging and abandonment costs.
- (ii) The phrases "current closure and post-closure cost estimates" and "current plugging and abandonment cost estimates," as used in subparagraph (i) of this paragraph, refer to the cost estimates required to be shown in paragraphs 1-3 of the letter from the owner's or operator's chief financial officer.
- (iii) To demonstrate that he or she meets this test, the owner or operator must submit the following items to the commissioner:
- (a') a letter signed by the owner's or operator's chief financial officer and worded as specified in section 373-2.8(j)(5) of this Part;
 - (b') a copy of the independent certified public accountant's report on examination of the owner's or operator's financial statements for the latest completed fiscal year; and
 - (c') a special report from the owner's or operator's independent certified public accountant to the owner or operator stating that:
 - (1') the accountant has compared the data which the letter from the chief financial officer specifies as having been derived from the independently audited, year-end

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financial statements for the latest fiscal year with the amounts in such financial statements; and

- (2) in connection with that procedure, no matters came to the accountant's attention which caused the accountant to believe that the specified data should be adjusted.
- (iv) After the initial submission of items specified in subparagraph (iii) of this paragraph, the owner or operator must send updated information to the commissioner within 90 days after the close of each succeeding fiscal year. This information must consist of all three items specified in subparagraph (iii) of this paragraph.
- (v) If the owner or operator no longer meets the requirements of subparagraph (i) of this paragraph, the owner or operator must send notice to the commissioner of intent to establish alternate financial assurance as specified in this subdivision. The notice must be sent by certified mail, return receipt requested, within 90 days after the end of the fiscal year for which the year-end financial data show that the owner or operator no longer meets the requirements. The owner or operator must provide the alternate financial assurance within 120 days after the end of such fiscal year.
- (vi) The commissioner may, based on a reasonable belief that the owner or operator may no longer meet the requirements of subparagraph (i) of this paragraph, require reports of financial condition at any time from the owner or operator in addition to those specified in subparagraph (iii) of this paragraph. If the commissioner finds, on the basis of such report or other information, that the owner or operator no longer meets the requirements of subparagraph (i) of this paragraph, the owner or operator must provide alternate financial assurance as specified in this subdivision within 30 days after notification of such a finding.
- (vii) The commissioner may disallow use of this test on the basis of qualifications in the opinion expressed by the independent certified public accountant in his or her report on examination of the owner's or operator's financial statements (see clause (iii)(b) of this paragraph). An adverse opinion or a disclaimer of opinion will be cause for disallowance. The commissioner will evaluate other qualifications on an individual basis. The owner or operator must provide alternate financial assurance as specified in this subdivision within 30 days after notification of the disallowance.
- (viii) The owner or operator is no longer required to submit the items specified in subparagraph (iii) of this paragraph when:
 - (a) an owner or operator substitutes alternate financial assurance as specified in this subdivision; or
 - (b) the commissioner releases the owner or operator from the requirements of this section in accordance with paragraph (8) of this subdivision.
- (ix) An owner or operator of a facility which is not a revenue-oriented facility may meet the requirements of this subdivision by obtaining a written guarantee, hereinafter referred to as

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“guarantee.” If the firm which is providing the guarantee does not meet the definition of *‘revenue-oriented’* in section 373-2.8 or 373-3.8 of this Part, it may provide the guarantee on behalf of the owner or operator even if the owner or operator is a *‘revenue-oriented’* facility. For a revenue-oriented facility, the financial statement of the owner or operator cannot be consolidated with the financial statement of the guarantor. The guarantor must be the direct or higher-tier parent corporation of the owner or operator, a firm whose parent corporation is also the parent corporation of the owner or operator, or a firm with a “substantial business relationship” with the owner or operator. The guarantor must meet the requirements for owners or operators in subparagraphs (i) through (vii) of this paragraph and must comply with the terms of the guarantee. The wording of the guarantee must be identical to the wording specified in section 373-2.8(j)(6) of this Part. A certified copy of the guarantee must accompany the items sent to the commissioner as specified in subparagraph (iii) of this paragraph. One of these items must be the letter from the guarantor's chief financial officer. If the guarantor's parent corporation is also the parent corporation of the owner or operator, the letter must describe the value received in consideration of the guarantee. If the guarantor is a firm with a “substantial business relationship” with the owner or operator, this letter must describe this “substantial business relationship” and the value received in consideration of the guarantee. The terms of the guarantee must provide that:

- (a) If the owner or operator fails to perform final closure of a facility covered by the guarantee in accordance with the closure plan and other interim status requirements whenever required to do so, the guarantor will do so or make payment as the commissioner shall direct, in writing.
 - (b) The guarantee will remain in force unless the guarantor sends notice of cancellation, by certified mail, return receipt requested, to the owner or operator and to the commissioner. Cancellation may not occur, however, during the 120 days beginning on the date of receipt of the notice of cancellation by both the owner or operator and the commissioner, as evidenced by the return receipts.
 - (c) If the owner or operator fails to provide alternate financial assurance as specified in this subdivision and obtain the written approval of such alternate assurance from the commissioner, within 90 days after receipt by both the owner or operator and the commissioner of a notice of cancellation of the guarantee from the guarantor, the guarantor will provide such alternate financial assurance in the name of the owner or operator.
- (6) Use of multiple financial mechanisms. An owner or operator may satisfy the requirements of this subdivision by establishing more than one financial mechanism per facility. These mechanisms are limited to trust funds, surety bonds, letters of credit, and insurance. The mechanisms must be as specified in paragraphs (1) through (4), respectively, of this subdivision, except that it is the combination of mechanisms, rather than the single mechanisms, which must provide financial assurance for an amount at least equal to the current closure cost estimate. If an owner or operator uses a trust fund in combination with a surety bond or a letter of credit, the trust fund may be used

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as the standby trust fund for the other two mechanisms. A single standby trust fund, if required, may be established for two or more mechanisms. The commissioner may use any or all of the mechanisms to provide for closure of the facility.

- (7) Use of a financial mechanism for multiple facilities. An owner or operator may use a financial assurance mechanism specified in this subdivision to meet the requirements of this subdivision for more than one facility. Evidence of financial assurance submitted to the commissioner must include a list showing, for each facility, the EPA identification number, name, address, and the amount of funds for closure assured by the mechanism. The amount of funds available through the mechanism must be no less than the sum of funds that would be available if a separate mechanism had been established and maintained for each facility. In directing funds available through the mechanism for closure of any of the facilities covered by the mechanism, the commissioner may direct only the amount of funds designated for that facility, unless the owner or operator agrees to the use of additional funds available under the mechanism.
- (8) Release of the owner or operator from the requirements of this subdivision. Within 60 days after receiving certifications from the owner or operator and an independent professional engineer registered in New York that final closure has been completed in accordance with the approved closure plan, the commissioner will notify the owner or operator, in writing, that the owner or operator is no longer required by this subdivision to maintain financial assurance for final closure of the facility, unless the commissioner has reason to believe that final closure has not been in accordance with the approved closure plan. The commissioner shall provide the owner or operator a detailed written statement of the reason to believe that closure has not been in accordance with the approved closure plan.

(e) **Cost estimate for post-closure care.**

- (1) The owner or operator of a hazardous waste disposal unit must have a detailed written estimate, in current dollars, of the annual cost of post-closure monitoring and maintenance of the facility in accordance with the applicable post-closure regulations in subdivisions (g) through (j) of this section and sections 373-3.11(e), 373-3.12(g), 373-3.13(g) and 373-3.14(d) of this Subpart.
 - (i) The post-closure cost estimate must be based on the costs to the owner or operator of hiring a third party to conduct post-closure care activities. A ***‘third party’*** is a party who is neither a parent nor a subsidiary of the owner or operator. (See definition of parent corporation in subdivision (b) of this section.)
 - (ii) The post-closure cost estimate is calculated by multiplying the annual post-closure cost estimate by the number of years of post-closure care required under section 373-2.7(g) of this Part.
- (2) During the active life of the facility, the owner or operator must adjust the post-closure cost estimate for inflation within 60 days prior to the anniversary date of the establishment of the financial instruments used to comply with subdivision (f) of this section. For owners and operators using the financial test or guarantee, the post-closure care cost estimate must be updated for inflation within

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30 days after the close of the firm's fiscal year and before submission of updated information to the commissioner as specified in section 373-3.8(f)(5)(v) of this Subpart. The adjustment may be made by recalculating the post-closure cost estimate in current dollars, or by using an inflation factor derived from the most recent *Implicit Price Deflator for Gross National Product* published by the U.S. Department of Commerce in its *Survey of Current Business*, as specified in subparagraphs (i) and (ii) of this paragraph. The inflation factor is the result of dividing the latest published annual deflator by the deflator for the previous year.

- (i) The first adjustment is made by multiplying the post-closure cost estimate by the inflation factor. The result is the adjusted closure cost estimate.
 - (ii) Subsequent adjustments are made by multiplying the latest adjusted post-closure cost estimate by the latest inflation factor.
- (3) During the active life of the facility, the owner or operator must revise the post-closure cost estimate no later than 30 days after a revision to the post-closure plan which increases the cost of post-closure care. If the owner or operator has an approved post-closure plan, the post-closure cost estimate must be revised no later than 30 days after the commissioner has approved the request to modify the plan, if the change in the post-closure plan increases the cost of post-closure care. The revised post-closure cost estimate must be adjusted for inflation as specified in paragraph (2) of this subdivision.
 - (4) The owner or operator must keep the following at the facility during the operating life of the facility: the latest post-closure cost estimate prepared in accordance with paragraphs (1) and (3) of this subdivision and, when this estimate has been adjusted in accordance with paragraph (2) of this subdivision, the latest adjusted post-closure cost estimate.

(f) **Financial assurance for post-closure care.**

An owner or operator of a facility with a hazardous waste disposal unit must establish financial assurance for post-closure care of the disposal units.

- (1) Post-closure trust fund.
 - (i) An owner or operator may satisfy the requirements of this subdivision by establishing a post-closure trust fund which conforms to the requirements of this paragraph and submitting an originally signed duplicate of the trust agreement to the commissioner. The trustee must be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a Federal or State agency.
 - (ii) The wording of the trust agreement must be identical to the wording specified in section 373-2.8(j)(1) of this Part, and the trust agreement must be accompanied by a formal certification of acknowledgment (for example, see section 373-2.8(j)(1)). Schedule A of the trust agreement must be updated within 60 days after a change in the amount of the current post-closure cost estimate covered by the agreement.
 - (iii) Payments into the trust fund must be made annually by the owner or operator over the first

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five years of operation or over the remaining operating life of the facility as estimated in the closure plan, whichever period is shorter; this period is hereinafter referred to as the “pay-in period.” The payments into the post-closure trust fund must be made as follows:

- (a) For a new or revenue-oriented facility, the first payment must be equal to the total post-closure cost estimate, or an alternative mechanism must be provided, which when combined with the trust fund, provides financial assurance for an amount at least equal to the current post-closure cost estimate. For a revenue oriented facility the first payment is due 90 days after the date these regulations are promulgated. For all other facilities, the first payment must be at least equal to the current post-closure cost estimate, except as provided in paragraph (6) of this subdivision, divided by the number of years in the pay-in period.
- (b) Subsequent payments must be made no later than 30 days after each anniversary date of the first payment. The amount of each subsequent payment must be determined by this formula:

$$\text{Next payment} = \frac{CE - CV}{Y}$$

where CE is the current post-closure cost estimate, CV is the current value of the trust fund, and Y is the number of years remaining in the pay-in period.

- (iv) The owner or operator may accelerate payments into the trust fund or may deposit the full amount of the current post-closure cost estimate at the time the fund is established. However, the owner or operator must maintain the value of the fund at no less than the value that the fund would have if annual payments were made as specified in subparagraph (iii) of this paragraph.
- (v) If the owner or operator establishes a post-closure trust fund after having used one or more alternate mechanisms specified in this subdivision, the first payment must be in at least the amount that the fund would contain if the trust fund were established initially and annual payments made as specified in subparagraph (iii) of this paragraph.
- (vi) After the pay-in period is completed, whenever the current post-closure cost estimate changes during the operating life of the facility, the owner or operator must compare the new estimate with the trustee's most recent annual valuation of the trust fund. If the value of the fund is less than the amount of the new estimate, the owner or operator, within 60 days after the change in the cost estimate, must either deposit an amount into the fund so that its value after this deposit at least equals the amount of the current post-closure cost estimate, or obtain other financial assurance as specified in this subdivision to cover the difference.
- (vii) During the operating life of the facility, if the value of the trust fund is greater than the total amount of the current post-closure cost estimate, the owner or operator may submit a written request to the commissioner for release of the amount in excess of the current post-closure cost estimate.

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- (viii) If an owner or operator substitutes other financial assurance as specified in this subdivision for all or part of the trust fund, the owner or operator may submit a written request to the commissioner for release of the amount in excess of the current post-closure cost estimate covered by the trust fund.
 - (ix) Within 60 days after receiving a request from the owner or operator for release of funds as specified in subparagraph (vii) or (viii) of this paragraph, the commissioner will instruct the trustee to release to the owner or operator such funds as the commissioner specifies in writing.
 - (x) During the period of post-closure care, the commissioner may approve a release of funds if the owner or operator demonstrates to the commissioner that the value of the trust fund exceeds the remaining cost of post-closure care.
 - (xi) An owner or operator or any other person authorized to conduct post-closure care may request reimbursements for post-closure expenditures by submitting itemized bills to the commissioner. Within 60 days after receiving bills for post-closure care activities, the commissioner will instruct the trustee to make reimbursements in those amounts as the commissioner specifies in writing, if the commissioner determines that the post-closure expenditures are in accordance with the approved post-closure plan, or otherwise justified. If the commissioner does not instruct the trustee to make such reimbursements, the commissioner will provide the owner or operator with a detailed written statement of reasons.
 - (xii) The commissioner will agree to termination of the trust when:
 - ('a') an owner or operator substitutes alternate financial assurance as specified in this subdivision; or
 - ('b') the commissioner releases the owner or operator from the requirements of this subdivision in accordance with this paragraph.
- (2) Surety bond.
- (i) An owner or operator may satisfy the requirements of this subdivision by obtaining a surety bond which conforms to the requirements of this paragraph and submitting the bond to the commissioner. The surety company issuing the bond must, at a minimum, be among those listed as acceptable sureties on Federal bonds in Circular 570 of the U.S. Department of the Treasury.
 - (ii) The wording of the surety bond must be identical to the wording specified in section 373-2.8(j)(2) of this Part.
 - (iii) The owner or operator who uses a surety bond to satisfy the requirements of this subdivision must also establish a standby trust fund. Under the terms of the bond, all payments made thereunder will be deposited by the surety into the standby trust fund in accordance with instructions from the commissioner. This standby trust fund must meet the requirements specified in paragraph (1) of this subdivision, except that:

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- (a) an originally signed duplicate of the trust agreement must be submitted to the commissioner with the surety bond; and
- (b) until the standby trust fund is funded pursuant to the requirements of this subdivision, the following are not required by these regulations:
 - (1) payments into the trust fund as specified in paragraph (1) of this subdivision;
 - (2) updating of Schedule A of the trust agreement (see section 373-2.8(j)(1) of this Part) to show current post-closure cost estimates;
 - (3) annual valuations as required by the trust agreement; and
 - (4) notices of nonpayment as required by the trust agreement.
- (iv) The bond must guarantee that the owner or operator will:
 - (a) fund the standby trust fund in an amount equal to the penal sum of the bond before the beginning of final closure of the facility;
 - (b) fund the standby trust fund in an amount equal to the penal sum within 15 days after an order to begin final closure is issued by the commissioner or a United States district court or other court of competent jurisdiction; or
 - (c) provide alternate financial assurance as specified in this subdivision, and obtain the commissioner's written approval of the assurance provided, within 90 days after receipt by both the owner or operator and the commissioner of a notice of cancellation of the bond from the surety.
- (v) Under the terms of the bond, the surety will become liable on the bond obligation when the owner or operator fails to perform as guaranteed by the bond.
- (vi) The penal sum of the bond must be in an amount at least equal to the current post-closure cost estimate, except as provided in paragraph (6) of this subdivision.
- (vii) Whenever the current post-closure cost estimate increases to an amount greater than the penal sum, the owner or operator, within 60 days after the increase, must either cause the penal sum to be increased to an amount at least equal to the current post-closure cost estimate and submit evidence of such increase to the commissioner, or obtain other financial assurance as specified in this subdivision to cover the increase. Whenever the current post-closure cost estimate decreases, the penal sum may be reduced to the amount of the current post-closure cost estimate, following written approval by the commissioner.
- (viii) Under the terms of the bond, the surety may cancel the bond by sending notice of cancellation, by certified mail, return receipt requested, to the owner or operator and to the commissioner. Cancellation may not occur, however, during the 120 days beginning on the date of receipt of the notice of cancellation by both the owner or operator and the commissioner, as evidenced by the return receipts.

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- (ix) The owner or operator may cancel the bond if the commissioner has given prior written consent based on the receipt of evidence of alternate financial assurance as specified in this subdivision.
- (3) Post-closure letter of credit.
- (i) An owner or operator may satisfy the requirements of this subdivision by obtaining an irrevocable standby letter of credit which conforms to the requirements of this paragraph and submitting the letter to the commissioner. The issuing institution must be an entity which has the authority to issue letters of credit and whose letter of credit operations are regulated and examined by a Federal or State agency.
 - (ii) The wording of the letter of credit must be identical to the wording specified in section 373-2.8(j)(3) of this Part.
 - (iii) An owner or operator who uses a letter of credit to satisfy the requirements of this subdivision must also establish a standby trust fund. Under the terms of the letter of credit, all amounts paid pursuant to a draft by the commissioner will be deposited by the issuing institution directly into the standby trust fund in accordance with instructions from the commissioner. This standby trust fund must meet the requirements of the trust fund specified in paragraph (1) of this subdivision, except that:
 - ('a') an originally signed duplicate of the trust agreement must be submitted to the commissioner with the letter of credit; and
 - ('b') unless the standby trust fund is funded pursuant to the requirements of this subdivision, the following are not required by these regulations:
 - ('1') payments into the trust fund as specified in paragraph (1) of this subdivision;
 - ('2') updating of Schedule A of the trust agreement (see section 373-2.8(j)(1) of this Part), to show current post-closure cost estimates;
 - ('3') annual valuations as required by the trust agreement; and
 - ('4') notices of nonpayment as required by the trust agreement.
 - (iv) The letter of credit must be accompanied by a letter from the owner or operator referring to the letter of credit by number, issuing institution and date, and providing the following information: the EPA identification number, name and address of the facility, and the amount of funds assured for post-closure care of the facility by letter of credit.
 - (v) The letter of credit must be irrevocable and issued for a period of at least one year. The letter of credit must provide that the expiration date will be automatically extended for a period of at least one year unless, at least 120 days before the current expiration date, the issuing institution notifies both the owner or operator and the commissioner, by certified mail, return receipt requested, of a decision not to extend the expiration date. Under the terms of the letter

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of credit, the 120 days will begin on the date when both the owner or operator and the commissioner have received the notice, as evidenced by the return receipts.

- (vi) The letter of credit must be issued in an amount at least equal to the current post-closure cost estimate, except as provided in paragraph (6) of this subdivision.
 - (vii) Whenever the current post-closure cost estimate increases to an amount greater than the amount of the credit during the operating life of the facility, the owner or operator, within 60 days after the increase, must either cause the amount of the credit to be increased so that it at least equals the current post-closure cost estimate and submit evidence of such increase to the commissioner, or obtain other financial assurance as specified in this subdivision to cover the increase. Whenever the current post-closure cost estimate decreases during the operating life of the facility, the amount of the credit may be reduced to the amount of the current post-closure cost estimate following written approval by the commissioner.
 - (viii) During the period of post-closure care, the commissioner may approve a decrease in the amount of the letter of credit if the owner or operator demonstrates to the commissioner that the amount exceeds the remaining cost of post-closure care.
 - (ix) Following a determination, pursuant to section 373-3.7 of this Subpart, that the owner or operator has failed to perform post-closure care in accordance with the post-closure plan and other permit requirements, the commissioner may draw on the letter of credit.
 - (x) If the owner or operator does not establish alternate financial assurance as specified in this subdivision and obtain written approval of such alternate assurance from the commissioner within 90 days after receipt by both the owner or operator and the commissioner of a notice from the issuing institution that it has decided not to extend the letter of credit beyond the current expiration date, the commissioner will draw on the letter of credit. The commissioner may delay the drawings if the issuing institution grants an extension of the term of the credit. During the last 30 days of any such extension, the commissioner will draw on the letter of credit if the owner or operator has failed to provide alternate financial assurance as specified in this subdivision and obtain written approval of such assurance from the commissioner.
 - (xi) The commissioner will return the letter of credit to the issuing institution for termination when:
 - ('a') an owner or operator substitutes alternate financial assurance as specified in this subdivision; or
 - ('b') the commissioner releases the owner or operator from the requirements of this subdivision in accordance with paragraph (8).
- (4) Post-closure insurance.
- (i) An owner or operator may satisfy the requirements of this subdivision by obtaining post-closure insurance which conforms to the requirements of this paragraph and submitting a certificate of such insurance to the commissioner. At a minimum, the insurer must be

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authorized by the superintendent of the New York State Insurance Department to conduct the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in New York State.

- (ii) The wording of the certificate of insurance must be identical to the wording specified in section 373-2.8(j)(4) of this Part.
- (iii) The post-closure insurance policy must be issued for a limit of liability at least equal to the current post-closure cost estimate, except as provided in paragraph (d)(6) of this section. The term '*limits of liability*' means the total amount the insurer is obligated to pay under the policy. Actual payments by the insurer will not change the limits of liability, although the insurer's future liability will be lowered by the amount of the payments.
- (iv) The post-closure insurance policy must guarantee that funds will be available to provide post-closure care of the facility whenever the post-closure period begins. The policy must also guarantee that once post-closure care begins, the insurer will be responsible for paying out funds, up to an amount equal to the limits of liability of the policy, upon the direction of the commissioner, to such party or parties as the commissioner specifies.
- (v) An owner or operator or any other person authorized to perform post-closure care may request reimbursements for post-closure expenditures by submitting itemized bills to the commissioner. Within 60 days after receiving bills for post-closure care activities, the commissioner will instruct the insurer to make reimbursements in those amounts as the commissioner specifies in writing, if the commissioner determines that the post-closure expenditures are in accordance with the approved post-closure plan, or otherwise justified. If the commissioner does not instruct the insurer to make such reimbursements, the commissioner will provide the owner or operator with a detailed written statement of reasons.
- (vi)
 - ('a') The owner or operator must maintain the policy in full force and effect until the commissioner consents to termination of the policy by the owner or operator as specified in subparagraph (xi) of this paragraph.
 - ('b') Failure to pay the premium, without substitution of alternate financial assurance as specified in this subdivision, will constitute a significant violation of these regulations, warranting such remedy as the commissioner deems necessary. Such violation will be deemed to begin upon receipt by the commissioner of a notice of future cancellation, termination or failure to renew due to nonpayment of the premium, rather than upon the date of expiration.
- (vii) Each policy must contain a provision allowing assignment of the policy to a successor owner or operator. Such assignment may be conditional upon consent of the insurer, provided such consent is not unreasonably refused.
- (viii) The policy must provide that the insurer may not cancel, terminate or fail to renew the policy

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except for failure to pay the premium. The automatic renewal of the policy must, at a minimum, provide the insured with the option of renewal at the limits of liability of the expiring policy. If there is a failure to pay the premium, the insurer may elect to cancel, terminate or fail to renew the policy by sending notice, by certified mail, return receipt requested, to the owner or operator and the commissioner. Cancellation, termination or failure to renew may not occur, however, during the 120 days beginning with the date of receipt of the notice by both the commissioner and the owner or operator, as evidenced by the return receipts. Cancellation, termination or failure to renew may not occur, and the policy will remain in full force and effect, in the event that on or before the date of expiration:

- (a) the commissioner deems the facility abandoned;
 - (b) interim status is terminated or revoked;
 - (c) closure is ordered by the commissioner or a United States district court or other court of competent jurisdiction;
 - (d) the owner or operator is named as debtor in a voluntary or involuntary proceeding under 11 USCA (Bankruptcy); or
 - (e) the premium due is paid.
- (ix) Whenever the current post-closure cost estimate increases to an amount greater than the limits of liability of the policy during the operating life of the facility, the owner or operator, within 60 days after the increase, must either cause the limits of liability to be increased to an amount at least equal to the current post-closure cost estimate and submit evidence of such increase to the commissioner, or obtain other financial assurance as specified in this subdivision to cover the increase. Whenever the current post-closure cost estimate decreases during the operating life of the facility, the limits of liability may be reduced to the amount of the current post-closure cost estimate following written approval by the commissioner.
- (x) Commencing on the date that liability to make payments pursuant to the policy accrues, the insurer will thereafter annually increase the limits of liability of the policy. Such increase must be equivalent to the limits of liability of the policy, less any payments made, multiplied by an amount equivalent to 85 percent of the most recent investment rate or of the equivalent coupon-issue yield announced by the United States Treasury for 26-week Treasury securities.
- (xi) The commissioner will give written consent to the owner or operator that the insurance policy may be terminated when:
- (a) an owner or operator substitutes alternate financial assurance as specified in this subdivision; or
 - (b) the commissioner releases the owner or operator from the requirements of this subdivision in accordance with paragraph (8).
- (5) Financial test and guarantee for post-closure care.

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- (i) An owner or operator of a facility which is not a revenue-oriented facility may satisfy the requirements of this subdivision by demonstrating that the owner or operator passes a financial test as specified in this paragraph. No revenue-oriented facilities will be allowed to use this financial assurance mechanism. To pass this test, the owner or operator must meet the criteria of either clause ('a') or ('b') of this subparagraph:
 - ('a') The owner or operator must have:
 - ('1') two of the following three ratios: a ratio of total liabilities to net worth less than 2.0; a ratio of the sum of net income plus depreciation, depletion and amortization to total liabilities greater than 0.1; and a ratio of current assets to current liabilities greater than 1.5;
 - ('2') net working capital and tangible net worth each at least six times the sum of the current closure and post-closure cost estimates and the current plugging and abandonment cost estimates;
 - ('3') tangible net worth of at least \$10 million; and
 - ('4') assets in the United States amounting to at least 90 percent of total assets or at least six times the sum of the current closure and post-closure cost estimates and the current plugging and abandonment cost estimates.
 - ('b') The owner or operator must have:
 - ('1') a current rating for their most recent bond issuance of AAA, AA, A or BBB as issued by Standard and Poor's, or Aaa, Aa, A or Baa as issued by Moody's;
 - ('2') tangible net worth at least six times the sum of the current closure and post-closure cost estimates and the current plugging and abandonment cost estimates;
 - ('3') tangible net worth of at least \$10 million; and
 - ('4') assets in the United States amounting to at least 90 percent of the total assets or at least six times the sum of the current closure and post-closure cost estimates and the current plugging and abandonment cost estimates.
- (ii) The phrases "current closure and post-closure cost estimates" and "current plugging and abandonment cost estimates," as used in subparagraph (i) of this paragraph, refer to the cost estimates required to be shown in paragraphs 1-3 of the letter from the owner's or operator's chief financial officer.
- (iii) To demonstrate that he or she meets this test, the owner or operator must submit the following items to the commissioner:
 - ('a') a letter signed by the owner's or operator's chief financial officer and worded as specified in section 373-2.8(j)(5) of this Part;

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- (b) a copy of the independent certified public accountant's report on examination of the owner's or operator's financial statements for the latest completed fiscal year; and
- (c) a special report from the owner's or operator's independent certified public accountant to the owner or operator, stating that:
 - (1) the accountant has compared the data which the letter from the chief financial officer specifies as having been derived from the independently audited, year-end financial statements for the latest fiscal year; and
 - (2) in connection with that procedure, no matters came to the accountant's attention which caused the accountant to believe that the specified data should be adjusted.
- (iv) After the initial submission of items specified in subparagraph (iii) of this paragraph, the owner or operator must send updated information to the commissioner within 90 days after the close of each succeeding fiscal year. This information must consist of all three items specified in subparagraph (iii) of this paragraph.
- (v) If the owner or operator no longer meets the requirements of subparagraph (i) of this paragraph, the owner or operator must send notice to the commissioner of intent to establish alternate financial assurance as specified in this subdivision. The notice must be sent by certified mail, return receipt requested, within 90 days after the end of the fiscal year for which the year-end financial data show that the owner or operator no longer meets the requirements. The owner or operator must provide the alternate financial assurance within 120 days after the end of such fiscal year.
- (vi) The commissioner may, based on a reasonable belief that the owner or operator may no longer meet the requirements of subparagraph (i) of this paragraph, require reports of financial condition at any time from the owner or operator in addition to those specified in subparagraph (iii) of this paragraph. If the commissioner finds, on the basis of such reports or other information, that the owner or operator no longer meets the requirements of subparagraph (i) of this paragraph, the owner or operator must provide alternate financial assurance as specified in this subdivision within 30 days after notification of such a finding.
- (vii) The commissioner may disallow use of this test on the basis of qualifications in the opinion expressed by the independent certified public accountant in his or her report on examination of the owner's or operator's financial statements (see clause (iii)(b) of this paragraph). An adverse opinion or a disclaimer of opinion will be cause for disallowance. The commissioner will evaluate other qualifications on an individual basis. The owner or operator must provide alternate financial assurance as specified in this subdivision within 30 days after notification of the disallowance.
- (viii) During the period of post-closure care, the commissioner may approve a decrease in the current post-closure cost estimate for which this test demonstrates financial assurance if the owner or operator demonstrates to the commissioner that the amount of the cost estimate exceeds the remaining cost of post-closure care.

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- (ix) The owner or operator is no longer required to submit the items specified in subparagraph (iii) of this paragraph when:
 - ('a') an owner or operator substitutes alternate financial assurance as specified in this subdivision; or
 - ('b') the commissioner releases the owner or operator from the requirements of this subdivision in accordance with paragraph (8) of this subdivision.
- (x) An owner or operator of a facility which is not a revenue-oriented facility may meet the requirements of this subdivision by obtaining a written guarantee, hereinafter referred to as "guarantee." If the firm which is providing the guarantee does not meet the definition of "revenue-oriented" in section 373-2.8 or 373-3.8 of this Part, it may provide the guarantee on behalf of the owner or operator even if the owner or operator is a "revenue-oriented" facility. For a revenue-oriented facility, the financial statement of the owner or operator cannot be consolidated with the financial statement of the guarantor. The guarantor must be the director or higher-tier parent corporation of the owner or operator, a firm whose parent corporation is also the parent corporation of the owner or operator, or a firm with a substantial business relationship with the owner or operator. The guarantor must meet the requirements for owners or operators in subparagraphs (i) through (viii) of this paragraph and must comply with the terms of the guarantee. The wording of the guarantee must be identical to the wording specified in section 373-2.8(j)(6) of this Part. A certified copy of the guarantee must accompany the items sent to the commissioner as specified in subparagraph (iii) of this paragraph. One of these items must be the letter from the guarantor's chief financial officer. If the guarantor's parent corporation is also the parent corporation of the owner or operator, the letter must describe the value received in consideration of the guarantee. If the guarantor is a firm with a "substantial business relationship" with the owner or operator, this letter must describe this "substantial business relationship" and the value received in consideration of the guarantee. The terms of the guarantee must provide that:
 - ('a') If the owner or operator fails to perform post-closure care of a facility covered by the guarantee in accordance with the post-closure plan and other interim status permit requirements whenever required to do so, the guarantor will do so, or make payment as the commissioner shall direct, in writing.
 - ('b') The guarantee will remain in force unless the guarantor sends notice of cancellation by certified mail, return receipt requested, to the owner or operator and to the commissioner. Cancellation may not occur, however, during the 120 days beginning on the date of receipt of the notice of cancellation by both the owner or operator and the commissioner, as evidenced by the return receipts.
 - ('c') If the owner or operator fails to provide alternate financial assurance as specified in this subdivision and obtain the written approval of such alternate assurance from the commissioner within 90 days after receipt by both the owner or operator and the commissioner of a notice of cancellation of the guarantee from the guarantor, the

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guarantor will provide such alternate financial assurance in the name of the owner or operator.

- (6) Use of multiple financial mechanisms. An owner or operator may satisfy the requirements of this subdivision by establishing more than one financial mechanism per facility. These mechanisms are limited to trust funds, surety bonds, letters of credit, and insurance. The mechanisms must be as specified in paragraphs (1), (2), (3) and (4), respectively, of this subdivision, except that it is the combination of mechanisms, rather than the single mechanism, which must provide financial assurance for an amount at least equal to the current post-closure cost estimate. If an owner or operator uses a trust fund in combination with a surety bond or a letter of credit, the trust fund may be used as the standby trust fund for the other mechanisms. A single standby trust fund, if required, may be established for two or more mechanisms. The commissioner may use any or all of the mechanisms to provide for post-closure care of the facility.
- (7) Use of a financial mechanism for multiple facilities. An owner or operator may use a financial assurance mechanism specified in this subdivision to meet the requirements of this subdivision for more than one facility. Evidence of financial assurance submitted to the commissioner must include a list showing, for each facility, the EPA identification number, name, address, and the amount of funds for post-closure care assured by the mechanism. The amount of funds available through the mechanism must be no less than the sum of funds that would be available if a separate mechanism had been established and maintained for each facility. In directing funds available through the mechanism for post-closure care of any of the facilities covered by the mechanism, the commissioner may direct only the amount of funds designated for that facility, unless the owner or operator agrees to the use of additional funds available under the mechanism.
- (8) Release of the owner or operator from the requirements of this subdivision. Within 60 days after receiving certifications from the owner or operator and an independent registered professional engineer that the post-closure care period has been completed in accordance with the approved post-closure plan, the commissioner will notify the owner or operator in writing that the owner or operator is no longer required by this subdivision to maintain financial assurance for post-closure care of that unit, unless the commissioner has reason to believe that post-closure care has not been in accordance with the approved post-closure plan. The commissioner will provide the owner or operator with a detailed written statement of any reason to believe that post-closure care has not been in accordance with the approved post-closure plan.

Note: The notice releases the owner or operator only from the requirements for financial assurance for post-closure care of the facility; it does not release the owner or operator from legal responsibility for meeting the post-closure standards.

(g) Use of a mechanism for financial assurance of both closure and post-closure care.

An owner or operator may satisfy the requirements for financial assurance for both closure and post-closure care for one or more facilities by using a trust fund, surety bond, letter of credit, insurance, financial test or guarantee that meets the specifications for the mechanism in both subdivisions (d) and (f) of this section. The amount of funds available through the mechanism must be no less than the sum of

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funds that would be available if a separate mechanism had been established and maintained for financial assurance of closure and post-closure care.

(h) **Liability requirements.**

- (1) Coverage for sudden accidental occurrences. An owner or operator of a hazardous waste treatment, storage or disposal facility, or a group of such facilities, must demonstrate financial responsibility for bodily injury and property damage to third parties caused by sudden accidental occurrences arising from operations of the facility or group of facilities. The owner or operator must have and maintain liability coverage for sudden accidental occurrences in the amount of at least \$1 million per occurrence, with an annual aggregate of at least \$2 million, exclusive of legal defense costs. This liability coverage may be demonstrated as specified in subparagraph (i), (ii) (iii), (iv), (v) or (vi) of this paragraph.
 - (i) An owner or operator may demonstrate the required liability coverage by having liability insurance as specified in this paragraph.
 - ('a') Each insurance policy must be amended by attachment of the Hazardous Waste Facility Liability Endorsement or evidenced by a Certificate of Liability Insurance. The wording of the endorsement must be identical to the wording specified in section 373-2.8(j)(7) of this Part. The wording of the certificate of insurance must be identical to the wording specified in paragraph (j)(8) of such section. The owner or operator must submit a signed duplicate original of the endorsement or the certificate of insurance to the commissioner. If requested by the commissioner, the owner or operator must provide a signed duplicate original of the insurance policy.
 - ('b') Each insurance policy must be issued by an insurer which, at a minimum, is licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, within New York State by the Superintendent of the New York State Department of Financial Services.
 - (ii) An owner or operator of a facility which is not a revenue-oriented facility may meet the requirements of this paragraph by passing a financial test or using the guarantee for liability coverage as specified in paragraphs (6) and (7) of this subdivision. If the firm which is providing the guarantee does not meet the definition of revenue-oriented in section 373-2.8 or 373-3.8 of this Part, it may provide the guarantee on behalf of the owner or operator even if the owner or operator is a revenue-oriented facility. For a revenue-oriented facility, the financial statement of the owner or operator cannot be consolidated with the financial statement of the guarantor.
 - (iii) An owner or operator may meet the requirements of this paragraph by obtaining a letter of credit for liability coverage as specified in paragraph (8) of this subdivision.
 - (iv) An owner or operator may meet the requirements of this paragraph by obtaining a surety bond for liability coverage as specified in paragraph (9) of this subdivision.

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- (v) An owner or operator may meet the requirements of this paragraph by obtaining a trust fund for liability coverage as specified in paragraph (10) of this subdivision.
- (vi) An owner or operator may demonstrate the required liability coverage through the use of combinations of insurance, financial test, guarantee, letter of credit, surety bond, and trust fund, except that the owner or operator may not combine a financial test covering part of the liability coverage requirement with a guarantee unless the financial statement of the owner or operator is not consolidated with the financial statement of the guarantor. The amounts of coverage demonstrated must total at least the minimum amounts required by this paragraph. If the owner or operator demonstrates the required coverage through the use of a combination of financial assurances under this paragraph, the owner or operator shall specify at least one such assurance as primary coverage and shall specify other assurances as excess coverage. An owner or operator of a revenue-oriented facility may use all of the above- mentioned financial mechanisms except the financial test and/or guarantee.
- (vii) An owner or operator shall notify the commissioner in writing within 30 days whenever:
 - ('a') a claim results in a reduction in the amount of financial assurance for liability coverage provided by a financial instrument authorized in subparagraphs (i) through (vi) of this paragraph; or
 - ('b') a certification of valid claim for bodily injury or property damages caused by a sudden or nonsudden accidental occurrence arising from the operation of a hazardous waste treatment, storage, or disposal facility is entered between the owner and third-party claimant for liability coverage under subparagraphs (i) through (vi) of this paragraph; or
 - ('c') a final court order establishing a judgment for bodily injury or property damage caused by a sudden or nonsudden accidental occurrence arising from the operation of a hazardous waste treatment, storage, or disposal facility is issued against the owner or operator or an instrument that is providing financial assurance for liability coverage under subparagraphs (i) through (vi) of this paragraph.
- (2) Coverage for nonsudden accidental occurrences. An owner or operator of a surface impoundment, landfill or land treatment facility which is used to manage hazardous waste, or a group of such facilities, must demonstrate financial responsibility for bodily injury and property damage to third parties caused by nonsudden accidental occurrences arising from operations of the facility or group of facilities. The owner or operator must have and maintain liability coverage for nonsudden accidental occurrences in the amount of at least \$4.5 million per occurrence, with an annual aggregate of at least \$9 million, exclusive of legal defense costs, for each separate facility in New York State. An owner or operator who must meet the requirements of this paragraph may combine the required per-occurrence coverage levels for sudden and nonsudden accidental occurrences into a single per-occurrence level, and combine the required annual aggregate coverage levels for sudden and nonsudden accidental occurrences into a single annual aggregate level. Owners or operators who combine coverage levels for sudden and nonsudden accidental occurrences must maintain liability coverage in the amount of at least \$5.5 million per occurrence and \$11 million annual

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aggregate. This liability coverage may be demonstrated as specified in subparagraph (i), (ii), (iii), (iv), (v) or (vi) of this paragraph.

- (i) An owner or operator may demonstrate the required liability coverage by having liability insurance as specified in this paragraph.
 - ('a') Each insurance policy must be amended by attachment of the Hazardous Waste Facility Liability Endorsement or evidenced by a Certificate of Liability Insurance. The wording of the endorsement must be identical to the wording specified in section 373-2.8(j)(7) of this Part. The wording of the certificate of insurance must be identical to the wording specified in paragraph (j)(8) of such section. The owner or operator must submit a signed duplicate original of the endorsement or the certificate of insurance to the commissioner. If requested by the commissioner, the owner or operator must provide a signed duplicate original of the insurance policy.
 - ('b') Each insurance policy must be issued by an insurer which, at a minimum, is licensed to transact the business of insurance, or authorized to provide insurance as an excess or surplus lines insurer, within New York State by the Superintendent of the New York State Insurance Department.
- (ii) An owner or operator of a facility which is not a revenue-oriented facility may meet the requirements of this paragraph by passing a financial test or using the guarantee for liability coverage as specified in paragraphs (6) and (7) of this subdivision. If the firm which is providing the guarantee does not meet the definition of revenue-oriented in section 373-2.8 or 373-3.8 of this Part, it may provide the guarantee on behalf of the owner or operator even if the owner or operator is a revenue-oriented facility. For a revenue-oriented facility, the financial statement of the owner or operator cannot be consolidated with the financial statement of the guarantor.
- (iii) An owner or operator may meet the requirements of this paragraph by obtaining a letter of credit for liability coverage as specified in paragraph (8) of this subdivision.
- (iv) An owner or operator may meet the requirements of this paragraph by obtaining a surety bond for liability coverage as specified in paragraph (9) of this subdivision.
- (v) An owner or operator may meet the requirements of this paragraph by obtaining a trust fund for liability coverage as specified in paragraph (10) of this subdivision.
- (vi) An owner or operator may demonstrate the required liability coverage through the use of combinations of insurance, financial test, guarantee, letter of credit, surety bond, and trust fund, except that the owner or operator may not combine a financial test covering part of the liability coverage requirement with a guarantee unless the financial statement of the owner or operator is not consolidated with the financial statement of the guarantor. The amounts of coverage demonstrated must total at least the minimum amounts required by this paragraph. If the owner or operator demonstrates the required coverage through the use of a combination of financial assurances under this paragraph, the owner or operator shall specify at least one such

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assurance as primary coverage and shall specify other assurances as excess coverage. An owner or operator of a revenue-oriented facility may use all of the above-mentioned financial mechanisms except the financial test and/or guarantee.

- (vii) An owner or operator shall notify the commissioner in writing within 30 days whenever:
 - ('a') a claim results in a reduction in the amount of financial assurance for liability coverage provided by a financial instrument authorized in subparagraphs (i) through (vi) of this paragraph; or
 - ('b') a certification of valid claim for bodily injury or property damages caused by a sudden or nonsudden accidental occurrence arising from the operation of a hazardous waste treatment, storage, or disposal facility is entered between the owner or operator and third-party claimant for liability coverage under subparagraphs (i) through (vi) of this paragraph; or
 - ('c') a final court order establishing a judgement for bodily injury or property damage caused by a sudden or nonsudden accidental occurrence arising from the operation of a hazardous waste treatment, storage, or disposal facility is issued against the owner or operator or an instrument that is providing financial assurance for liability coverage under subparagraphs (i) through (vi) of this paragraph.
- (3) Request for variance. If an owner or operator can demonstrate, to the satisfaction of the commissioner, that the levels of financial responsibility required by paragraph (1) or (2) of this subdivision are not consistent with the degree and duration of risk associated with treatment, storage or disposal at the facility or group of facilities, the owner or operator may obtain a variance from the commissioner. The request for a variance must be submitted in writing to the commissioner. If granted, the variance will take the form of an adjusted level of required liability coverage, such level to be based on the commissioner's assessment of the degree and duration of risk associated with the ownership or operation of the facility or group of facilities. The commissioner may require an owner or operator who requests a variance to provide such technical and engineering information as is deemed necessary by the commissioner to determine a level of financial responsibility other than that required by paragraph (1) or (2) of this subdivision. The commissioner will process a variance request as if it were a permit modification request under section 373-1.7 of this Part, and subject to the procedures of Part 621 of this Title. Notwithstanding any other provision, the commissioner may hold a public hearing at his or her discretion or whenever the commissioner finds, on the basis of requests for a public hearing, a significant degree of public interest in a tentative decision to grant a variance.
- (4) Adjustments by the commissioner. If the commissioner determines that the levels of financial responsibility required by paragraph (1) or (2) of this subdivision are not consistent with the degree and duration of risk associated with treatment, storage or disposal at the facility or group of facilities, the commissioner may adjust the level of financial responsibility required under paragraph (1) or (2) of this subdivision as may be necessary to protect human health and the environment. This adjusted level will be based on the commissioner's assessment of the degree and duration of risk

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associated with the ownership or operation of the facility or group of facilities. In addition, if the commissioner determines that there is a significant risk to human health and the environment from nonsudden accidental occurrences resulting from the operations of a facility that is not a surface impoundment, landfill or land treatment facility, the commissioner may require that an owner or operator of the facility comply with paragraph (2) of this subdivision. An owner or operator must furnish to the commissioner, within a reasonable time, any information which the commissioner requests to determine whether cause exists for such adjustments of level or type of coverage. The commissioner will process an adjustment of the level of required coverage as if it were a permit modification under section 373-1.7 of this Part, and subject to the procedures of Part 621 of this Title. Notwithstanding any other provision, the commissioner may hold a public hearing at his or her discretion or whenever the commissioner finds, on the basis of requests for a public hearing, a significant degree of public interest in a tentative decision to adjust the level or type of required coverage.

(5) Period of coverage.

Within 60 days after receiving certifications from the owner or operator and an independent professional engineer registered in New York that final closure has been completed in accordance with the approved closure plan, the commissioner will notify the owner or operator in writing that the owner or operator is no longer required by this subdivision to maintain liability coverage for that facility, unless the commissioner has reason to believe that closure has not been in accordance with the approved closure plan.

(6) Financial test for liability coverage.

An owner or operator of a facility which is not a revenue-oriented facility may satisfy the requirements of this subdivision by demonstrating that the owner or operator passes a financial test as specified in this paragraph. To pass this test, the owner or operator must meet the criteria of subparagraph (i) or (ii) of this paragraph:

(i) The owner or operator must have:

- ('a') net working capital and tangible net worth each at least six times the amount of liability coverage to be demonstrated by this test;
- ('b') tangible net worth of at least \$10 million; and
- ('c') assets in the United States amounting to either:
 - ('1') at least 90 percent of the total assets; or
 - ('2') at least six times the amount of liability coverage to be demonstrated by this test.

(ii) The owner or operator must have:

- ('a') a current rating for their most recent bond issuance of AAA, AA, A or BBB as issued by Standard and Poor's, or Aaa, Aa, A or Baa as issued by Moody's;

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- (b) tangible net worth of at least \$10 million;
- (c) tangible net worth at least six times the amount of liability coverage to be demonstrated by this test; and
- (d) assets in the United States amounting to either:
 - (1) at least 90 percent of the total assets; or
 - (2) at least six times the amount of liability coverage to be demonstrated by this test.
- (iii) The phrase “amount of liability coverage,” as used in subparagraphs (i) and (ii) of this paragraph, refers to the annual aggregate amounts for which coverage is required under paragraphs (1) and (2) of this subdivision.
- (iv) To demonstrate that he or she meets this test, the owner or operator must submit the following three items to the commissioner:
 - (a) a letter signed by the owner's or operator's chief financial officer and worded as specified in section 373-2.8(j)(9) of this Part. If an owner or operator is using the financial test to demonstrate both assurance for closure or post-closure care, as specified by sections 373-2.8(d)(5) and (f)(5), paragraphs (d)(5) and (f)(5) of this section, and liability coverage, the letter specified in section 373-2.8(j)(9) must be submitted to cover both forms of financial responsibility; a separate letter as specified in section 373-2.8(j)(5) is not required;
 - (b) a copy of the independent certified public accountant's report on examination of the owner's or operator's financial statements for the latest completed fiscal year; and
 - (c) a special report from the owner's or operator's independent certified public accountant to the owner or operator, stating that:
 - (1) the accountant has compared the data which the letter from the chief financial officer specifies as having been derived from the independently audited, year-end financial statements for the latest fiscal year, with the amounts in such financial statements; and
 - (2) in connection with that procedure, no matters came to the accountant's attention which caused the accountant to believe that the specified data should be adjusted.
- (v) After the initial submission of items specified in subparagraph (iii) of this paragraph, the owner or operator must send updated information to the commissioner within 90 days after the close of each succeeding fiscal year. This information must consist of all three items specified in subparagraph (iii) of this paragraph.
- (vi) If the owner or operator no longer meets the requirements of subparagraph (i) or (ii) of this paragraph, the owner or operator must obtain insurance, a letter of credit, a surety bond, a trust fund, or a guarantee for the entire amount of required liability coverage as specified in

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this subdivision. Evidence of liability coverage must be submitted to the commissioner within 90 days after the end of the fiscal year for which the year-end financial data show that the owner or operator no longer meets the test requirements.

- (vii) The commissioner may disallow use of this test on the basis of qualifications in the opinion expressed by the independent certified public accountant in his or her report on examination of the owner's or operator's financial statements (see clause (iv)(‘b’) of this paragraph). An adverse opinion or a disclaimer of opinion will be cause for disallowance. The commissioner will evaluate other qualifications on an individual basis. The owner or operator must provide evidence of insurance for the entire amount of required liability coverage as specified in this subdivision within 30 days after notification of disallowance.
- (7) Guarantee for liability coverage.
- (i) An owner or operator may meet the requirements of this subdivision by obtaining a written guarantee, hereinafter referred to as “guarantee.” If the firm which is providing the guarantee does not meet the definition of revenue- oriented in section 373-2.8 or 373-3.8 of this Part, it may provide the guarantee on behalf of the owner or operator even if the owner or operator is a revenue-oriented facility. However, the financial statement of the owner or operator cannot be consolidated with the financial statement of the guarantor. The guarantor must be the direct or higher-tier parent corporation of the owner or operator, a firm whose parent corporation is also the parent corporation of the owner or operator, or a firm with a substantial business relationship with the owner or operator. The guarantor must meet the requirements for owners or operators in paragraph (6) of this subdivision. The wording of the guarantee must be identical to the wording specified in section 373-2.8(j)(6)(ii) of this Part. A certified copy of the guarantee must accompany the items sent to the commissioner as specified in subparagraph (6)(iv) of this subdivision. One of these items must be the letter from the guarantor's chief financial officer. If the guarantor's parent corporation is also the parent corporation of the owner or operator, this letter must describe the value received in consideration of the guarantee. If the guarantor is a firm with a substantial business relationship with the owner or operator, this letter must describe the substantial business relationship and the value received in consideration of the guarantee. The terms of the guarantee must provide that:
 - (‘a’) if the owner or operator fails to satisfy a judgment based on a determination of liability for bodily injury or property damage to third parties caused by sudden or nonsudden accidental occurrences (or both, as the case may be), arising from the operation of facilities covered by this guarantee, or fails to pay an amount agreed to in settlement of claims arising from or alleged to arise from such injury or damage, the guarantor will do so up to the limits of coverage; and
 - (‘b’) the guarantee will remain in force unless the guarantor sends notice of cancellation by “certified mail, return receipt requested” to the owner or operator and to the commissioner. This guarantee may not be terminated unless and until the commissioner

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approves alternate liability coverage complying with this subdivision.

- (8) Letter of credit for liability coverage.
 - (i) An owner or operator may satisfy the requirements of this subdivision by obtaining an irrevocable standby letter of credit that conforms to the requirements of this paragraph and submitting a copy of the letter of credit to the commissioner.
 - (ii) The financial institution issuing the letter or credit must be an entity that has the authority to issue letters of credit and whose letter of credit operations are regulated and examined by a Federal or State agency.
 - (iii) The wording of the letter of credit must be identical to the wording specified in section 373-2.8(j)(10) of this part.
 - (iv) An owner or operator who uses a letter of credit to satisfy the requirements of this subdivision may also establish a standby trust fund. Under the terms of such a letter of credit, all amounts paid pursuant to a draft by the trustee of the standby trust will be deposited by the issuing institution into the standby trust in accordance with instructions from the trustee. The trustee of the standby trust fund must be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a Federal or State agency.
 - (v) The wording of the standby trust fund must be identical to the wording specified in section 373-2.8(j)(13) of this part.
- (9) Surety bond for liability coverage.
 - (i) An owner or operator may satisfy the requirements of this subdivision by obtaining a surety bond that conforms to the requirements of this paragraph and submitting a copy of the bond to the commissioner.
 - (ii) The surety company issuing the bond must be among those listed as acceptable sureties on Federal bonds in the most recent Circular 570 of the U.S. Department of the Treasury.
 - (iii) The wording of the surety bond must be identical to the wording specified in section 373-2.8(j)(11) of this Part.
- (10) Trust fund for liability coverage.
 - (i) An owner or operator may satisfy the requirements of this subdivision by establishing a trust fund that conforms to the requirements of this paragraph and submitting an originally signed duplicate of the trust agreement to the commissioner.
 - (ii) The trustee must be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a Federal or State agency.
 - (iii) The trust fund for liability coverage must be funded for the full amount of the liability coverage to be provided by the trust fund before it may be relied upon to satisfy the requirements of this subdivision. If at any time after the trust fund is created the amount of

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funds in the trust fund is reduced below the full amount of the liability coverage to be provided, the owner or operator, by the anniversary date of the establishment of the fund, must either add sufficient funds to the trust fund to cause its value to equal the full amount of liability coverage to be provided, or obtain other financial assurance as specified in this subdivision to cover the difference. For purposes of this paragraph, *'the full amount of the liability coverage to be provided'* means the amount of coverage for sudden and/or nonsudden occurrences required to be provided by the owner or operator by this subdivision, less the amount of financial assurance for liability coverage that is being provided by other financial assurance mechanisms being used to demonstrate financial assurance by the owner or operator.

- (iv) The wording of the trust fund must be identical to the wording specified in section 373-2.8(j)(12) of this Part.

(i) **Incapacity of owners or operators, guarantors or financial institutions.**

- (1) An owner or operator must notify the commissioner, by certified mail, return receipt requested, of the commencement of a voluntary or involuntary proceeding under 11 USCA (Bankruptcy), naming the owner or operator as debtor, within 10 days after commencement of the proceeding. A guarantor of a guarantee as specified in paragraphs (d)(5) and (f)(5) of this section must make such a notification if the guarantor is named as debtor, as required under the terms of the guarantee (see section 373-2.8(j)(6) of this Part).
- (2) An owner or operator who fulfills the requirements of subdivision (d), (f) or (h) of this section by obtaining a trust fund, surety bond, letter of credit or insurance policy will be deemed to be without the required financial assurance or liability coverage in the event of bankruptcy of the trustee or issuing institution, or a suspension or revocation of the authority of the trustee institution to act as trustee or of the institution issuing the surety bond, letter of credit or insurance policy to issue such instruments. The owner or operator must establish other financial assurance or liability coverage within 60 days after such an event.

Section 373-3.9 Use and management of containers.

(a) **Applicability.**

The regulations in this section apply to owners and operators of all hazardous waste facilities that store containers of hazardous waste, except as section 373-3.1 of this Subpart provides otherwise.

(b) **Condition of containers.**

If a container holding hazardous waste is not in good condition, or if it begins to leak, the owner or operator must transfer the hazardous waste from this container to a container that is in good condition or manage the waste in some other way that complies with the requirements of this Subpart.

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(c) Compatibility of waste with container.

The owner or operator must use a container made of or lined with materials which will not react with, and are otherwise compatible with, the hazardous waste to be stored, so that the ability of the container to contain the waste is not impaired.

(d) Management of containers.

- (1) A container holding hazardous waste must always be closed during storage, except when it is necessary to add or remove waste.
- (2) A container holding hazardous waste must not be opened, handled or stored in a manner which may rupture the container or cause it to leak.

Comment: Reuse of containers in transportation is governed by U.S. Department of Transportation regulations, including those set forth in 49 CFR 173.28 (see 6 NYCRR 370.1(e)).

- (3) Containers holding hazardous waste must be marked with the words “Hazardous Waste” and with other words identifying their contents.

(e) Inspections.

At least weekly, the owner or operator must inspect areas where containers are stored, looking for leaking containers and for deterioration of containers caused by corrosion or other factors.

Note: See subdivision (b) of this section for remedial action required if deterioration or leaks are detected.

(f) Special requirements for ignitable or reactive waste.

Containers holding ignitable or reactive waste must be located at least 15 meters (50 feet) from the facility property line (see section 373-3.2(h)(1) of this Subpart for additional requirements).

(g) Special requirements for incompatible wastes.

- (1) Incompatible wastes, or incompatible wastes and materials (see Appendix 29, *infra*, for examples), must not be placed in the same container, unless section 373-3.2(h)(2) of this Subpart is complied with.
- (2) Hazardous waste must not be placed in an unwashed container that previously held an incompatible waste or material (see Appendix 29, *infra*, for examples), unless section 373-3.2(h)(2) of this Subpart is complied with.
- (3) A storage container holding a hazardous waste that is incompatible with any waste or other materials stored nearby in other containers, piles, open tanks or surface impoundments must be separated from the other materials or protected from them by means of a dike, berm, wall or other device.

Note: The purpose of this is to prevent fires, explosions, gaseous emissions, leaching, or other discharge of hazardous waste or hazardous waste constituents which could result from the mixing of incompatible wastes or materials if containers break or leak.

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(h) Air emission standards.

The owner or operator shall manage all hazardous waste placed in a container in accordance with the applicable requirements of sections 373-3.27, 373-3.28 and 373-3.29 of this Subpart.

Section 373-3.10 Tank systems.

(a) Applicability.

The requirements of this section apply to owners or operators of facilities that use tank systems for storing or treating hazardous waste, except as otherwise provided in paragraphs (1), (2) and (3) of this subdivision or in section 373-3.1 of this Subpart.

- (1) Tank systems that are used to store or treat hazardous waste which contains no free liquids and that are situated inside a building with an impermeable floor are exempt from the requirements of subdivision (d) of this section. To demonstrate the absence or presence of free liquids in the stored/treated waste, the following test must be used: method 9095B (paint filter liquids test) as described in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication No. SW-846 as incorporated by reference in section 370.1(e) of this Title.
- (2) Tank systems, including sumps, as defined in section 370.2(b) of this Title, that serve as part of a secondary containment system to collect or contain releases of hazardous wastes are exempted from the requirements in paragraph (d)(1) of this section.
- (3) Tanks, sumps, and other collection devices used in conjunction with drip pads, as defined in section 370.2(b) of this Title and regulated under section 373-3.23 of this Subpart must meet the requirements of this section.

(b) Assessment of existing tank system's integrity.

- (1) For each existing tank system that does not have secondary containment meeting the requirements of subdivision (d) of this section, the owner or operator must determine that the tank system is not leaking or is unfit for use. Except as provided in paragraph (3) of this subdivision, the owner or operator must obtain and keep on file at the facility a written assessment reviewed and certified by an independent, qualified, professional engineer registered in New York that attests to the tank system's integrity by December 25, 1989. The certification must be consistent with the applicable provisions of section 373-1.4(a)(5)(iv) of this Part.
- (2) This assessment must determine that the tank system is adequately designed and has sufficient structural strength and compatibility with the wastes to be stored or treated to ensure that it will not collapse, rupture, or fail. At a minimum, this assessment must consider the following:
 - (i) design standards, if available, according to which the tank and ancillary equipment were constructed;
 - (ii) hazardous characteristics of the wastes that have been or will be handled;
 - (iii) existing corrosion-protection measures;

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- (iv) documented age of the tank system, if available, (otherwise, an estimate of the age); and
- (v) results of a leak test, internal inspection, or other tank integrity examination such that:
 - ('a') for nonenterable underground tanks, this assessment must consist of a leak test that is capable of taking into account the effects of temperature variations, tank end deflection, vapor pockets, and high water table effect; and
 - ('b') for other than nonenterable underground tanks and for ancillary equipment, this assessment must be either a leak test, as described above, or an internal inspection and/or other tank integrity examination certified by an independent, qualified, professional engineer registered in New York that addresses cracks, leaks, corrosion and erosion. The certification must be consistent with the applicable provisions of section 373-1.4(a)(5)(iv) of this Part.

Note: The practices described in the American Petroleum Institute (API) publication, 'Guide for Inspection of Refinery Equipment,' Chapter XIII, "Atmosphere and Low-Pressure Storage Tanks," 4th edition, 1981, may be used, where applicable, as guidelines in conducting an integrity examination of an other than nonenterable underground tank system.

- (3) Tank systems that store or treat materials that become hazardous wastes after December 25, 1988, must conduct this assessment within 12 months after the date that the waste becomes a hazardous waste.
- (4) If, as a result of the assessment conducted in accordance with paragraph (1) of this subdivision, a tank system is found to be leaking or unfit for use, the owner or operator must comply with the requirements of subdivision (g) of this section.

(c) **Design and installation of new tank systems or components.**

- (1) Owners or operators of new tank systems or components must ensure that the foundation, structural support, seams, connections, and pressure controls (if applicable) are adequately designed and that the tank system has sufficient structural strength, compatibility with the wastes to be stored or treated, and corrosion protection so that it will not collapse, rupture or fail. The owner or operator must obtain a written assessment reviewed and certified by an independent, qualified, professional engineer registered in New York attesting that the system has sufficient structural integrity and is acceptable for the storing and treating of hazardous waste. The certification must be consistent with the applicable provisions of section 373-1.4(a)(5)(iv) of this Part. This assessment must include, at a minimum, the following information:
 - (i) design standards according to which the tanks and ancillary equipment is or will be constructed;
 - (ii) hazardous characteristics of the wastes to be handled;

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- (iii) for new tank systems or components in which the external shell of a metal tank or any external metal component of the tank system is or will be in contact with the soil or with water, a determination by a corrosion expert of:
 - ('a') factors affecting the potential for corrosion, including but not limited to:
 - ('1') soil moisture content;
 - ('2') soil pH;
 - ('3') soil sulfides level;
 - ('4') soil resistivity;
 - ('5') structure to soil potential;
 - ('6') influence of nearby underground metal structures (e.g., piping);
 - ('7') stray electric current; and
 - ('8') existing corrosion-protection measures (e.g., coating, cathodic protection); and
 - ('b') the type and degree of external corrosion-protection that are needed to ensure the integrity of the tank system during the use of the tank system or component, consisting of one or more of the following:
 - ('1') corrosion-resistant materials of construction such as special alloys, fiberglass-reinforced plastic;
 - ('2') corrosion-resistant coating (such as epoxy or fiberglass) with cathodic protection (e.g., impressed current or sacrificial anodes); and
 - ('3') electrical isolation devices such as insulating joints and flanges;

Note: The practices described in the National Association of Corrosion Engineers (NACE) standard, “Recommended Practice (RP-02-85) Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems,” and the American Petroleum Institute (API) Publication 1632, “*Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems*,” may be used, where applicable, as guidelines in providing corrosion-protection for tank systems.
- (iv) for underground tank system components that are likely to be affected by vehicular traffic, a determination of design or operational measures that will protect the tank system against potential damage; and
- (v) design considerations to ensure that:
 - ('a') tank foundations will maintain the load of a full tank;
 - ('b') tank systems will be anchored to prevent flotation or dislodgement where the tank

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system is placed in a saturated zone, or is located within a seismic fault zone; and

(c) tank systems will withstand the effects of frost heave.

- (2) The owner or operator of a new tank system must ensure that proper handling procedures are followed to prevent damage to the system during installation. Prior to covering, enclosing, or placing a new tank system or component in use, an independent, qualified installation inspector or an independent, qualified, professional engineer registered in New York, either of whom is trained and experienced in the proper installation of tank systems, must inspect the system or component for the presence of any of the following items:
 - (i) weld breaks;
 - (ii) punctures;
 - (iii) scrapes of protective coatings;
 - (iv) cracks;
 - (v) corrosion; and
 - (vi) other structural damage or inadequate construction or installation.

All discrepancies must be remedied before the tank system is covered, enclosed, or placed in use.

- (3) New tank systems or components and piping that are placed underground and that are backfilled must be provided with a backfill material that is a noncorrosive, porous, homogeneous substance and that is carefully installed so that the backfill is placed completely around the tank and compacted to ensure that the tank and piping are fully and uniformly supported.
- (4) All new tanks and ancillary equipment must be tested for tightness prior to being covered, enclosed, or placed in use. If a tank system is found not to be tight, all repairs necessary to remedy the leaks in the system must be performed prior to the tank system being covered, enclosed, or placed in use.
- (5) Ancillary equipment must be supported and protected against physical damage and excessive stress due to settlement, vibration, expansion or contraction.

Note: The piping system installation procedures described in American Petroleum Institute (API) publication 1615 (November 1979), *Installation of Underground Petroleum Storage Systems*, or ANSI standard B31.3, "Petroleum Refinery System," may be used, where applicable, as guidelines for proper installation of piping systems.

- (6) The owner or operator must provide the type and degree of corrosion-protection necessary, based on the information provided under subparagraph (1)(iii) of this subdivision, to ensure the integrity of the tank system during use of the tank system. The installation of a corrosion-protection system that is field-fabricated must be supervised by an independent corrosion expert to ensure proper installation.
- (7) The owner or operator must obtain and keep on file at the facility written statements by those

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persons required to certify the design of the tank system and supervise the installation of the tank system in accordance with the requirements of paragraphs (2)-(6) of this subdivision to attest that the tank system was properly designed and installed and that repairs, pursuant to paragraphs (2) and (4) of this subdivision were performed. These written statements must also include the certification statement as required in section 373-1.4(a)(5)(iv) of this Part.

(d) **Containment and detection of releases.**

- (1) In order to prevent the release of hazardous waste or hazardous constituents to the environment, secondary containment that meets the requirements of this section must be provided (except as provided in paragraphs (6) and (7) of this subdivision):
 - (i) for all new tank systems or components, prior to their being put into service and for existing tank systems or components; and
 - (ii) for tank systems that store or treat materials that become hazardous wastes, within two years of the hazardous waste listing.
- (2) Secondary containment systems must be:
 - (i) designed, installed, and operated to prevent any migration of wastes or accumulated liquid out of the system to the soil, ground water, or surface water at any time during the use of the tank system; and
 - (ii) capable of detecting and collecting releases and accumulated liquids until the collected material is removed.
- (3) To meet the requirements of paragraph (2) of this subdivision, secondary containment systems must be at a minimum:
 - (i) constructed of or lined with materials that are compatible with the wastes to be placed in the tank system and must have sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrological forces), physical contact with the waste to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation (including stresses from nearby vehicular traffic);
 - (ii) placed on a foundation or base capable of providing support to the secondary containment system, providing resistance to pressure gradients above and below the system, and preventing failure due to settlement, compression, or uplift;
 - (iii) provided with a leak detection system that is designed and operated so that it will detect the failure of either the primary and secondary containment structure or any release of hazardous waste or accumulated liquid in the secondary containment system within 24 hours, or at the earliest practicable time if the existing detection technology or site conditions will not allow detection of a release within 24 hours; and
 - (iv) sloped or otherwise designed or operated to drain and remove liquids resulting from leaks, spills, or precipitation. Spilled or leaked waste and accumulated precipitation must be

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removed from the secondary containment system within 24 hours, or in as timely a manner as is possible to prevent harm to human health or the environment, if removal of the released waste or accumulated precipitation cannot be accomplished within 24 hours.

Note: If the collected material is a hazardous waste under Part 371 of this Title, it is subject to management as a hazardous waste in accordance with all applicable requirements of Parts 372 through 374 and 376 of this Title. If the collected material is discharged through a point source to waters of the United States, it is subject to the requirements of Parts 700, 701 and 750 of this Title. If discharged to publicly owned treatment works (POTWs), it is subject to the requirements of section 307 of the Clean Water Act, as amended. If the collected material is released to the environment, it may be subject to the reporting requirements of 40 CFR Part 302.

- (4) Secondary containment for tanks must include one or more of the following devices:
 - (i) a liner (external to the tank);
 - (ii) a vault;
 - (iii) a double-walled tank; or
 - (iv) an equivalent device as approved by the department.
- (5) In addition to the requirements of paragraphs (2), (3) and (4) of this subdivision, secondary containment systems must satisfy the following requirements:
 - (i) external liner systems must be:
 - ('a') designed or operated to contain 100 percent of the capacity of the largest tank or the volume of all interconnected tanks, whichever is greater, within its boundary;
 - ('b') designed or operated to prevent run-on or infiltration of precipitation into the secondary containment system unless the collection system has sufficient excess capacity to contain run-on or infiltration. Such additional capacity must be sufficient to contain precipitation from a 25-year, 24-hour rainfall event;
 - ('c') free of cracks or gaps;
 - ('d') designed and installed to completely surround the tank and to cover all surrounding earth likely to come into contact with the waste if released from the tanks (i.e., capable of preventing lateral as well as vertical migration of the waste. For onground tanks, the external liner system must also encompass the bottom of the tank);
 - ('e') external concrete liners must be constructed with chemical-resistant water stops in place at all joints (if any); and
 - ('f') external concrete liners must be provided with an impermeable interior coating that is compatible with the stored waste and that will prevent migration of waste into the concrete.

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- (ii) vault systems must be:
 - ('a') designed or operated to contain 100 percent of the capacity of the largest tank or the volume of all interconnected tanks, whichever is greater, within its boundary;
 - ('b') designed or operated to prevent run-on or infiltration of precipitation into the secondary containment system unless the collection system has sufficient excess capacity to contain run-on or infiltration. Such additional capacity must be sufficient to contain precipitation from a 25-year, 24-hour rainfall event;
 - ('c') constructed with chemical-resistant water stops in place at all joints (if any);
 - ('d') provided with an impermeable interior coating or lining that is compatible with the stored waste and that will prevent migration of waste into the concrete;
 - ('e') provided with a means to protect against the formation of and ignition of vapors within the vault, if the waste being stored or treated:
 - ('1') meets the definition of ignitable waste under section 371.3(b) of this Title; or
 - ('2') meets the definition of reactive waste under section 371.3(d) of this Title and may form an ignitable or explosive vapor; and
 - ('f') provided with an exterior moisture barrier or be otherwise designed or operated to prevent migration of moisture into the vault if the vault is subject to hydraulic pressure.
- (iii) double-walled tanks must be:
 - ('a') designed as an integral structure (i.e., an inner tank within an outer shell) so that any release from the inner tank is contained by the outer shell;
 - ('b') protected, if constructed of metal, from both corrosion of the primary tank interior and the external surface of the outer shell; and
 - ('c') provided with a built-in, continuous leak detection system capable of detecting a release within 24 hours or at the earliest practicable time, if the owner or operator can demonstrate to the commissioner, and the commissioner concurs, that the existing leak detection technology or site conditions will not allow detection of a release within 24 hours.

Note: The provisions outlined in the Steel Tank Institute's (STI) '*Standard for Dual Wall Underground Steel Storage Tank*' may be used as guidelines for aspects of the design of underground steel double-walled tanks.

- (6) Ancillary equipment must be provided with full secondary containment (e.g., trench, jacketing, double-walled piping) that meets the requirements of paragraphs (2) and (3) of this subdivision except for:
 - (i) aboveground piping (exclusive of flanges, joints, valves and connections) that are visually

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inspected for leaks on a daily basis;

- (ii) welded flanges, welded joints, and welded connections that are visually inspected for leaks on a daily basis;
 - (iii) sealless or magnetic coupling pumps and sealless valves that are visually inspected for leaks on a daily basis; and
 - (iv) pressurized aboveground piping systems with automatic shutoff devices (e.g., excess flow check valves, flow metering shutdown devices, loss of pressure actuated shutoff devices) that are visually inspected for leaks on a daily basis.
- (7) The owner or operator may obtain a variance from the requirements of this subdivision if the commissioner finds, as a result of a demonstration by the owner or operator, either: that alternative design and operating practices together with location characteristics will prevent the migration of hazardous waste or hazardous constituents into the ground water or surface water at least as effectively as secondary containment during the active life of the tank system; or that in the event of a release that does migrate to ground water or surface water, no substantial present or potential hazard will be posed to human health or the environment. New underground tank systems may not, per a demonstration in accordance with subparagraph (ii) of this paragraph, be exempted from the secondary containment requirements of this subdivision. Application for a variance as allowed in this paragraph does not waive compliance with the requirements of this section for new tank systems.
- (i) In deciding whether to grant a variance based on a demonstration of equivalent protection of ground water and surface water, the commissioner will consider:
 - ('a') the nature and quantity of the waste;
 - ('b') the proposed alternate design and operation;
 - ('c') the hydrogeologic setting of the facility, including the thickness of soils between the tank system and ground water; and
 - ('d') all other factors that would influence the quality and mobility of the hazardous constituents and the potential for them to migrate to ground water or surface water.
 - (ii) In deciding whether to grant a variance, based on a demonstration of no substantial present or potential hazard, the commissioner will consider:
 - ('a') the potential adverse effects on ground water, surface water, and land quality taking into account:
 - ('1') the physical and chemical characteristics of the waste in the tank system, including its potential for migration;
 - ('2') the hydrogeological characteristics of the facility and surrounding land;
 - ('3') the potential for health risks caused by human exposure to waste constituents;

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- (4') the potential for damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents; and
- (5') the persistence and permanence of the potential adverse effects;
- ('b') the potential adverse effects of a release on ground water quality, taking into account:
 - (1') the quantity and quality of ground water and the direction of ground water flow;
 - (2') the proximity and withdrawal rates of water in the area;
 - (3') the current and future uses of ground water in the area; and
 - (4') the existing quality of ground water, including other sources of contamination and their cumulative impact on the ground water quality;
- ('c') the potential adverse effects of a release on surface water quality, taking into account:
 - (1') the quantity and quality of ground water and the direction of ground water flow;
 - (2') the patterns of rainfall in the region;
 - (3') the proximity of the tank system to surface waters;
 - (4') the current and future uses of surface waters in the area and any water quality standards established for those surface waters; and
 - (5') the existing quality of surface water, including other sources of contamination and the cumulative impact on surface water quality; and
- ('d') the potential adverse effects of a release on the land surrounding the tank system, taking into account:
 - (1') the patterns of rainfall in the region; and
 - (2') the current and future uses of the surrounding land.
- (iii) The owner or operator of a tank system, for which a variance from secondary containment had been granted in accordance with the requirements of subparagraph (i) of this paragraph, at which a release of hazardous waste has occurred from the primary tank system but has not migrated beyond the zone of engineering control (as established in the variance), must:
 - ('a') comply with the requirements of subdivision (g) of this section, except paragraph (4); and
 - ('b') decontaminate or remove contaminated soil to the extent necessary to:
 - (1') enable the tank system, for which the variance was granted, to resume operation with the capability for the detection of and response to releases at least equivalent to the capability it had prior to the release; and

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- (2) prevent the migration of hazardous waste or hazardous constituents to ground water or surface water; and
- (c) if contaminated soil cannot be removed or decontaminated in accordance with clause ('b') of this subparagraph, comply with the requirements of paragraph (h)(2) of this section.
- (iv) The owner or operator of a tank system, for which a variance from secondary containment had been granted in accordance with the requirements of subparagraph (i) of this paragraph, at which a release of hazardous waste has occurred from the primary tank system and has migrated beyond the zone of engineering control (as established in the variance), must:
 - (a) comply with the requirements of paragraphs (g)(1)-(4) of this section;
 - (b) prevent the migration of hazardous waste or hazardous constituents to ground water or surface water, if possible, and decontaminate or remove contaminated soil. If contaminated soil cannot be decontaminated or removed, or if ground water has been contaminated, the owner or operator must comply with the requirements of paragraph (h)(2) of this section; and
 - (c) provide secondary containment in accordance with the requirements of paragraphs (1)-(6) of this subdivision if repairing, replacing, or reinstalling the tank system, or reapply for a variance from secondary containment and meet the requirements for new tank systems in subdivision (c) of this section if the tank system is replaced. The owner or operator must comply with these requirements even if contaminated soil can be decontaminated or removed, and ground water or surface water has not been contaminated.
- (8) The following procedures must be followed in order to request a variance from secondary containment.
 - (i) The commissioner must be notified in writing by the owner or operator that the owner or operator intends to conduct and submit a demonstration for a variance from secondary containment as allowed in paragraph (7) of this subdivision according to the following schedule:
 - (a) for existing tank systems, at least 24 months prior to the date that secondary containment must be provided in accordance with paragraph (1) of this subdivision; and
 - (b) for new tank systems, at least 30 days prior to entering into a contract for installation of the tank system.
 - (ii) As part of the notification, the owner or operator must also submit to the commissioner a description of the steps necessary to conduct the demonstration and a timetable for completing each of the steps. The demonstration must address each of the factors listed in subparagraph (7)(i) or (ii) of this subdivision.

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- (iii) The demonstration for a variance must be completed and submitted to the commissioner within 180 days after notifying the commissioner of intent to conduct the demonstration.
 - (iv) The commissioner will inform the public, through a newspaper notice, of the availability of the demonstration for a variance. The notice shall be placed in a daily or weekly major local newspaper of general circulation and shall provide at least 30 days from the date of the notice for the public to review and comment on the demonstration for a variance. The commissioner also will hold a public hearing, in response to a request or at his or her own discretion, whenever such a hearing might clarify one or more issues concerning the demonstration for a variance. Public notice of the hearing will be given at least 30 days prior to the date of the hearing and may be given at the same time as notice of the opportunity for the public to review and comment on the demonstration. These two notices may be combined.
 - (v) The commissioner will approve or disapprove the request for a variance within 90 days of receipt of the demonstration from the owner or operator and will notify in writing the owner or operator and each person who submitted written comments or requested notice of the variance decision. If the demonstration for variance is incomplete or does not include sufficient information, the 90-day time period will begin when the commissioner receives a complete demonstration, including all information necessary to make a final determination. If the public comment period in subparagraph (iv) of this paragraph is extended, the 90-day time period will be similarly extended.
- (9) All tank systems, until such time as secondary containment meeting the requirements of this subdivision is provided, must comply with the following:
- (i) for nonenterable underground tanks, a leak test that meets the requirements of subparagraph (b)(2)(v) of this section must be conducted at least annually;
 - (ii) for other than nonenterable underground tanks and for all ancillary equipment, an annual leak test, as described in subparagraph (i) of this paragraph, or an internal inspection or other tank integrity examination by an independent, qualified, professional engineer registered in New York that addresses cracks, leaks, corrosion, and erosion must be conducted at least annually. The owner or operator must remove the stored waste from the tank, if necessary, to allow the condition of all internal tank surfaces to be assessed;

Note: The practices described in the American Petroleum Institute (API) publication ‘*Guide for Inspection of Refining Equipment*,’ Chapter XIII, “Atmospheric and Low Pressure Storage Tanks”, 4th edition, 1981, may be used, when applicable, as guidelines for assessing the overall condition of the tank system.
 - (iii) the owner or operator must maintain on file at the facility a record of the results of the assessments conducted in accordance with subparagraphs (i)-(iii) of this paragraph; and
 - (iv) if a tank system or component is found to be leaking or unfit-for-use as a result of the leak test or assessment in subparagraphs (i)-(iii) of this paragraph, the owner or operator must comply with the requirements of subdivision (g) of this section.

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(e) General operating requirements.

- (1) Hazardous wastes or treatment reagents must not be placed in a tank system if they could cause the tank, its ancillary equipment, or the secondary containment system to rupture, leak, corrode, or otherwise fail.
- (2) The owner or operator must use appropriate controls and practices to prevent spills and overflows from tank or secondary containment systems. These include at a minimum:
 - (i) spill prevention controls (e.g., check valves, dry disconnect couplings);
 - (ii) overfill prevention controls (e.g., level sensing devices, high level alarms, automatic feed cutoff, or bypass to a standby tank); and
 - (iii) maintenance of sufficient freeboard in uncovered tanks to prevent overtopping by wave or wind action or by precipitation.
- (3) The owner or operator must comply with the requirements of subdivision (g) of this section if a leak or spill occurs in the tank system.
- (4) The owner or operator must mark all tanks with the words “hazardous waste” and with other words that identify the contents of the tanks. For underground tanks, the markings must be placed on a sign in the area above the tank.

(f) Inspections.

For the purposes of this subdivision, the term ‘*operating day*’ means any calendar day when manufacturing (or the functional equivalent for non-manufacturing operations) is taking place.

- (1) The owner or operator must inspect, where present, at least once each operating day, data gathered from monitoring and leak detection equipment (e.g., pressure or temperature gauges, monitoring wells) to ensure that the tank system is being operated according to its design.

Note: Section 373-3.2(f)(3) of this Subpart requires the owner or operator to remedy any deterioration or malfunction the owner or operator finds. Subdivision (g) of this section requires the owner or operator to notify the department within 24 hours of confirming a release. Also, 40 CFR part 302 (see section 370.1(e) of this Title) may require the owner or operator to notify the National Response Center of a release.

- (2) Except as noted under paragraph (3) of this subdivision, the owner or operator must inspect at least once each operating day:
 - (i) overfill/spill control equipment (e.g., waste-feed cutoff systems, bypass systems, and drainage systems) to ensure that it is in good working order;
 - (ii) above ground portions of the tank system, if any, to detect corrosion or releases of waste; and
 - (iii) the construction materials and the area immediately surrounding the externally accessible portion of the tank system, including the secondary containment system (e.g., dikes) to detect erosion or signs of releases of hazardous waste (e.g., wet spots, dead vegetation).

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- (3) Owners or operators of tank systems that either use leak detection equipment to alert facility personnel to leaks, or implement other established workplace practices to ensure leaks are promptly identified within 24 hours, must inspect at least weekly those areas described in subparagraphs (2)(i) through (iii) of this subdivision. Use of the alternate inspection schedule must be documented in the facility's operating record. This documentation must include a description of the established workplace practices at the facility.
- (4) Ancillary equipment that is not otherwise secondarily contained, as described in subparagraph (d)(6)(i) through (iv) of this section, must be inspected at least once each operating day.
- (5) The owner or operator must inspect cathodic protection systems, if present, according to, at a minimum, the following schedule to ensure that they are functioning properly:
 - (i) the proper operation of the cathodic protection system must be confirmed within six months after initial installation, and annually thereafter; and
 - (ii) all sources of impressed current must be inspected and/or tested, as appropriate, at least bimonthly (i.e., every other month).

Note: The practices described in the National Association of Corrosion Engineers (NACE) standard, "Recommended Practice (RP-02-85) Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems", (see section 370.1(e) of this Title) and the American Petroleum Institute (API) publication, 1632, 'Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems,' (see section 370.1(e) of this Title) may be used, where applicable, as guidelines in maintaining and inspecting cathodic protection systems.

- (6) The owner or operator must document in the operating record of the facility an inspection of those items in paragraphs (1) through (5) of this subdivision.

(g) Response to leaks or spills and disposition of leaking or unfit-for-use tank systems.

A tank system or secondary containment system from which there has been a leak or spill, or which is unfit-for-use, must be removed from service immediately, and the owner or operator must satisfy the following requirements:

- (1) Cessation of use; prevent flow or addition of wastes. The owner or operator must immediately stop the flow of hazardous waste into the tank system or secondary containment system and inspect the system to determine the cause of the release.
- (2) Removal of waste from tank system or secondary containment system.
 - (i) If the release was from the tank system, the owner or operator must, within 24 hours after detection of the leak or, if the owner or operator demonstrates that that is not possible, at the earliest practicable time remove as much of the waste as is necessary to prevent further release of hazardous waste to the environment and to allow inspection and repair of the tank system to be performed.

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- (ii) If the release was to a secondary containment system, all released materials must be removed within 24 hours or in as timely a manner as is possible to prevent harm to human health and the environment.
- (3) Containment of visible releases to the environment. The owner or operator must immediately conduct a visual inspection of the release and, based upon that inspection:
- (i) prevent further migration of the leak or spill to soils or surface water; and
 - (ii) remove, and properly dispose of, any visible contamination of the soil or surface water.
- (4) Notifications, reports.
- (i) Any release to the environment, except as provided in subparagraph (ii) of this paragraph, must be reported to the commissioner within 24 hours of detection. If the release has been reported pursuant to Part 595 of this Title, that report will satisfy this requirement.
Note: The DEC spill hotline is (800) 457-7362; outside of New York State (518) 457-7362.
 - (ii) A leak or spill of hazardous waste that is:
 - ('a') less than or equal to a quantity of one pound; and
 - ('b') immediately contained and cleaned-up is exempted from the requirements of this paragraph.
 - (iii) Within 30 days of detection of a release to the environment, a report containing the following information must be submitted to the commissioner:
 - ('a') likely route of migration of the release;
 - ('b') characteristics of the surrounding soil (soil composition, geology, hydrogeology, climate);
 - ('c') results of any monitoring or sampling conducted in connection with the release, (if available). If sampling or monitoring data relating to the release are not available within 30 days, these data must be submitted to the commissioner as soon as they become available;
 - ('d') proximity to downgradient drinking water, surface water, and population areas; and
 - ('e') description of response actions taken or planned.
- (5) Provision of secondary containment repair, or closure.
- (i) Unless the owner or operator satisfies the requirements of subparagraphs (ii)-(iv) of this paragraph, the tank system must be closed in accordance with subdivision (h) of this section.
 - (ii) If the cause of the release was a spill that has not damaged the integrity of the system, the owner/operator may return the system to service as soon as the released waste is removed and repairs, if necessary, are made.

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- (iii) If the cause of the release was a leak from the primary tank system into the secondary containment system, the system must be repaired prior to returning the tank system to service.
 - (iv) If the source of the release was a leak to the environment from a component of a tank system without secondary containment, the owner/operator must provide the component of the system from which the leak occurred with secondary containment that satisfies the requirements of subdivision (d) of this section before it can be returned to service, unless the source of the leak is an aboveground portion of a tank system. If the source is an aboveground component that can be inspected visually, the component must be repaired and may be returned to service without secondary containment as long as the requirements of paragraph (6) of this subdivision are satisfied. If a component is replaced to comply with the requirements of this subparagraph, that component must satisfy the requirements for new tank systems or components in subdivisions (c) and (d) of this section. Additionally, if a leak has occurred in any portion of a tank system component that is not readily accessible for visual inspection (e.g., the bottom of an inground or onground tank), the entire component must be provided with secondary containment in accordance with subdivision (d) of this section prior to being returned to use.
- (6) Certification of major repairs. If the owner or operator has repaired a tank system in accordance with paragraph (5) of this subdivision, and the repair has been extensive (e.g., installation of an internal liner; repair of a ruptured primary containment or secondary containment vessel), the tank system must not be returned to service unless the owner/operator has obtained a certification in accordance with section 373-1.4(a)(5)(iv) of this Part by an independent, qualified, professional engineer registered in New York that the repaired system is capable of handling hazardous wastes without release for the expected life of the system. This certification must be submitted to the commissioner within seven days after returning the tank system to use.

Note: The commissioner may, on the basis of any information received that there is or has been a release of hazardous waste or hazardous constituents into the environment, issue an order under ECL article 71 requiring corrective action or such other response as deemed necessary to protect human health or the environment.

Note: See section 373-3.2(f)(3) of this Subpart for the requirements necessary to remedy a failure. Also, 40 CFR part 302 requires the owner or operator to notify the National Response Center of a release of any “reportable quantity”.

(h) Closure and post-closure care.

- (1) At closure of a tank system the owner or operator must remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated soils, and structures and equipment contaminated with waste, and manage them as hazardous waste, unless section 371.1(d)(4) of this Title applies. The closure plan, closure activities, cost estimates for closure, and financial responsibility for tank systems must meet all of the requirements specified in sections 373-3.7 and 373-3.8 of this Subpart.

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- (2) If the owner or operator demonstrates that not all contaminated soils can be practicably removed or decontaminated as required in paragraph (1) of this subdivision, then the owner or operator must close the tank system and perform post-closure care in accordance with the closure and post-closure care requirements that apply to landfills (section 373-3.14(d) of this Subpart). In addition, for the purposes of closure, post-closure, and financial responsibility, such a tank system is then considered to be a landfill, and the owner or operator must meet all of the requirements for landfills specified in sections 373-3.7 and 373-3.8 of this Subpart.
 - (3) If an owner or operator has a tank system which does not have secondary containment that meets the requirements of paragraphs (d)(2)-(6) of this section and which is not exempt from the secondary containment requirements in accordance with paragraph (d)(7) of this section, then:
 - (i) The closure plan for the tank system must include both a plan for complying with paragraph (1) of this subdivision and a contingency plan for complying with paragraph (2) of this subdivision.
 - (ii) A contingent post-closure plan for complying with paragraph (2) of this subdivision must be prepared and submitted as part of the permit application.
 - (iii) The cost estimates calculated for closure and post-closure care must reflect the costs of complying with the contingent closure plan and the contingent post-closure plan, if these costs are greater than the costs of complying with the closure plan prepared for the expected closure under paragraph (1) of this subdivision.
 - (iv) Financial assurance must be based on the cost estimates in subparagraph (iii) of this paragraph.
 - (v) For the purposes of the contingent closure and post-closure plans, such a tank system is considered to be a landfill, and the contingent plans must meet all of the closure, post-closure, and financial responsibility requirements for landfills under sections 373-3.7 and 373-3.8 of this Subpart.
- (i) Special requirements for ignitable or reactive wastes.**
- (1) Ignitable or reactive waste must not be placed in a tank system, unless:
 - (i) the waste is treated, rendered, or mixed before or immediately after placement in the tank system so that:
 - ('a') the resulting waste, mixture, or dissolved material no longer meets the definition of ignitable or reactive waste under section 371.3(b) or (d) of this Title; and
 - ('b') section 373-3.2(h)(2) of this Subpart is complied with; or
 - (ii) the waste is stored or treated in such a way that it is protected from any material or conditions that may cause the waste to ignite or react; or
 - (iii) the tank system is used solely for emergencies.

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- (2) The owner or operator of a facility where ignitable or reactive waste is stored or treated in tanks must comply with the requirements for the maintenance of protective distances between the waste management area and any public ways, streets, alleys, or an adjoining property line that can be built upon as required in Tables 2-1 through 2-6 of the National Fire Protection Association's "Flammable and Combustible Liquids Code" (see section 370.1(e) of this Title).

(j) **Special requirements for incompatible wastes.**

- (1) Incompatible wastes, or incompatible waste and materials, must not be placed in the same tank system, unless section 373-3.2(h)(2) of this Subpart is complied with.
- (2) Hazardous waste must not be placed in a tank system that has not been decontaminated and that previously held an incompatible waste or material, unless section 373-3.2(h)(2) of this Subpart is complied with.

(k) **Waste analysis and trial tests.**

In addition to performing the waste analysis required by section 373-3.2(d) of this Subpart, the owner or operator must, whenever a tank system is to be used to treat chemically or to store a hazardous waste that is substantially different from waste previously treated or stored in that tank system; or treat chemically a hazardous waste with a substantially different process than any previously used in that tank system:

- (1) conduct waste analyses and trial treatment or storage tests (e.g., bench-scale or pilot-plant scale tests); or
- (2) obtain written, documented information on similar waste under similar operating conditions to show that the proposed treatment or storage will meet the requirements of paragraph (e)(1) of this section.

Note: Section 373-3.2(d) of this Subpart requires the waste analysis plan to include analyses needed to comply with subdivisions (i) and (j) of this section. Section 373-3.5(c) of this Subpart requires the owner or operator to place the results from each waste analysis and trial test, or the documented information, in the operating record of the facility.

(l) **Special requirements for generators of between 100 and 1,000 kg/mo that accumulate hazardous waste in tanks.**

- (1) The requirements of this subdivision apply to small quantity generators of more than 100 kg but less than 1,000 kg of hazardous waste in a calendar month, that accumulate hazardous waste in tanks for less than 180 days (or 270 days if the generator must ship the waste greater than 200 miles), and do not accumulate over 6,000 kg onsite at any time.
- (2) Generators of between 100 and 1,000 kg/mo hazardous waste must comply with the following general operating requirements:
 - (i) Treatment or storage of hazardous waste in tanks must comply with section 373-3.2(h)(2) of this Subpart.
 - (ii) Hazardous wastes or treatment reagents must not be placed in a tank if they could cause the tank or its inner liner to rupture, leak, corrode, or otherwise fail before the end of its intended

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life.

- (iii) Uncovered tanks must be operated to ensure at least 60 centimeters (two feet) of freeboard, unless the tank is equipped with a containment structure (e.g., dike or trench), a drainage control system, or a diversion structure (e.g., standby tank) with a capacity that equals or exceeds the volume of the top 60 centimeters (two feet) of the tank.
- (iv) Where hazardous waste is continuously fed into a tank, the tank must be equipped with a means to stop this inflow (e.g., waste feed cutoff system or bypass system to a standby tank).

Note: These systems are intended to be used in the event of a leak or overflow from the tank due to a system failure (e.g., a malfunction in the treatment process, a crack in the tank, etc).

- (3) Except as noted in paragraph (4) of this subdivision, generators of between 100 and 1,000 kg/mo accumulating hazardous waste in tanks must inspect, where present:
 - (i) discharge control equipment (e.g., waste feed cutoff systems, bypass systems, and drainage systems) at least once each operating day, to ensure that it is in good working order;
 - (ii) data gathered from monitoring equipment (e.g., pressure and temperature gauges) at least once each operating day to ensure that the tank is being operated according to its design;
 - (iii) the level of waste in the tank at least once each operating day to ensure compliance with subparagraph (2)(iii) of this subdivision;
 - (iv) the construction materials of the tank at least weekly to detect corrosion or leaking of fixtures or seams; and;
 - (v) the construction materials of, and the area immediately surrounding, discharge confinement structures (e.g., dikes) at least weekly to detect erosion or obvious signs of leakage (e.g., wet spots or dead vegetation).

Note: As required by section 373-3.2(f)(3) of this Subpart, the owner or operator must remedy any deterioration or malfunction the owner or operator finds.

- (4) Generators who accumulate between 100 and 1,000 kg/mo of hazardous waste in tanks or tank systems that have full secondary containment and that either use leak detection equipment to alert facility personnel to leaks, or implement other established workplace practices to ensure leaks are promptly identified and must inspect at least weekly, where applicable, the areas identified in subparagraphs (3)(i) and (v) of this subdivision. Use of the alternate inspection schedule must be documented in the facility's operating record. This documentation must include a description of the established workplace practices at the facility.
- (5) Generators of between 100 and 1,000 kg/mo accumulating hazardous waste in tanks must, upon closure of the facility, remove all hazardous waste from tanks, discharge control equipment and discharge confinement structures.

Note: At closure, as throughout the operating periods, unless the owner or operator can

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demonstrate, in accordance with section 371.1(d)(3) or (4) of this Title, that any solid waste removed from the tank is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and must manage it in accordance with all applicable requirements of Parts 370 through 374 and 376 of this Title.

- (6) Generators of between 100 and 1,000 kg/mo must comply with the following special requirements for ignitable or reactive waste:
 - (i) Ignitable or reactive waste must not be placed in a tank, unless:
 - ('a') the waste is treated, rendered, or mixed before or immediately after placement in a tank so that:
 - ('1') the resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive waste under section 371.3(b) or (d) of this Title; and
 - ('2') section 373-3.2(h)(2) of this Subpart is complied with; or
 - ('b') the waste is stored or treated in such a way that it is protected from any material or conditions that may cause the waste to ignite or react; or
 - ('c') the tank is used solely for emergencies.
 - (ii) The owner or operator of a facility which treats or stores ignitable or reactive waste in covered tanks must comply with the buffer zone requirements for tanks contained in Tables 2-1 through 2-6 of the National Fire Protection Association's "Flammable and Combustible Liquids Code" (see section 370.1(e) of this Title).
- (7) Generators of between 100 and 1,000 kg/mo must comply with the following special requirements for incompatible wastes.
 - (i) Incompatible wastes, or incompatible wastes and materials, (see Appendix 29 of this Title for examples) must not be placed in the same tank, unless section 373-3.2(h)(2) of this Subpart is complied with.
 - (ii) Hazardous waste must not be placed in an unwashed tank which previously held an incompatible waste or material, unless section 373-3.2(h)(2) of this Subpart is complied with.

(m) Air emissions standards.

The owner or operator shall manage all hazardous waste placed in a tank in accordance with the applicable requirements of sections 373-3.27, 373-3.28 and 373-3.29 of this Subpart.

Section 373-3.11 Surface impoundments.

(a) Applicability.

The regulations in this section apply to owners and operators of facilities that use surface impoundments to treat, store, or dispose of hazardous waste, except as section 373-3.1(a) of this Subpart provides

otherwise.

(b) Action leakage rate.

- (1) The owner or operator of surface impoundment units subject to paragraph (i)(1) of this section must submit a proposed action leakage rate to the commissioner when submitting the notice required under paragraph (i)(2) of this section. Within 60 days of receipt of the notification, the commissioner will: establish an action leakage rate, either as proposed by the owner or operator or modified using the criteria in this subdivision; or extend the review period for up to 30 days. If no action is taken by the commissioner before the original 60 or extended 90 day review period ends, the action leakage rate will be approved as proposed by the owner or operator.
- (2) The commissioner shall approve an action leakage rate for surface impoundment units subject to paragraph (i)(1) of this section. The action leakage rate is the maximum design flow rate that the leak detection system (LDS) can remove without the fluid head on the bottom liner exceeding one foot. The action leakage rate must include an adequate safety margin to allow for uncertainties in the design (e.g., slope, hydraulic conductivity, thickness of drainage material), construction, operation, and location of the LDS, waste and leachate characteristics, likelihood and amounts of other sources of liquids in the LDS, and proposed response actions (e.g., the action leakage rate must allow for decreases in the flow capacity of the system over time resulting from siltation and clogging, rib layover and creep of synthetic components of the system, overburden pressures, etc.).
- (3) To determine if the action leakage rate has been exceeded, the owner or operator must convert the weekly or monthly flow rate from the monitoring data obtained under paragraph (e)(2) of this section, to an average daily flow rate (gallons per acre per day) for each sump. Unless the commissioner approves a different calculation, the average daily flow rate for each sump must be calculated weekly during the active life and closure period, and if the unit closes in accordance with subparagraph (f)(1)(ii) of this section, monthly during the post-closure care period when monthly monitoring is required under paragraph (e)(2) of this section.

(c) Containment system.

All 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.

(d) Waste analyses and trial tests.

- (1) In addition to the waste analysis required by section 373-3.2(d) of this Subpart, whenever a surface impoundment is to be used to:
 - (i) chemically treat a hazardous waste which is substantially different from waste previously treated in that impoundment; or
 - (ii) chemically treat hazardous waste with a substantially different process than any previously used in that impoundment; the owner or operator must, before treating the different waste or using the different process:

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- (a) conduct waste analyses and trial treatment tests (e.g., bench scale or pilot plant scale tests); or
- (b) obtain written, documented information on similar treatment of similar waste under similar operating conditions; to show that this treatment will comply with section 373-3.2(h)(2) of this Subpart.

Note: As required by section 373-3.2(d) of this Subpart, the waste analysis plan must include analyses needed to comply with subdivisions (g) and (h) of this section. As required by section 373-3.5(c) of this subpart, the owner or operator must place the results from each waste analysis and trial test, or the documented information, in the operating record of the facility.

(e) Monitoring and inspection.

(1) The owner or operator must inspect:

- (i) the freeboard level, at least once each operating day, to ensure compliance with paragraphs (i)(6) and (7) of this section; and
- (ii) the surface impoundment, including dikes and vegetation surrounding the dike, at least once a week, to detect any leaks, deterioration, or failures in the impoundment.

Note: As required by section 373-3.2(f)(3) of this Subpart, the owner or operator must remedy any deterioration or malfunction the owner or operator finds.

(2)

- (i) An owner or operator required to have a leak detection system under paragraph (i)(1) of this section must record the amount of liquids removed from each leak detection system sump at least once each week during the active life and closure period.
- (ii) After the final cover is installed, the amount of liquid removed from each leak detection system sump must be recorded at least monthly. If the liquid level in any sump stays below its pump operating level for two consecutive months, the amount of liquid in the sump must be recorded at least quarterly. If the liquid level in the sump stays below its pump operating level for two consecutive quarters, the amount of liquid in the sump must be recorded at least semi-annually. If at any time during the post-closure care period the pump operating level is exceeded at units on quarterly or semi-annual recording schedules, the owner or operator must return to monthly recording of the amount of liquid removed from each sump until the liquid level again stays below the pump operating level for two consecutive months.
- (iii) Pump operating level is a liquid level proposed by the owner or operator and approved by the commissioner based on pump activation level, sump dimensions, and level that avoids backup into the drainage layer and minimizes head in the sump. The timing for submission and approval of the proposed pump operating level will be accordance with paragraph (b)(1) of this section.

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(f) Closure and post-closure care.

- (1) At closure, the owner or operator must:
 - (i) 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 371.1(d)(4) of this Title applies; or
 - (ii) close the impoundment and provide post-closure care for a landfill under sections 373-3.7 and 373-3.14(d) of this Subpart, including the following:
 - ('a') eliminate free liquids by removing liquid wastes or solidifying the remaining wastes and waste residues;
 - ('b') stabilize remaining wastes to a bearing capacity sufficient to support the final cover; and
 - ('c') cover the surface impoundment with a final cover designed and constructed to:
 - ('1') provide long-term minimization of the migration of liquids through the closed impoundment;
 - ('2') function with minimum maintenance;
 - ('3') promote drainage and minimize erosion or abrasion of the cover;
 - ('4') accommodate settling and subsidence so that the cover's integrity is maintained; and
 - ('5') have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present.
- (2) In addition to the requirements of section 373-3.7 and section 373-3.14(d) of this Subpart, during the post-closure care period, the owner or operator of a surface impoundment in which wastes, waste residues, or contaminated materials remain after closure in accordance with the provisions of subparagraph (1)(ii) of this subdivision must:
 - (i) maintain the integrity and effectiveness of the final cover, including making repairs to the cover as necessary to correct the effects of settling, subsidence, erosion, or other events;
 - (ii) maintain and monitor the leak detection system in accordance with section 373-2.11(b)(3)(ii)('d') and (b)(3)(iii) of this Part, and paragraph (e)(2) of this section, and comply with all other applicable leak detection system requirements of this Subpart;
 - (iii) maintain and monitor the ground-water monitoring system and comply with all other applicable requirements of section 373-3.6 of this Subpart; and
 - (iv) prevent run-on and runoff from eroding or otherwise damaging the final cover.

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(g) Special requirements for ignitable or reactive waste.

- (1) Ignitable or reactive waste must not be placed in a surface impoundment unless the waste and impoundment satisfy all applicable requirements of Part 376 of this Title; and
 - (i) the waste is treated, rendered or mixed before or immediately after placement in the impoundment, so that:
 - ('a') the resulting waste, mixture or dissolution of material no longer meets the definition of ignitable or reactive waste under section 371.3(b) or (d) of this Title; and
 - ('b') section 373-3.2(h)(2) of this Subpart is complied with;
 - (ii)
 - ('a') the waste is managed in such a way that it is protected from any material or conditions which may cause it to ignite or react;
 - ('b') the owner or operator obtains a certification from a qualified chemist or engineer that, to the best of his or her knowledge and opinion, the design features or operating plans of the facility will prevent ignition or reaction; and
 - ('c') the certification and the basis for it are maintained at the facility; or
 - (iii) the surface impoundment is used solely for emergencies.

(h) Special requirements for incompatible wastes.

Incompatible wastes, or incompatible wastes and materials (see Appendix 29, *infra*, for examples) must not be placed in the same surface impoundment, unless section 373-3.2(h)(2) of this Subpart is complied with.

(i) Design and operating requirements.

- (1) The owner or operator of each new surface impoundment unit, each lateral expansion of a surface impoundment unit, and each replacement of an existing surface impoundment unit must install two or more liners, and a leachate collection and removal system between the liners, and operate the leachate collection and removal system, in accordance with section 373-2.11(b)(3) of this Part, unless exempted under section 373-2.11(b)(4), (5), or (6) of this Part.
- (2) The owner or operator of each unit referred to in paragraph (1) of this subdivision must notify the commissioner at least 60 days before receiving the waste. The owner or operator of each facility submitting notice must file a Part 373 permit application within six months of the commissioner's receipt of such notice.
- (3) The owner or operator of any replacement surface impoundment unit is exempt from paragraph (1) of this subdivision if:
 - (i) the existing unit was constructed in compliance with the design standards of section 3004(o)(1)(A)(i) and (o)(5) of the Resource Conservation and Recovery Act (see section

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370.1(e) of this Title); and

- (ii) there is no reason to believe that the liner is not functioning as designed.
- (4) The double liner requirement set forth in paragraph (1) of this subdivision may be waived by the commissioner for any monofill, if:
- (i) the monofill contains only hazardous wastes from foundry furnace emission controls or metal casting molding sand, and the wastes do not contain constituents which would render the wastes hazardous for reasons other than the toxicity characteristic in section 371.3(e) of this Title, with EPA hazardous waste numbers D004 through D017; and
 - (ii)
 - ('a')
 - ('1') the monofill has at least one liner for which there is no evidence that such liner is leaking. For the purposes of this paragraph, the term ***'liner'*** means a liner designed, constructed, installed and operated to prevent hazardous waste from passing into the liner at any time during the active life of the facility, or a liner designed, constructed, installed and operated to prevent hazardous waste from migrating beyond the liner to adjacent subsurface soil, ground water or surface water at any time during the active life of the facility. In the case of any surface impoundment which has been exempted from the requirements of paragraph (1) of this subdivision on the basis of a liner designed, constructed, installed and operated to prevent hazardous waste from passing beyond the liner, at the closure of the impoundment the owner or operator must remove or decontaminate all waste residues, all contaminated liner material, and contaminated soil to the extent practicable. If all contaminated soil is not removed or decontaminated, the owner or operator of such impoundment must comply with appropriate post-closure requirements, including but not limited to ground-water monitoring and corrective action;
 - ('2') the monofill is located more than one-quarter mile from an ***'underground source of drinking water'*** (as that term is defined in section 370.2(b) of this Title); and
 - ('3') the monofill is in compliance with generally applicable ground-water monitoring requirements for facilities with Part 373 permits; or
 - ('b') the owner or operator demonstrates that the monofill is located, designed and operated so as to assure that there will be no migration of any hazardous constituent into ground water or surface water at any future time.
- (5) In the case of any unit in which the liner and leachate collection system has been installed pursuant to the requirements of paragraph (1) of this subdivision, the commissioner, when issuing the first permit, will not require that a new liner or leachate collection system be installed, unless the

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commissioner has reason to believe the liner is leaking.

- (6) A surface impoundment must maintain enough freeboard to prevent any overtopping of the dike by overflowing, wave action, or a storm. Except as provided in paragraph (7) of this subdivision, there must be at least 60 centimeters (two feet) of freeboard.
- (7) A freeboard level less than 60 centimeters (two feet) may be maintained if the owner or operator obtains certification by a qualified engineer that alternate design features or operating plans will, to the best of his or her knowledge and opinion, prevent overtopping of the dike. The certification, along with a written identification of alternate design features or operating plans preventing overtopping, must be maintained at the facility.
- (8) Surface impoundments that are newly subject to RCRA section 3005(j)(1) (see section 370.1(e) of this Title) due to the promulgation of additional listings or characteristics for the identification of hazardous waste must be in compliance with paragraphs (1), (3), and (4) of this subdivision not later than 48 months after the promulgation of the additional listing or characteristic. This compliance period shall not be cut short as the result of the promulgation of land disposal prohibitions under Part 376 of this Title or the granting of an extension to the effective date of a prohibition pursuant to section 376.1(e) of this Title, within this 48-month period.

(j) Containment system.

All 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.

(k) Response actions.

- (1) The owner or operator of surface impoundment units subject to paragraph (i)(1) of this section must develop and keep on-site, until closure of the facility, a response action plan. The response action plan must set forth the actions to be taken if the action leakage rate has been exceeded. At a minimum, the response action plan must describe the actions specified in paragraph (2) of this subdivision.
- (2) If the flow rate into the leak detection system exceeds the action leakage rate for any sump, the owner or operator must:
 - (i) notify the department in writing of the exceedance within seven days of the determination;
 - (ii) submit a preliminary written assessment to the commissioner within 14 days of the determination, as to the amount of liquids, likely sources of liquids, possible location, size, and cause of any leaks, and short-term actions taken and planned;
 - (iii) determine to the extent practicable the location, size, and cause of any leak;
 - (iv) determine whether waste receipt should cease or be curtailed, whether any waste should be removed from the unit for inspection, repairs, controls, and whether or not the unit should be closed;

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- (v) determine any other short-term and longer-term actions to be taken to mitigate or stop any leaks; and
 - (vi) within 30 days after the notification that the action leakage rate has been exceeded, submit to the commissioner the results of the analyses specified in subparagraphs (iii)-(v) of this paragraph, the results of actions taken, and actions planned. Monthly thereafter, as long as the flow rate in the leak detection system exceeds the action leakage rate, the owner or operator must submit to the commissioner a report summarizing the results of any remedial actions taken and actions planned.
- (3) To make the leak and/or remediation determinations in subparagraphs (iii)-(v) of this paragraph, the owner or operator must:
- (i)
 - ('a') assess the source of liquids and amounts of liquids by source;
 - ('b') conduct a fingerprint, hazardous constituent, or other analyses of the liquids in the leak detection system to identify the source of liquids and possible location of any leaks, and the hazard and mobility of the liquid; and
 - ('c') assess the seriousness of any leaks in terms of potential for escaping into the environment; or
 - (ii) document why such assessments are not needed.

(1) Air emission standards.

The owner or operator shall manage all hazardous waste placed in a surface impoundment in accordance with the applicable requirements of sections 373-3.28 and 373-3.29 of this Subpart.

Section 373-3.12 Waste piles.

(a) Applicability.

The regulations in this section apply to owners and operators of facilities that treat or place hazardous waste in piles, except as section 373-3.1(a) of this Subpart provides otherwise. Alternatively, a pile of hazardous waste may be managed as a landfill under section 373-3.14 of this Subpart.

(b) Protection from wind.

The owner or operator of a pile containing hazardous waste which could be subject to dispersal by wind must cover or otherwise manage the pile so that wind dispersal is controlled.

(c) Waste analysis.

In addition to the waste analyses required by section 373-3.2(d) of this Subpart, the owner or operator must analyze a representative sample of waste from each incoming movement before adding the waste to any existing pile, unless:

- (1) the only wastes the facility receives which are amenable to piling are compatible with each other; or

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- (2) the waste received is compatible with the waste in the pile to which it is to be added. The analysis conducted must be capable of differentiating between the types of hazardous waste the owner or operator places in piles, so that the mixing of incompatible waste does not inadvertently occur. The analysis must include a visual comparison of color and texture.

Note: As required by section 373-3.2(d) of this Subpart, the waste analysis plan must include analyses needed to comply with subdivisions (e) and (f) of this section. As required by section 373-3.5(c) of this Subpart, the owner or operator must place the results of this analysis in the operating record of the facility.

(d) **Containment.**

If leachate or runoff from a pile is a hazardous waste, then either:

- (1)
 - (i) the pile must be placed on an impermeable base that is compatible with the waste under the conditions of treatment or storage;
 - (ii) the owner or operator must design, construct, operate and maintain a run-on control system capable of preventing flow onto the active portion of the pile during peak discharge from at least a 25-year storm;
 - (iii) the owner or operator must design, operate and maintain a runoff management system to collect and control at least the water volume resulting from a 24-hour, 25-year storm; and
 - (iv) collection and holding facilities (e.g., tanks or basins) associated with run-on and runoff control systems must be emptied or otherwise managed expeditiously after storms to maintain design capacity of the system; or
- (2)
 - (i) the pile must be protected from precipitation and run-on by some other means; and
 - (ii) no liquids or wastes containing free liquids may be placed in the pile.

Note: If collected leachate or runoff is discharged through a point source to waters of New York State, it is subject to the requirements of article 17 of the ECL.

(e) **Special requirements for ignitable or reactive waste.**

- (1) Ignitable or reactive wastes must not be placed in a pile, unless the waste and the pile satisfy all applicable requirements of Part 376 of this Title, and:
 - (i) addition of the waste to an existing pile:
 - ('a') results in the waste or mixture no longer meeting the definition of ignitable or reactive waste under section 371.3(b) or (d) of this Title; and
 - ('b') section 373-3.2(h)(2) of this Subpart is complied with; or

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- (ii) the waste is managed in such a way that it is protected from any material or conditions which may cause it to ignite or react.

(f) **Special requirements for incompatible wastes.**

- (1) Incompatible wastes, or incompatible wastes and materials (see Appendix 29, *infra*, for examples) must not be placed in the same pile, unless section 373-3.2(h)(2) of this Subpart is complied with.
- (2) A pile of hazardous waste that is incompatible with any waste or other material placed nearby in other containers, piles, open tanks or surface impoundments must be separated from the other materials, or protected from them by means of a dike, berm, wall or other device.

Comment: The purpose of this is to prevent fires, explosions, gaseous emissions, leaching, or other discharge of hazardous waste or hazardous waste constituents which could result from the contact or mixing of incompatible wastes or materials.

- (3) Hazardous waste must not be piled on the same area where incompatible wastes or materials were previously piled, unless that area has been decontaminated sufficiently to ensure compliance with section 373-3.2(h)(2) of this Subpart.

(g) **Closure and post-closure care.**

- (1) At closure, 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 371.1(d)(4) of this Title applies; or
- (2) If, after removing or decontaminating all residues and making all reasonable efforts to effect removal or decontamination of contaminated components, subsoils, structures and equipment as required in paragraph (1) of this subdivision, the owner or operator finds that not all contaminated subsoils can be practicably removed or decontaminated, the owner or operator must close the facility and perform post-closure care in accordance with the closure and post-closure requirements that apply to landfills (see section 373-3.14(d) of this Subpart).

(h) **Design and operating requirements.**

The owner or operator of each new waste pile unit on which construction commences after January 29, 1992, each lateral expansion of a waste pile unit on which construction commences after July 29, 1992, and each replacement of an existing waste pile unit that is to commence reuse after July 29, 1992 must install two or more liners and a leachate collection and removal system above and between such liners, and operate the leachate collection and removal systems, in accordance with section 373-2.12(b)(3), unless exempted under section 373-2.12(b)(4), (5), or (6) of this Part; and must comply with the procedures of section 373-3.11(i)(2) of this Subpart. **‘Construction commences’** is as defined in section 370.2(b) of this Title under **‘existing facility.’**

(i) **Action leakage rate.**

- (1) The owner or operator of waste pile units subject to section 373-3.12(h) of this Subpart must submit

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a proposed action leakage rate to the commissioner when submitting the notice required under section 373-3.12(h) of this Subpart. Within 60 days of receipt of the notification, the commissioner will: establish an action leakage rate, either as proposed by the owner or operator or modified using the criteria in this subdivision; or extend the review period for up to 30 days. If no action is taken by the commissioner before the original 60 or extended 90 day review period ends, the action leakage rate will be approved as proposed by the owner or operator.

- (2) The commissioner shall approve an action leakage rate for waste pile units subject to section 373-3.12(h) of this Subpart. The action leakage rate is the maximum design flow rate that the leak detection system (LDS) can remove without the fluid head on the bottom liner exceeding one foot. The action leakage rate must include an adequate safety margin to allow for uncertainties in the design (e.g., slope, hydraulic conductivity, thickness of drainage material), construction, operation, and location of the LDS, waste and leachate characteristics, likelihood and amounts of other sources of liquids in the LDS, and proposed response actions (e.g., the action leakage rate must allow for decreases in the flow capacity of the system over time resulting from siltation and clogging, rib layover and creep of synthetic components of the system, overburden pressures, etc.).
- (3) To determine if the action leakage rate has been exceeded, the owner or operator must convert the weekly flow rate from the monitoring data obtained under section 373-3.12(k) of this Subpart, to an average daily flow rate (gallons per acre per day) for each sump. Unless the commissioner approves a different calculation, the average daily flow rate for each sump must be calculated weekly during the active life and closure period.

(j) Response actions.

- (1) The owner or operator of waste pile units subject to subdivision (h) of this section must develop and keep on-site, until closure of the facility, a response action plan. The response action plan must set forth the actions to be taken if the action leakage rate has been exceeded. At a minimum, the response action plan must describe the actions specified in paragraph (2) of this subdivision.
- (2) If the flow rate into the leak detection system exceeds the action leakage rate for any sump, the owner or operator must:
 - (i) notify the commissioner in writing of the exceedence within seven days of the determination;
 - (ii) submit a preliminary written assessment to the commissioner within 14 days of the determination, as to the amount of liquids, likely sources of liquids, possible location, size, and cause of any leaks, and short-term actions taken and planned;
 - (iii) determine, to the extent practicable, the location, size, and cause of any leak;
 - (iv) determine whether waste receipts should cease or be curtailed, whether any waste should be removed from the unit for inspection, repairs, or controls, and whether or not the unit should be closed;
 - (v) determine any other short-term and longer-term actions to be taken to mitigate or stop any leaks; and

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(vi) within 30 days after the notification that the action leakage rate has been exceeded, submit to the commissioner the results of the analyses specified in subparagraphs (iii) through (v) of this paragraph, the results of actions taken, and actions planned. Monthly thereafter, as long as the flow rate in the leak detection system exceeds the action leakage rate, the owner or operator must submit to the commissioner a report summarizing the results of any remedial actions taken and actions planned.

(3) To make the leak and/or remediation determinations in subparagraphs (2)(iii) through (v) of this subdivision, the owner or operator must:

(i)

('a') assess the source of liquids and amounts of liquids by source;

('b') conduct a finger print, hazardous constituent, or other analyses of the liquids in the leak detection system to identify the source of liquids and possible location of any leaks, and the hazard and mobility of the liquid; and

('c') assess the seriousness of any leaks in terms of potential for escaping into the environment; or

(ii) document why such assessments are not needed.

(k) **Monitoring and inspection.**

An owner or operator required to have a leak detection system under section 373-3.12(h) of this Subpart must record the amount of liquids removed from each leak detection system sump at least once each week during the active life and closure period.

Section 373-3.13 Land treatment.

(a) **Applicability.**

The regulations in this section apply to owners and operators of facilities that treat or dispose of hazardous waste in land treatment units, except as section 373-3.1(a) of this Subpart provides otherwise.

(b) **General operating requirements.**

(1) Hazardous waste must not be placed in or on a land treatment facility unless the waste can be made nonhazardous by biological degradation or chemical reactions occurring in or on the soil.

(2) The owner or operator must design, construct, operate and maintain a run-on control system capable of preventing flow onto the active portions of the facility during peak discharge from at least a 25-year storm.

(3) The owner or operator must design, construct, operate and maintain a runoff management system capable of collecting and controlling a water volume at least equivalent to a 24-hour, 25-year storm.

(4) Collection and holding facilities (e.g., tanks or basins) associated with run-on and runoff control systems must be emptied or otherwise managed expeditiously after storms to maintain the design

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capacity of the system.

- (5) If the treatment zone contains particulate matter which may be subject to wind dispersal, the owner or operator must manage the unit to control wind dispersal.

(c) **Waste analysis.**

In addition to the waste analyses required by section 373-3.2(d) of this Subpart, before placing a hazardous waste in or on a land treatment facility, the owner or operator must:

- (1) determine the concentrations in the waste of any substances which equal or exceed the maximum concentrations contained in Table 1 of section 371.3(e) of this Title that cause a waste to exhibit the toxicity characteristic;
- (2) for any waste listed in section 371.4 of this Title, determine the concentrations of any substances which caused the waste to be listed as a hazardous waste; and
- (3) if food-chain crops are grown, determine the concentrations in the waste of each of the following constituents—arsenic, cadmium, lead and mercury—unless the owner or operator has written, documented data that show that the constituent is not present.

Note: Part 371 of this Title specifies the substances for which a waste is listed as a hazardous waste. As required by subdivision 373-3.2(d) of this Subpart, the waste analysis plan must include analyses needed to comply with subdivisions (h) and (i) of this section. As required by section 373-3.5(c) of this Subpart, the owner or operator must place the results from each waste analysis, or the documented information, in the operating record of the facility.

(d) **Food-chain crops and agricultural land.**

- (1) No land treatment facility shall be located on agricultural soil groups 1, 2, 3 and 4 (Land Classification System, as certified by the commissioner of the Department of Agriculture and Markets).
- (2) No food-chain crops may be grown on any facility that is or has been used as a land treatment facility for hazardous wastes.
- (3) Any person receiving a permit to operate a land treatment facility for hazardous waste shall, as a condition of such permit, place or cause to be placed a restrictive covenant, which shall run with the land in the deed or deeds to all real property subject to the permit, which prohibits the use of such real property for the growing of food chain crops.

(e) **Unsaturated zone (zone of aeration) monitoring.**

- (1) The owner or operator must have in writing, and must implement, an unsaturated zone monitoring plan which is designed to:
 - (i) detect the vertical migration of hazardous waste and hazardous waste constituents under the active portion of the land treatment facility; and

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- (ii) provide information on the background concentrations of the hazardous waste and hazardous waste constituents in similar but untreated soils nearby; this background monitoring must be conducted before or in conjunction with the monitoring required under subparagraph (i) of this paragraph.
- (2) The unsaturated zone monitoring plan must include, at a minimum:
 - (i) soil monitoring using soil cores; and
 - (ii) soil-pore water monitoring using devices such as lysimeters.
- (3) To comply with subparagraph (1)(i) of this subdivision, the owner or operator must demonstrate, in the unsaturated zone monitoring plan, that:
 - (i) the depth at which soil and soil-pore water samples are to be taken is below the depth to which the waste is incorporated into the soil;
 - (ii) the number of soil and soil-pore water samples to be taken is based on the variability of:
 - ('a') the hazardous waste constituents (as identified in paragraphs (c)(1) and (2) of this section) in the waste and in the soil; and
 - ('b') the soil type(s); and
 - (iii) the frequency and timing of soil and soil-pore water sampling is based on the frequency, time and rate of waste application, proximity to ground water and soil permeability.
- (4) The owner or operator must keep at the facility the unsaturated zone monitoring plan, and the rationale used in developing this plan.
- (5) The owner or operator must analyze the soil and soil-pore water samples for the hazardous waste constituents that were found in the waste during the waste analysis under paragraphs (c)(1) and (2) of this section.

Note: As required by section 373-3.5(c) of this Subpart, all data and information developed by the owner or operator under this section must be placed in the operating record of the facility.

(f) Recordkeeping.

The owner or operator must include hazardous waste application dates and rates in the operating record required under section 373-3.5(c) of this Subpart.

(g) Closure and post-closure.

- (1) In the closure plan under section 373-3.7(c) of this Subpart and the post-closure plan under section 373-3.7(h) of this Subpart, the owner or operator must address the following objectives and indicate how they will be achieved:
 - (i) control of the migration of hazardous waste and hazardous waste constituents from the treated area into the ground water;

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- (ii) control of the release of contaminated runoff from the facility into surface water;
 - (iii) control of the release of airborne particulate contaminants caused by wind erosion; and
 - (iv) compliance with subdivision (d) of this section concerning the growth of food-chain crops.
- (2) The owner or operator must consider at least the following factors in addressing the closure and post-closure care objectives of paragraph (1) of this subdivision:
- (i) type and amount of hazardous waste and hazardous waste constituents applied to the land treatment facility;
 - (ii) the mobility and the expected rate of migration of the hazardous waste and hazardous waste constituents;
 - (iii) 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);
 - (iv) climate, including amount, frequency and pH of precipitation;
 - (v) geological and soil profiles and surface and subsurface hydrology of the site, and soil characteristics, including cation exchange capacity, total organic carbon, and pH;
 - (vi) unsaturated zone monitoring information obtained under subdivision (e) of this section; and
 - (vii) type, concentration and depth of migration of hazardous waste constituents in the soil as compared to their background concentrations.
- (3) The owner or operator must consider at least the following methods in addressing the closure and post-closure care objectives of paragraph (1) of this subdivision:
- (i) removal of contaminated soils;
 - (ii) placement of a final cover, considering:
 - ('a') functions of the cover (e.g., infiltration control, erosion and runoff control, and wind erosion control); and
 - ('b') 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
 - (iii) monitoring of ground water.
- (4) In addition to the requirements of section 373-3.7 of this Subpart, during the closure period the owner or operator of a land treatment facility must:
- (i) continue unsaturated zone monitoring in a manner and frequency specified in the closure plan, except that soil-pore liquid monitoring may be terminated 90 days after the last application of waste to the treatment zone;

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- (ii) maintain the run-on control system required under paragraph (b)(2) of this section;
 - (iii) maintain the runoff management system required under paragraph (b)(3) of this section; and
 - (iv) control wind dispersal of particulate matter which may be subject to wind dispersal.
- (5) For the purpose of complying with section 373-3.7(f) of this Subpart, when closure is completed, the owner or operator may submit to the commissioner certification, both by the owner or operator and by an independent qualified soil scientist, in lieu of an independent registered professional engineer, that the facility has been closed in accordance with the specifications in the approved closure plan.
- (6) In addition to the requirements of section 373-3.7(g) of this Subpart, during the post- closure care period the owner or operator of a land treatment unit must:
- (i) continue soil-pore monitoring by collecting and analyzing samples in a manner and frequency specified in the post-closure plan;
 - (ii) restrict access to the unit as appropriate for its post-closure use;
 - (iii) assure that growth of food-chain crops complies with subdivision (d) of this section; and
 - (iv) control wind dispersal of hazardous waste.

(h) Special requirements for ignitable or reactive waste.

Ignitable or reactive waste must not be land-treated unless the waste and treatment zone meet all applicable requirements of Part 376 of this Title, and:

- (1) the waste is immediately incorporated into the soil so that:
 - (i) the resulting waste, mixture or dissolution of material no longer meets the definition of ignitable or reactive waste under section 371.3(b) or (d) of this Title; and
 - (ii) section 373-3.2(h)(2) of this Subpart is complied with; or
- (2) the waste is managed in such a way that it is protected from any material or conditions which may cause it to ignite or react.

(i) Special requirements for incompatible wastes.

Incompatible wastes, or incompatible wastes and materials (see Appendix 29, of this Title for examples), must not be placed in the same land treatment area, unless section 373-3.2(h)(2) of this Subpart is complied with.

Section 373-3.14 Landfills.

(a) Applicability.

The regulations in this section apply to owners and operators of facilities that dispose of hazardous waste in landfills, except as section 373-3.1(a) of this Subpart provides otherwise. A waste pile used as a disposal facility is a landfill and is governed by this section.

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(b) Action leakage rate.

- (1) The owner or operator of landfill units subject to paragraph (j)(1) of this section must submit a proposed action leakage rate to the commissioner when submitting the notice required under paragraph (j)(2) of this section. Within 60 days of receipt of the notification, the commissioner will: establish an action leakage rate, either as proposed by the owner or operator or modified using the criteria in this subdivision; or extend the review period for up to 30 days. If no action is taken by the commissioner before the original 60 or extended 90 day review period ends, the action leakage rate will be approved as proposed by the owner or operator.
- (2) The commissioner shall approve an action leakage rate for landfill units subject to paragraph (j)(1) of this section. The action leakage rate is the maximum design flow rate that the leak detection system (LDS) can remove without the fluid head on the bottom liner exceeding one foot. The action leakage rate must include an adequate safety margin to allow for uncertainties in the design (e.g., slope, hydraulic conductivity, thickness of drainage material), construction, operation, and location of the LDS, waste and leachate characteristics, likelihood and amounts of other sources of liquids in the LDS, and proposed response actions (e.g., the action leakage rate must allow for decreases in the flow capacity of the system over time resulting from siltation and clogging, rib layover and creep of synthetic components of the system, overburden pressures, etc.).
- (3) To determine if the action leakage rate has been exceeded, the owner or operator must convert the weekly or monthly flow rate from the monitoring data obtained under subdivision (l) of this section, to an average daily flow rate (gallons per acre per day) for each sump. Unless the commissioner approves a different calculation, the average daily flow rate for each sump must be calculated weekly during the post-closure care period when monthly monitoring is required under paragraph (l)(2) of this section.

(c) Surveying and recordkeeping.

The owner or operator of a landfill must maintain the following items in the operating record required under section 373-3.5(c) of this Subpart:

- (1) on a map, the exact location and dimensions, including depth, of each cell with respect to permanently surveyed benchmarks; and
- (2) the contents of each cell and the approximate location of each hazardous waste type within each cell.

(d) Closure and post-closure care.

- (1) At final closure of the landfill or upon closure of any cell, the owner or operator must cover the landfill or cell with a final cover designed and constructed to:
 - (i) provide long-term minimization of migration of liquids through the closed landfill;
 - (ii) function with minimum maintenance;
 - (iii) promote drainage and minimize erosion or abrasion of the cover;

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- (iv) accommodate settling and subsidence to maintain the cover's integrity; and
- (v) have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present.

(2) After final closure, the owner or operator must comply with all post-closure requirements contained in section 373-3.7(g) through (j) of this Subpart including maintenance and monitoring throughout the post-closure care period. The owner or operator must:

- (i) maintain the integrity and effectiveness of the final cover, including making repairs to the cover as necessary to correct the effects of settling, subsidence, erosion, or other damaging events;
- (ii) maintain and monitor the leak detection system in accordance with section 373-2.14(c)(3)(iii)('d') and (c)(3)(iv) of this Title, and paragraph (1)(2) of this section, and comply with all other applicable leak detection system requirements of this Subpart;
- (iii) maintain and monitor the ground-water monitoring system and comply with all other applicable requirements of section 373-3.6 of this Subpart;
- (iv) prevent run-on and runoff from eroding or otherwise damaging the final cover; and
- (v) protect and maintain surveyed benchmarks used in complying with subdivision (c) of this section.

(e) Special requirements for ignitable or reactive waste.

(1) Except as provided in paragraph (2) of this subdivision, and in subdivision (i) of this section, ignitable or reactive waste must not be placed in a landfill, unless the waste and landfill meet all applicable requirements of Part 376 of this Title, and:

- (i) the resulting waste, mixture or dissolution of material no longer meets the definition of ignitable or reactive waste under section 371.3(b) or (d) of this Title; and
- (ii) section 373-3.2(h)(2) of this Subpart is complied with.

(2) Except for prohibited wastes which remain subject to treatment standards in section 376.4 of this Title, ignitable wastes in containers may be landfilled without meeting the requirements of paragraph (1) of this subdivision, provided that the wastes are disposed of in such a way that they are protected from any material or conditions which may cause them to ignite. At a minimum, ignitable wastes must be disposed of in nonleaking containers which are carefully handled and placed so as to avoid heat, sparks, rupture or any other condition that might cause ignition of the wastes; must be covered daily with soil or other noncombustible material to minimize the potential for ignition of the wastes; and must not be disposed of in cells that contain or will contain other wastes which generate heat sufficient to cause ignition of the waste.

(f) Special requirements for incompatible wastes.

Incompatible wastes, or incompatible wastes and materials (see Appendix 29, *infra*, for examples) must

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not be placed in the same landfill cell, unless section 373-3.2(h)(2) of this Subpart is complied with.

(g) Special requirements for liquid waste.

- (1) Bulk or noncontainerized liquid waste or waste containing free liquids (whether or not sorbents have been added) must not be placed in a landfill.
- (2) Containers holding free liquids must not be placed in a landfill, unless:
 - (i) all free-standing liquid:
 - ('a') has been removed by decanting, or other methods;
 - ('b') has been mixed with sorbent or solidified so that free-standing liquid is no longer observed; or
 - ('c') has been otherwise eliminated; or
 - (ii) the container is very small, such as an ampule; or
 - (iii) the container is designed to hold free liquids for use other than storage, such as a battery or capacitor; or
 - (iv) the container is a lab pack, as defined in subdivision (i) of this section, and is disposed of in accordance with subdivision (i) of this section.
- (3) To demonstrate the absence or presence of free liquids in either a containerized or a bulk waste, the following test must be used: Method 9095B (Paint Filter Liquids Test) as described in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, as incorporated by reference in section 370.1(e) of this Title.
- (4) Sorbents used to treat free liquids to be disposed of in landfills must be nonbiodegradable. Nonbiodegradable sorbents are: materials listed or described in subparagraph (i) of this paragraph; materials that pass one of the tests in subparagraph (ii) of this paragraph; or materials that are determined by the department to be nonbiodegradable through the Part 370 petition process.
 - (i) Nonbiodegradable sorbents.
 - ('a') Inorganic minerals, other inorganic materials, and elemental carbon (e.g., aluminosilicates, clays, smectites, Fuller's earth, bentonite, calcium bentonite, montmorillonite, calcined montmorillonite, kaolinite, micas (illite), vermiculites, zeolites; calcium carbonate (organic free limestone); oxides/hydroxides, alumina, lime, silica (sand), diatomaceous earth; perlite (volcanic glass); expanded volcanic rock; volcanic ash; cement kiln dust; fly ash; rice hull ash; activated charcoal/activated carbon); or
 - ('b') high molecular weight synthetic polymers (e.g., polyethylene, high density polyethylene (HDPE), polypropylene, polystyrene, polyurethane, polyacrylate, polynorborene, polyisobutylene, ground synthetic rubber, cross-linked allylstyrene and tertiary butyl

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copolymers). This does not include polymers derived from biological material or polymers specifically designed to be degradable; or

(c) mixtures of these nonbiodegradable materials.

(ii) Tests for nonbiodegradable sorbents.

(a) The sorbent material is determined to be nonbiodegradable under ASTM Method G21-70 (1984a)-Standard Practice for Determining Resistance of Synthetic Polymer Materials to Fungi (see section 370.1(e) of this Title);

(b) the sorbent material is determined to be nonbiodegradable under ASTM Method G22-76 (1984b)-Standard Practice for Determining Resistance of Plastics to Bacteria (see section 370.1(e) of this Title); or

(c) the sorbent material is determined to be nonbiodegradable under OECD test 301B: (CO₂ Evolution (Modified Sturm Test)) as incorporated by reference in section 370.1(e) of this Title.

(h) Special requirements for containers.

Unless they are very small, such as an ampule, containers must be either:

- (1) at least 90 percent full when placed in the landfill; or
- (2) crushed, shredded, or similarly reduced in volume to the maximum practical extent before burial in the landfill.

(i) Disposal of small containers of hazardous waste in overpacked drums (lab packs).

Small containers of hazardous waste in overpacked drums (lab packs) may be placed in a landfill if the following requirements are met:

- (1) Hazardous waste must be packaged in nonleaking inside containers. The inside containers must be of a design and constructed of a material that will not react dangerously with, be decomposed by or be ignited by, the contained waste. Inside containers must be tightly and securely sealed. The inside containers must be of the size and type specified in the United States Department of Transportation (DOT) hazardous materials regulations (49 CFR parts 173, 178 and 179) (see section 370.1(e) of this Title), if those regulations specify a particular inside container for the waste.
- (2) The inside containers must be overpacked in an open-head Federal DOT specification metal shipping container (49 CFR parts 178 and 179) (see section 370.1(e) of this Title) of no more than 416-liter (110-gallon) capacity and surrounded by, at a minimum, a sufficient quantity of sorbent material, determined to be nonbiodegradable in accordance with paragraph (g)(4) of this section to completely sorb all of the liquid contents of the inside containers. The metal outer container must be full after it has been packed with inside containers and sorbent material.
- (3) The sorbent material used must not be capable of reacting dangerously with, being decomposed by or being ignited by, the contents of the inside containers in accordance with section 373-3.2(h)(2) of

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this Subpart.

- (4) Incompatible wastes, as defined in section 370.2(b) of this Title, must not be placed in the same outside container.
- (5) Reactive wastes, other than cyanide- or sulfide-bearing waste as defined in section 371.3(d)(1)(v) of this Title, must be treated or rendered nonreactive prior to packaging in accordance with paragraphs (1) through (4) of this subdivision. Cyanide- and sulfide-bearing reactive waste may be packed in accordance with paragraphs (1) through (4) of this subdivision without first being treated or rendered nonreactive.
- (6) Such disposal is in compliance with the requirements of Part 376 of this Title.
 - (i) Persons who incinerate lab packs according to the requirements in section 376.4(c)(3)(i) of this Title may use fiber drums in place of metal outer containers. Such fiber drums must meet all DOT specifications and be overpacked according to the requirements in paragraph (2) of this subdivision.

(j) Design and operating requirements.

- (1) The owner or operator of each new landfill unit, each lateral expansion of a landfill unit, and each replacement of an existing landfill unit must install two or more liners and a leachate collection and removal system above and between the liners, and operate the leachate collection and removal systems, in accordance with section 373-2.14(c)(3) of this Part, unless exempted under section 373-2.14(c)(4), (5), or (6), of this Part.
- (2) The owner or operator of each unit referred to in paragraph (1) of this subdivision must notify the commissioner at least 60 days before receiving waste. The owner or operator of each facility submitting notice must file a Part 373 permit application within six months of the commissioner's receipt of the notice.
- (3) The owner or operator of any replacement landfill unit is exempt from paragraph (1) of this subdivision if:
 - (i) the existing unit was constructed in compliance with the design standards of section 3004(o)(1)(A)(i) and (o)(5) of the Resource Conservation and Recovery Act (see section 370.1(e) of this Title); and
 - (ii) there is no reason to believe that the liner is not functioning as designed.
- (4) The double liner requirement set forth in paragraph (1) of this subdivision may be waived by the commissioner for any monofill, if:
 - (i) the monofill contains only hazardous wastes from foundry furnace emission controls or metal casting molding sand, and the wastes do not contain constituents which would render the wastes hazardous for reasons other than the toxicity characteristic in section 371.3(e) of this Title with EPA hazardous waste numbers D004 through D017; and

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(ii)

('a')

- (1) the monofill has at least one liner for which there is no evidence that such a liner is leaking;
- (2) the monofill is located more than one-quarter mile from an '*underground source of drinking water*' (as that term is defined in section 370.2(b) of this Title); and
- (3) the monofill is in compliance with generally applicable ground-water monitoring requirements for facilities with Part 373 permits; or

('b') the owner or operator demonstrates that the monofill is located, designed and operated so as to assure that there will be no migration of any hazardous constituent into ground water or surface water at any future time.

- (5) In the case of any unit in which the liners and leachate collection system have been installed pursuant to the requirements of paragraph (1) of this subdivision, the commissioner, when issuing the first permit, will not require that a new liner and leachate collection system be installed, unless the commissioner has reason to believe the liner is leaking.
- (6) The owner or operator must design, construct, operate, and maintain a run-on control system capable of preventing flow onto the active portion of the landfill during peak discharge from at least a 25-year storm.
- (7) The owner or operator must design, construct, operate, and maintain a run-off management system to collect and control at least the water volume resulting from a 24-hour, 25-year storm.
- (8) Collection and holding facilities (e.g., tanks or basins) associated with run-on and run-off control systems must be emptied or otherwise managed expeditiously after storms to maintain design capacity of the system.
- (9) The owner or operator of a landfill containing hazardous waste which is subject to wind dispersal must cover or otherwise manage the landfills so that wind dispersal of the hazardous waste is controlled.

Note: As required by section 373-3.2(d) of this Subpart, the waste analysis plan must include analyses needed to comply with subdivisions (e), (f) and (g) of this section. As required by section 373-3.5(c) of this Subpart, the owner or operator must place the results of these analyses in the operating record of the facility.

(k) Response actions.

- (1) The owner or operator of landfill units subject to paragraph (j)(1) of this section must develop and keep on site, until closure of the facility, a response action plan. The response action plan must set forth the actions to be taken if the action leakage rate has been exceeded. At a minimum, the response action plan must describe the action specified in paragraph (2) of this subdivision.

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- (2) If the flow rate into the leak detection system exceeds the action leakage rate for any sump, the owner or operator must:
 - (i) notify the department in writing of the exceedance within seven days of the determination;
 - (ii) submit a preliminary written assessment to the commissioner within 14 days of the determination, as to the amount of liquids, likely sources of liquids, possible location, size, and cause of any leaks, and short-term actions taken and planned;
 - (iii) determine to the extent practicable the location, size, and cause of any leak;
 - (iv) determine whether waste receipt should cease or be curtailed, whether any waste should be removed from the unit for inspection, repairs, or controls, and whether or not the unit should be closed;
 - (v) determine any other short-term and longer-term actions to be taken to mitigate or stop any leaks; and
 - (vi) within 30 days after the notification that the action leakage rate has been exceeded, submit to the commissioner the results of the analyses specified in subparagraph (ii)-(v) of this paragraph, the results of actions taken, and actions planned. Monthly thereafter, as long as the flow rate in the leak detection system exceeds the action leakage rate, the owner or operator must submit to the commissioner a report summarizing the results of any remedial action taken and actions planned.
- (3) To make the leak and/or remediation determinations in subparagraphs (iii)-(v) of this paragraph, the owner or operator must:
 - (i)
 - ('a') assess the source of liquids and amounts of liquids by source;
 - ('b') conduct a fingerprint, hazardous constituent, or other analyses of the liquids in the leak detection system to identify the source of liquids and possible location of any leaks, and the hazard and mobility of the liquid; and
 - ('c') assess the seriousness of any leaks in terms of potential for escaping into the environment; or
 - (ii) document why such assessments are not needed.

(l) Monitoring and inspection.

- (1) An owner or operator required to have a leak detection system under paragraph (j)(1) of this section must record the amount of liquids removed from each leak detection system sump at least once each week during the active life and closure period.
- (2) After the final cover is installed, the amount of liquid removed from each leak detection system sump must be recorded at least monthly. If the liquid level in any sump stays below its pump

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operating level for two consecutive months, the amount of liquid in the sump must be recorded at least quarterly. If the liquid level in the sump stays below its pump operating level for at least two consecutive quarters, the amount of liquid in the sump must be recorded at least semi-annually. If at any time during the post-closure care period the pump operating level is exceeded at units on quarterly or semi-annual recording schedules, the owner or operator must return to monthly recording of the amount of liquid removed from each sump until the liquid level again stays below the pump operating level for two consecutive months.

- (3) Pump operating level is a liquid level proposed by the owner or operator and approved by the commissioner based on pump activation level, sump dimensions, and level that avoids backup into the drainage layer and minimizes head in the sump. The timing for submission and approval of the proposed pump operating level will be in accordance with paragraph (b)(1) of this section.

Section 373-3.15 Incinerators.

(a) Applicability.

- (1) The regulations in this section apply to owners and operators of hazardous waste incinerators (as defined in section 370.2(b) of this Title), except as section 373-3.1(a) of this Subpart provides otherwise.
- (2) Additional regulations governing construction and operation of incinerators for purposes of air pollution control are set forth in Parts 200, 201, 212, 219, 225, 227 and 257 of this Title.
- (3) *'Integration of the MACT standards.'*
 - (i) except as set forth in subparagraphs (ii) through (iii) of this paragraph, the requirements of this Subpart do not apply to a hazardous waste incineration unit when the owner or operator demonstrates compliance with the maximum achievable control technology (MACT) requirements of 40 CFR part 63, subpart EEE, as incorporated by reference and implemented by sections 200.10(a) and (d) of this Title, by conducting a comprehensive performance test and submitting to the department a Notification of Compliance under 40 CFR sections 63.1207(j) and 63.1210(d) of subpart EEE documenting compliance with the requirements of 40 CFR part 63, subpart EEE as incorporated by reference and implemented by sections 200.10(a) and (d) of this Title.
 - (ii) the MACT standards do not replace the requirements of subdivision (e) of this section and the applicable requirements of sections 373-3.1 through 373-3.8, 373-3.28 and 373-3.29 of this Subpart.
 - (iii) the requirements of section 373-3.15(c) of this Subpart generally prohibiting burning of hazardous waste during startup and shutdown remain in effect if the owner or operator elects to comply with section 373-1.12(a)(2)(i)(‘a’) of this Part to minimize emissions of toxic compounds from startup and shutdown.
- (4) Owners and operators of incinerators burning hazardous waste are exempt from all of the

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requirements of this section, except subdivision (e) (Closure), provided that the owner or operator has documented, in writing, that the waste would not reasonably be expected to contain any of the hazardous constituents listed in Appendix 23 of this Title, and such documentation is retained at the facility, if the waste to be burned is:

- (i) listed as a hazardous waste in section 371.4 of this Title solely because it is ignitable (Hazard Code I), corrosive (Hazard Code C), or both; or
- (ii) listed as a hazardous waste in section 371.4 of this Title solely because it is reactive (Hazard Code R) for characteristics other than those listed in section 371.3(d)(1)(iv) and (v) of this Title, and will not be burned when other hazardous wastes are present in the combustion zone; or
- (iii) a hazardous waste solely because it possesses the characteristics of ignitability, corrosivity, or both, as determined by the tests for characteristics of hazardous wastes under section 371.3 of this Title; or
- (iv) a hazardous waste solely because it possesses any of the reactivity characteristics described by section 371.3(d)(1)(i)-(iii), (vi)-(viii) of this Title, and will not be burned when other hazardous wastes are present in the combustion zone.

(b) Waste analysis.

In addition to the waste analyses required by section 373-3.2(d) of this Subpart, the owner or operator must sufficiently analyze any waste which has not previously been burned in the incinerator to enable the owner or operator to establish steady state (normal) operating conditions (including waste and auxiliary fuel feed and air flow) and to determine the type of pollutants which might be emitted. At a minimum, the analysis must determine:

- (1) heating value of the waste;
- (2) halogen content and sulfur content in the waste; and
- (3) concentrations in the waste of lead and mercury, unless the owner or operator has written, documented data that show that the element is not present.

Note: As required by section 373-3.5(c) of this Subpart, the owner or operator must place the results from each waste analysis, or the documented information, in the operating record of the facility.

(c) General operating requirements.

During start-up and shutdown of an incinerator, the owner or operator must not feed hazardous waste unless the incinerator is at steady state (normal) conditions of operation, including steady state operating temperature and air flow.

(d) Monitoring and inspections.

The owner or operator must conduct, as a minimum, the following monitoring and inspections when

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incinerating hazardous waste:

- (1) Existing instruments which relate to combustion and emission control must be monitored at least every 15 minutes. Appropriate corrections to maintain steady state combustion conditions must be made immediately, either automatically or by the operator. Instruments which relate to combustion and emission control would normally include those measuring waste feed, auxiliary fuel feed, air flow, incinerator, temperature, scrubber flow, scrubber pH, and relevant level controls.
- (2) The complete incinerator and associated equipment (pumps, valves, conveyors, pipes, etc.) must be inspected at least daily for leaks, spills and fugitive emissions, and all emergency shutdown controls and system alarms must be checked to assure proper operation.

(e) Closure.

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

Note: At closure, as throughout the operating period, unless the owner or operator can demonstrate, in accordance with section 371.1(d)(4) of this Title, that the residue removed from the incinerator is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and must manage it in accordance with all applicable requirements of Parts 370 through 376 of this Title.

(f) Standards for particular hazardous wastes.

- (1) Owners or operators of incinerators subject to this section may burn EPA hazardous waste F020, F021, F022, F023, F026 or F027 if they receive a certification from the commissioner that they can meet the performance standards of section 373-2.15 of this Part when they burn the wastes.
- (2) In addition to the requirements of Part 621 of this Title, the following standards and procedures will be used in determining whether to certify an incinerator:
 - (i) The owner or operator must submit an application to the commissioner containing applicable information in sections 373-1.5(f) and 373-1.9(a) of this Part demonstrating that the incinerator can meet the performance standards in section 373-2.15 of this Part when they burn the wastes.
 - (ii) The commissioner will issue a tentative decision whether the incinerator can meet the performance standards in section 373-2.15 of this Part. Notification of this tentative decision will be provided by a newspaper advertisement and radio broadcast in the jurisdiction where the incinerator is located. The commissioner will accept comment on the tentative decision for 60 days. The commissioner also may hold a public hearing upon request or at his or her discretion.
 - (iii) After the close of the public comment period, the commissioner will issue a decision whether or not to certify the incinerator.

Section 373-3.16 Thermal treatment.

(a) The regulations in this section apply to owners and operators of facilities that thermally treat hazardous waste in devices other than enclosed devices using controlled flame combustion, except as provided in section 373-3.1(a) of this Subpart. Thermal treatment in enclosed devices using controlled flame combustion is subject to the requirements of section 373-3.15 of this Subpart if the unit is an incinerator, and section 374-1.8 of this Title if the unit is a boiler or an industrial furnace as defined in section 370.2(b) of this Title.

(b) General operating requirements.

Before adding hazardous waste, the owner or operator must bring the thermal treatment process to steady state (normal) conditions of operation—including steady state operating temperature—using auxiliary fuel or other means, unless the process is a noncontinuous (batch) thermal treatment process which requires a complete thermal cycle to treat a discrete quantity of hazardous waste.

(c) Waste analysis.

In addition to the waste analyses required by section 373-3.2(d) of this Subpart, the owner or operator must sufficiently analyze any waste which has not been previously treated in the thermal process to enable the owner or operator to establish steady state (normal) or other appropriate (for a noncontinuous process) operating conditions (including waste and auxiliary fuel feed), and to determine the type of air contaminants which might be emitted. At a minimum, the analysis must determine:

- (1) heating value of the waste;
- (2) halogen content and sulfur content in the waste; and
- (3) concentrations in the waste of lead and mercury, unless the owner or operator has written, documented data that show that the element is not present.

(d) Monitoring and inspections.

- (1) The owner and operator must conduct, as a minimum, the following monitoring and inspections when thermally treating hazardous waste:
 - (i) Existing instruments which relate to temperature and emission control (if an emission control device is present) must be monitored at least every 15 minutes. Appropriate corrections to maintain steady state or other appropriate thermal treatment conditions must be made immediately either automatically or by the operator. Instruments which relate to temperature and emission control would normally include those measuring waste feed, auxiliary fuel feed, treatment process temperature, and relevant process flow and level controls.
 - (ii) The stack plume (emissions), where present, must be observed visually at least hourly for normal appearance (color and opacity). The operator must immediately make any indicated operating corrections necessary to return any visible emissions to their normal appearance.
 - (iii) The complete thermal treatment process and associated equipment (pumps, valves, conveyors, pipes, etc.) must be inspected at least daily for leaks, spills and fugitive emissions, and system

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alarms must be checked to assure proper operation.

(e) Closure.

At closure, the owner or operator must remove all hazardous waste and hazardous waste residues (including but not limited to ash) from the thermal treatment process or equipment.

(f) Open burning; waste explosives.

Open burning of hazardous waste is prohibited except for the open burning and detonation of waste explosives. Waste explosives include waste which has the potential to detonate, and bulk military propellants which cannot safely be disposed of through other modes of treatment. *'Detonation'* is an explosion in which chemical transformation passes through the material faster than the speed of sound (0.33 kilometer/second at sea level). Owners or operators choosing to open-burn or detonate waste explosives must do so in accordance with the following table and in a manner that does not threaten human health or the environment.

<i>Pounds of waste explosives or propellants</i>	<i>Minimum distance from open burning or detonation to the property of others</i>	
0 to 100	204 meters	(670 feet)
100 to 1,000	380 meters	(1,250 feet)
1,001 to 10,000	530 meters	(1,730 feet)
10,001 to 30,000	690 meters	(2,260 feet)

(g) Standards for particular hazardous waste.

- (1) Owners or operators of thermal treatment devices subject to this section may burn EPA hazardous waste F020, F021, F022, F023, F026 or F027 if they receive a certification from the commissioner that they can meet the performance standards of section 373-2.15 of this Part when they burn these wastes.
- (2) In addition to the requirements of Part 621 of this Title, the following standards and procedures will be used in determining whether to certify a thermal treatment unit:
 - (i) The owner or operator must submit an application to the commissioner containing the applicable information in sections 373-1.5(f) and 373-1.9(a) of this Part demonstrating that the thermal treatment unit can meet the performance standards in section 373-2.15 of this Part when they burn the wastes.
 - (ii) The commissioner will issue a tentative decision whether the thermal treatment unit can meet the performance standards in section 373-2.15 of this Part. Notification of the tentative decision will be provided by newspaper advertisement and radio broadcast in the jurisdiction where the thermal treatment device is located. The commissioner will accept comment on the tentative decision for 60 days. The commissioner also may hold a public hearing upon request or at his or her discretion.
 - (iii) After the close of the public comment period, the commissioner will issue a decision whether

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or not to certify the thermal treatment unit.

Section 373-3.17 Chemical, physical and biological treatment.

- (a) The regulations in this section apply to owners and operators of facilities subject to this Subpart which treat hazardous waste by chemical, physical or biological methods in other than tanks, surface impoundments and land treatment facilities. Chemical, physical and biological treatment of hazardous waste in tanks, surface impoundments and land treatment facilities must be conducted in accordance with sections 373-3.10, 373-3.11 and 373-3.13 of this Subpart.
- (b) **General operating requirements.**
- (1) Chemical, physical or biological treatment of hazardous waste must comply with section 373-3.2(h) of this Subpart.
 - (2) Hazardous wastes or treatment reagents must not be placed in the treatment process or equipment if they could cause the treatment process or equipment to rupture, leak, corrode or otherwise fail before the end of its intended life.
 - (3) Where hazardous waste is continuously fed into a treatment process or equipment, the process or equipment must be equipped with a means to stop this inflow (e.g., a waste feed cutoff system or bypass system to a standby containment device).
- (c) **Waste analysis and trial tests.**
- (1) In addition to the waste analysis required by section 373-3.2(d) of this Subpart, whenever:
 - (i) a hazardous waste which is substantially different from waste previously treated in a treatment process or equipment at the facility is to be treated in that process or equipment; or
 - (ii) a substantially different process than any previously used at the facility is to be used to chemically treat hazardous waste: the owner or operator must, before treating the different waste or using the different process or equipment:
 - ('a') conduct waste analysis and trial treatment tests (e.g., bench scale or pilot plant scale tests); or
 - ('b') obtain written, documented information on similar treatment of similar waste under similar operating conditions; to show that this proposed treatment will meet all applicable requirements of paragraphs (b)(1) and (2) of this section.
- (d) **Inspections.**
- (1) The owner or operator of a treatment facility must inspect, where present:
 - (i) discharge control and safety equipment (e.g., waste feed cutoff systems, bypass systems, drainage systems and pressure relief systems), at least once each operating day, to ensure that it is in good working order;

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- (ii) data gathered from monitoring equipment (e.g., pressure and temperature gauges), at least once each operating day, to ensure that the treatment process or equipment is being operated according to its design;
- (iii) the construction materials of the treatment process or equipment, at least weekly, to detect corrosion or leaking of fixtures or seams; and
- (iv) the construction materials of, and the area immediately surrounding, discharge confinement structures (e.g., dikes), at least weekly, to detect erosion or obvious signs of leakage (e.g., wet spots or dead vegetation).

(e) **Closure.**

At closure, all hazardous waste and hazardous waste residues must be removed from treatment processes or equipment, discharge control equipment and discharge confinement structures.

(f) **Special requirements for ignitable or reactive wastes.**

- (1) Ignitable or reactive waste must not be placed in a treatment process or equipment unless:
 - (i) the waste is treated, rendered or mixed before or immediately after placement in the treatment process or equipment so that:
 - ('a') the resulting waste mixture, or dissolution of material, no longer meets the definition of ignitable or reactive waste under section 371.3(b) or (d) of this Title; and
 - ('b') section 373-3.2(h) of this Subpart is complied with; or
 - (ii) the waste is treated in such a way that it is protected from any material or conditions which may cause the waste to ignite or react.

(g) **Special requirements for incompatible wastes.**

- (1) Incompatible wastes, or incompatible wastes and materials (see Appendix 29, *infra*, for examples), must not be placed in the same treatment process or equipment unless section 373-3.2(h) of this Subpart is complied with.
- (2) Hazardous waste must not be placed in unwashed treatment equipment which previously held an incompatible waste or material, unless section 373-3.2(h) of this Subpart is complied with.

Section 373-3.18 Underground injection.

Except as section 373-3.1 of this Subpart provides otherwise:

(a) **Exclusion from sections 373-3.7 and 373-3.8.**

The owner or operator of a facility which disposes of hazardous waste by underground injection is excluded from the requirements of sections 373-3.7 and 373-3.8 of this Subpart.

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(b) Applicability.

The requirements of this section apply to owners and operators of wells used to dispose of hazardous waste which are classified as Class I under subdivision 144.6(a) of 40 CFR and which are classified as Class IV under subdivision 144.6(d) of 40 CFR (see 6 NYCRR 370.1(e)).

- (1) Class I.
 - (i) Wells used by generators of hazardous wastes or owners or operators of hazardous waste management facilities to inject hazardous waste, other than Class IV wells.
 - (ii) Other industrial and municipal disposal wells which inject fluids beneath the lowermost formation containing, within one quarter mile of the well bore, an underground source of drinking water.
- (2) Class IV. Wells used by generators of hazardous wastes or of radioactive wastes, by owners or operators of hazardous waste management facilities, or by owners or operators of radioactive waste disposal sites to dispose of hazardous wastes or radioactive wastes into or above a formation which, within one quarter mile of the well, contains an underground source of drinking water.

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Section 373-3.23 Drip pads.

(a) Applicability.

- (1)
 - (i) Except as provided in subparagraph (1)(ii) of this subdivision, the requirements of this section apply to owners and operators of facilities that use new or existing drip pads to convey treated wood drippage, precipitation, and/or surface water run-off to an associated collection system. Existing drip pads are those constructed before December 6, 1990 and those for which the owner or operator has a design and has entered into binding financial or other agreements for construction prior to December 6, 1990. All other drip pads are new drip pads. The requirement at subparagraph (d)(2)(iii) of this section to install a leak collection system applies only to those drip pads that are constructed after December 24, 1992 for which the owner or operator has a design and has entered into binding financial or other agreements for construction prior to December 24, 1992.
 - (ii) For F034 and F035 wastes as defined in paragraph 371.4(b)(1) of this Title, subparagraph (i) of this paragraph applies, except that the referenced dates are revised to January 17, 1995.
- (2) The owner or operator of any drip pad that is inside or under a structure that provides protection from precipitation so that neither run-off nor run-on is generated is not subject to regulation under paragraphs (d)(5) or (6) of this section, as appropriate.
- (3) The requirements of this section are not applicable to the management of infrequent and incidental drippage in storage yards, provided that:

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- (i) the owner or operator maintains and complies with a written contingency plan that describes how the owner or operator will respond immediately to the discharge of such infrequent and incidental drippage. At a minimum, the contingency plan must describe how the facility will do the following:
 - ('a') clean up the drippage;
 - ('b') document the cleanup of the drippage;
 - ('c') retain documents regarding cleanup for three years; and
 - ('d') manage the contaminated media in a manner consistent with State and Federal regulations.

(b) Assessment of existing drip pad integrity.

- (1) For each existing drip pad as defined in subdivision (a) of this section, the owner or operator must evaluate the drip pad and determine that it meets all of the requirements of this section, except the requirements for liners and leak detection systems of paragraph (d)(2) of this section. No later than the effective date of these regulations, the owner or operator must obtain and keep on file at the facility a written assessment of the drip pad, reviewed and certified by an independent, qualified professional engineer registered in New York State that attests to the results of the evaluation. The assessment must be reviewed, updated and re-certified annually until all upgrades, repairs, or modifications necessary to achieve compliance with all of the standards of subdivision (d) of this section are complete. The evaluation must document the extent to which the drip pad meets each of the design and operating standards of subdivision (d) of this section, except the standards for liners and leak detection systems, specified in paragraph (d)(2) of this section.
- (2) The owner or operator must develop a written plan for upgrading, repairing, and modifying the drip pad to meet the requirements of paragraph (d)(2) of this section, and submit the plan to the commissioner no later than two years before the date that all repairs, upgrades, and modifications are complete. This written plan must describe all changes to be made to the drip pad in sufficient detail to document compliance with all the requirements of subdivision (d) of this section. The plan must be reviewed and certified by an independent qualified professional engineer registered in New York State.
- (3) Upon completion of all repairs and modifications, the owner or operator must submit to the commissioner the as-built drawings for the drip pad, together with a certification by an independent, qualified professional engineer registered in New York State attesting that the drip pad conforms to the drawings.
- (4) If the drip pad is found to be leaking or unfit for use, the owner or operator must comply with the provisions of paragraph (d)(13) of this section or close the drip pad in accordance with subdivision (f) of this section.

(c) Design and installation of new drip pads.

Owners and operators of new drip pads must ensure that the pads are designed, installed, and operated in accordance with one of the following:

- (1) all of the applicable requirements of subdivisions (d) (except subparagraph (d)(1)(iv)), (e) and (f) of this section; or
- (2) all of the applicable requirements of subdivision (d) (except paragraph (d)(2)), (e) and (f) of this section.

(d) Design and operating requirements.

- (1) Drip pads must:
 - (i) be constructed of non-earthen materials, excluding wood and non-structurally supported asphalt;
 - (ii) be sloped to free-drain treated wood drippage, rain and other waters, or solutions of drippage and water or other wastes to the associated collection system;
 - (iii) have a curb or berm around the perimeter;
 - (iv)
 - ('a') have a hydraulic conductivity of less than or equal to 1×10^{-7} centimeters per second, e.g., existing concrete drip pads must be sealed, coated, or covered with a surface material with a hydraulic conductivity of less than or equal to 1×10^{-7} centimeters per second such that the entire surface where drippage occurs or may run across is capable of containing such drippage and mixtures of drippage and precipitation, materials, or other wastes while being routed to an associated collection system. This surface material must be maintained free of cracks and gaps that could adversely affect its hydraulic conductivity, and the material must be chemically compatible with the preservatives that contact the drip pad. The requirements of this provision apply only to existing drip pads and those drip pads for which the owner or operator elects to comply with paragraph (c)(2) instead of paragraph (c)(1) of this section;
 - ('b') the owner or operator must obtain and keep on file at the facility a written assessment of the drip pad, reviewed and certified by an independent, qualified professional engineer registered in New York State that attests to the results of the evaluation. The assessment must be reviewed, updated and recertified annually. The evaluation must document the extent to which the drip pad meets the design and operating standards of this subdivision, except for paragraph (2) of this subdivision.
 - (v) be of sufficient structural strength and thickness to prevent failure due to physical contact, climatic conditions, the stress of installation, and the stress of daily operations, e.g., variable and moving loads such as vehicle traffic, movement of wood, etc.

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Note: DEC will generally consider applicable standards established by professional organizations generally recognized by industry such as the American Concrete Institute (ACI) and the American Society of Testing Materials (ASTM) in judging the structural integrity requirement of this subparagraph.

- (2) If an owner/operator elects to comply with paragraph (c)(1) instead of paragraph (c)(2) of this section, the drip pad must have:
- (i) a synthetic liner installed below the drip pad that is designed, constructed, and installed to prevent leakage from the drip pad into the adjacent subsurface soil or groundwater or surface water at any time during the active life (including the closure period) of the drip pad. The liner must be constructed of materials that will prevent waste from being absorbed into the liner and prevent releases into the adjacent subsurface soil or ground water or surface water during the active life of the facility. The liner must be:
 - ('a') constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the waste or drip pad leakage to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation (including stresses from vehicular traffic on the drip pad);
 - ('b') placed upon a foundation or base capable of providing support to the liner and resistance to pressure gradients above and below the liner to prevent failure of the liner due to settlement, compression or uplift; and
 - ('c') installed to cover all surrounding earth that could come in contact with the waste or leakage; and
 - (ii) a leakage detection system immediately above the liner that is designed, constructed, maintained and operated to detect leakage from the drip pad. The leakage detection system must be:
 - ('a') constructed of materials that are:
 - ('1') chemically resistant to the waste managed in the drip pad and the leakage that might be generated; and
 - ('2') of sufficient strength and thickness to prevent collapse under the pressures exerted by overlaying materials and by any equipment used at the drip pad; and
 - ('b') designed and operated to function without clogging through the scheduled closure of the drip pad; and
 - ('c') designed so that it will detect the failure of the drip pad or the presence of a release of hazardous waste or accumulated liquid at the earliest practicable time; and
 - (iii) a leakage collection system immediately above the liner that is designed, constructed, maintained and operated to collect leakage from the drip pad such that it can be removed from

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below the drip pad. The date, time, and quantity of any leakage collected in this system and removed must be documented in the operating log.

- (3) Drip pads must be maintained such that they remain free of cracks, gaps, corrosion, or other deterioration that could cause hazardous waste to be released from the drip pad.

Note: See paragraph (13) of this subdivision for remedial action required if deterioration or leakage is detected.

- (4) The drip pad and associated collection system must be designed and operated to convey, drain, and collect liquid resulting from drippage or precipitation in order to prevent run-off.
- (5) Unless protected by a structure, as described in paragraph (a)(2) of this section, the owner or operator must design, construct, operate and maintain a run-on control system capable of preventing flow onto the drip pad during peak discharge from at least a 24-hour, 25-year storm, unless the system has sufficient excess capacity to contain any run-on that might enter the system.
- (6) Unless protected by a structure or cover, as described in paragraph (a)(2) of this section, the owner or operator must design, construct, operate and maintain a run-off management system to collect and control at least the water volume resulting from a 24-hour, 25-year storm.
- (7) The drip pad must be evaluated to determine that it meets the requirements of paragraphs (1) through (6) of this subdivision, and the owner or operator must obtain a statement from an independent, qualified professional engineer registered in New York State certifying that the drip pad design meets the requirements of this subdivision.
- (8) Drippage and accumulated precipitation must be removed from the associated collection system as necessary to prevent overflow onto the drip pad.
- (9) The drip pad surface must be cleaned thoroughly in a manner and frequency such that accumulated residues of hazardous waste or other materials are removed, with residues being properly managed as hazardous waste, so as to allow weekly inspections of the entire drip pad surface without interference or hindrance from accumulated residues of hazardous waste or other materials on the drip pad. The owner or operator must document the date and time of each cleaning and the cleaning procedure used in the facility's operating log.
- (10) Drip pads must be operated and maintained in a manner to minimize tracking of hazardous waste or hazardous waste constituents off the drip pad as a result of activities by personnel or equipment.
- (11) After being removed from the treatment vessel, treated wood from pressure and non- pressure processes must be held on the drip pad until drippage has ceased. The owner or operator must maintain records sufficient to document that all treated wood is held on the pad following treatment in accordance with this requirement.
- (12) Collection and holding units associated with run-on and run-off control systems must be emptied or otherwise managed as soon as possible after storms to maintain design capacity of the system.

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- (13) Throughout the active life of the drip pad, if the owner or operator detects a condition that may have caused or has caused a release of hazardous waste, the condition must be repaired within a reasonably prompt period of time following discovery, in accordance with the following procedures:
- (i) Upon detection of a condition that may have caused or has caused a release of hazardous waste (e.g., upon detection of leakage by the leak detection system), the owner or operator must:
 - ('a') enter a record of the discovery in the facility operating log;
 - ('b') immediately remove the portion of the drip pad affected by the condition from service;
 - ('c') determine what steps must be taken to repair the drip pad, remove any leakage from below the drip pad, and establish a schedule for accomplishing the clean up and repairs;
 - ('d') within 24 hours after discovery of the condition, notify the commissioner of the condition and, within 10 working days, provide a written notice to the commissioner with a description of the steps that will be taken to repair the drip pad, and clean up any leakage, and the schedule for accomplishing this work.
 - (ii) The commissioner will review the information submitted, make a determination regarding whether the pad must be removed from service completely or partially until repairs and clean up are complete, and notify in writing the owner or operator of the determination and the underlying rationale.
 - (iii) Upon completing all repairs and clean up, the owner or operator must notify the commissioner in writing and provide a certification, signed by an independent qualified, professional engineer registered in New York State, that the repairs and clean up have been completed according to the written plan submitted in accordance with clause (i)(‘d’) of this paragraph.
- (14) The owner or operator must maintain, as part of the facility operating log, documentation of past operating and waste handling practices. This must include identification of preservative formulations used in the past, a description of drippage management practices, and a description of treated wood storage and handling practices.

(e) **Inspections.**

- (1) During construction or installation, liners and cover systems (e.g., membranes, sheets, or coatings) must be inspected for uniformity, damage, and imperfections (e.g., holes, cracks, thin spots, or foreign materials). Immediately after construction or installation, liners must be inspected and certified as meeting the requirements of subdivision (d) of this section by an independent qualified, professional engineer registered in New York State. The certification must be maintained at the facility as part of the facility operating record. After installation, liners and covers must be inspected to ensure tight seams and joints and the absence of tears, punctures, or blisters.
- (2) While a drip pad is in operation, it must be inspected weekly and after storms to detect evidence of

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any of the following:

- (i) Deterioration, malfunctions or improper operation of run-on and run-off control systems.
- (ii) The presence of leakage in and proper functioning of leakage detection system.
- (iii) Deterioration or cracking of the drip pad surface.

Note: See paragraph (d)(13) of this section for remedial action required if deterioration or leakage is detected.

(f) Closure.

- (1) At closure, the owner or operator must remove or decontaminate all waste residues, contaminated containment system components (pad, liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leakage, and manage them as hazardous waste.
- (2) If, after removing or decontaminating all residues and making all reasonable efforts to effect removal or decontamination of contaminated components, subsoils, structures, and equipment as required in paragraph (1) of this subdivision, the owner or operator finds that not all contaminated subsoils can be practically removed or decontaminated, the owner or operator must close the facility and perform post-closure care in accordance with closure and post-closure care requirements that apply to landfills (see section 373-3.14(d) of this Subpart). For permitted units, the requirement to have a permit continues throughout the post-closure period.
- (3)
 - (i) The owner or operator of an existing drip pad, as defined in subdivision (a) of this section, that does not comply with the liner requirements of subparagraph (d)(2)(i) of this section must:
 - ('a') include in the closure plan for the drip pad under section 373-3.7(c) of this Subpart, both a plan for complying with paragraph (1) of this subdivision and a contingent plan for complying with paragraph (2) of this subdivision in case not all contaminated subsoils can be practicably removed at closure; and
 - ('b') prepare a contingent post-closure plan under section 373-3.7(h) of this Subpart for complying with paragraph (2) of this subdivision in case not all contaminated subsoils can be practicably removed at closure.
 - (ii) The cost estimates calculated under sections 373-3.7(c) and 373-3.8(e) of this Subpart for closure and post-closure care of a drip pad subject to this paragraph must include the cost of complying with the contingent closure plan and the contingent post-closure plan, but are not required to include the cost of expected closure under paragraph (1) of this subdivision.

Sections 373-3.24 – 373-3.26 Reserved

Section 373-3.27 Air emission standards for process vents.

(a) Applicability.

- (1) The regulations in this section apply only to owners and operators of facilities that treat, store, or dispose of hazardous wastes (except as provided in section 373-3.1(a) of this Subpart).
- (2) Except for paragraphs (e)(4) and (5) of this section, this section applies to process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations that manage hazardous wastes with organic concentrations of at least 10 ppmw, if these operations are conducted in one of the following:
 - (i) a unit that is subject to the permitting requirements of Subpart 373-1 of this Part; or
 - (ii) a unit (including a hazardous waste recycling unit) that is not exempt from permitting under the provisions of section 372.2(a)(8)(ii) of this Title, (i.e., a hazardous waste recycling unit that is not a 90-day tank or container) and that is located at a hazardous waste management facility otherwise subject to the permitting requirements of Subpart 373-1 of this Part; or
 - (iii) a unit that is exempt from permitting under the provisions of section 372.2(a)(8)(ii) of this Title (i.e., a 90-day tank or container) and is not a recycling unit under the requirements of section 371.1(g) of this Title.

Note: The requirements of subdivisions (c) through (g) of this section apply to process vents on hazardous waste recycling units previously exempt under section 371.1(g)(3)(i) of this Title. Other exemptions under sections 371.1(e) and 373-3.1(a) of this Title are not affected by these requirements.

- (3) The requirements of this section do not apply to the process vents at a facility where the facility owner or operator certifies that all of the process vents that would otherwise be subject to this section are equipped with and operating air emission controls in accordance with the process vent requirements of an applicable Clean Air Act regulation codified under 40 CFR part 60, part 61, or part 63, as incorporated by reference in section 370.1(e) of this Title. The documentation of compliance under Federal regulations at 40 CFR part 60, part 61, or part 63 as incorporated by reference in section 370.1(e) of this Title, shall be kept with, or made readily available with, the facility operating record.

(b) Definitions.

As used in this section, all terms shall have the meaning given them in section 373-2.27(b) of this Part, the ECL and Parts 370 through 374 of this Title.

(c) Standards: process vents.

- (1) The owner or operator of a facility with process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction or air stream stripping operations managing hazardous wastes with organic concentrations at least 10 ppmw shall either:

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- (i) reduce total organic emissions from all affected process vents at the facility below 1.4 kg/h (3 lb/h) and 2.8 Mg/yr (3.1 tons/yr); or
 - (ii) reduce, by use of a control device, total organic emissions from all affected process vents at the facility by 95 weight percent.
- (2) If the owner or operator installs a closed-vent system and control device to comply with the provisions of paragraph (1) of this subdivision, the close-vent system and control device must meet the requirements of subdivision (d) of this section.
- (3) Determinations of vent emissions and emission reductions or total organic compound concentrations achieved by add-on control devices may be based on engineering calculations or performance tests. If performance tests are used to determine vent emissions, emission reductions, or total organic compound concentrations achieved by add-on control devices, the performance tests must conform with the requirements of paragraph (e)(3) of this section.
- (4) When an owner or operator and the commissioner do not agree on determinations of vent emissions and/or emission reductions or total organic compound concentrations achieved by add-on control devices based on engineering calculations, the test methods in paragraph (e)(3) of this section shall be used to resolve the disagreement.

(d) Standards: closed-vent systems and control devices.

(1)

(i) Owners or operators of closed-vent systems and control devices used to comply with provisions of this Subpart shall comply with the provisions of this subdivision.

(ii)

('a') The owner or operator of an existing facility who cannot install a closed-vent system and control device to comply with the provisions of this section on the effective date that the facility becomes subject to the provisions of this section must prepare an implementation schedule that includes dates by which the closed-vent system and control device will be installed and in operation. The controls must be installed as soon as possible, but the implementation schedule may allow up to 30 months after the effective date that the facility becomes subject to this section for installation and startup.

('b') Any unit that begins operation after December 21, 1990, and is subject to the provisions of this section when operation begins, must comply with the rules immediately (i.e., must have control devices installed and operating on startup of the affected unit); the 30-month implementation schedule does not apply.

('c')

('1') If an existing facility is already subject to 40 CFR 264.1033(a)(2)(iii) at the time a State statutory or regulatory amendment renders the facility subject to this section,

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the requirements established under 40 CFR 264.1033(a)(2)(iii), as incorporated by reference in section 370.1(e) of this Title, will apply.

(2) If an existing facility is not subject to 40 CFR 264.1033(a)(2)(iii) at the time a State statutory or regulatory amendment renders the facility subject to this section, the owner or operator of the facility in existence on the effective date of the State statutory or regulatory amendment that renders the facility subject to this section shall comply with all requirements of this section as soon as practicable but no later than 30 months after the State amendment's effective date. When control equipment required by this section cannot be installed and begin operation by the effective date of the amendment, the facility owner or operator shall prepare an implementation schedule that includes the following information: specific calendar dates for award of contracts or issuance of purchase orders for the control equipment, initiation of on-site installation of the control equipment, completion of the control equipment installation, and performance of any testing to demonstrate that the installed equipment meets the applicable standards of this section. The owner or operator shall enter the implementation schedule in the operating record or in a permanent, readily available file located at the facility.

(d) Owners and operators of facilities and units that become newly subject to the requirements of this section after December 8, 1997, due to an action other than those described in clause ('c') of this subparagraph must comply with all applicable requirements immediately (i.e., must have control devices installed and operating on the date the facility or unit becomes subject to this section; the 30-month implementation schedule does not apply).

(2) A control device involving vapor recovery (e.g., a condenser or adsorber) shall be designed and operated to recover the organic vapors vented to it with an efficiency of 95 weight percent or greater unless the total organic emission limits of subparagraph (c)(1)(i) of this section for all affected process vents can be attained at an efficiency less than 95 weight percent.

(3) An enclosed combustion device (e.g., a vapor incinerator, boiler, or process heater) shall be designed and operated to reduce the organic emissions vented to it by 95 weight percent or greater; to achieve a total organic compound concentration of 20 ppmv, expressed as the sum of the actual compounds, not carbon equivalents, on a dry basis corrected to three percent oxygen; or to provide a minimum residence time of 0.50 seconds at a minimum temperature of 760°C. If a boiler or process heater is used as the control device, then the vent stream shall be introduced into the flame combustion zone of the boiler or process heater.

(4)

(i) A flare shall be designed for and operated with no visible emissions as determined by the methods specified in subparagraph (5)(i) of this subdivision, except for periods not to exceed a total of five minutes during any two consecutive hours.

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- (ii) A flare shall be operated with a flame present at all times, as determined by the methods specified in clause (6)(ii)(‘c’) of this subdivision.
- (iii) A flare shall be used only if the net heating value of the gas being combusted is 11.2 MJ/scm (300 Btu/scf) or greater, if the flare is steam-assisted or air-assisted; or if the net heating value of the gas being combusted is 7.45 MJ/scm (200 Btu/scf) or greater if the flare is nonassisted. The net heating value of the gas being combusted shall be determined by the methods specified in subparagraph (5)(ii) of this subdivision.
- (iv)
 - (‘a’) A steam-assisted or nonassisted flare shall be designed for and operated with an exit velocity, as determined by the methods specified in subparagraph (5)(iii) of this subdivision, of less than 18.3 m/s (60 ft/s), except as provided in clauses (‘b’) and (‘c’) of this subparagraph.
 - (‘b’) A steam-assisted or nonassisted flare designed for and operated with an exit velocity, as determined by the methods specified in subparagraph (5)(iii) of this subdivision, equal to or greater than 18.3 m/s (60 ft/s) but less than 122 m/s (400 ft/s) is allowed if the net heating value of the gas being combusted is greater than 37.3 MJ/scm (1,000 Btu/scf).
 - (‘c’) A steam-assisted or nonassisted flare designed for and operated with an exit velocity, as determined by the methods specified in subparagraph (5)(iii) of this subdivision, less than the velocity, V_{max} , as determined by the method specified in subparagraph (5)(iv) of this subdivision, and less than 122 m/s (400 ft/s) is allowed.
- (v) An air-assisted flare shall be designed and operated with an exit velocity less than the velocity, V_{max} , as determined by the method specified in subparagraph (5)(v) of this subdivision.
- (vi) A flare used to comply with this subdivision shall be steam-assisted, air-assisted, or nonassisted.

(5)

- (i) Reference Method 22 in 40 CFR part 60 (see section 370.1(e) of this Title) shall be used to determine the compliance of a flare with the visible emission provisions of this section. The observation period is two hours and shall be used according to Method 22.
- (ii) The net heating value of the gas being combusted in a flare shall be calculated using the following equation:

$$H_T = K \times (\text{summation } (i=1 \text{ to } n)(C_i \times H_i))$$

where:

H_T = Net heating value of the sample, MJ/scm; where the net enthalpy per mole of offgas is based on combustion at 25°C and 760 mm Hg, but the standard temperature for determining the volume corresponding to 1 mol is 20°C;

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K = Constant, 1.74×10^{-7} (1/ppm) (g mol/scm) (MJ/kcal) where standard temperature for (g mol/scm) is 20°C;

C_i = Concentration of sample component i in ppm on a wet basis, as measured for organics by Reference Method 18 in 40 CFR part 60 (see section 370.1(e) of this Title) and measured for hydrogen and carbon monoxide by ASTM D 1946-82 (incorporated by reference as specified in section 370.1(e) of this Title); and

H_i = Net heat of combustion of sample component i , kcal/g mol at 25°C and 760 mm Hg. The heats of combustion may be determined using ASTM D 2382-83 (incorporated by reference as specified in section 370.1(e) of this Title) if published values are not available or cannot be calculated.

- (iii) The actual exit velocity of a flare shall be determined by dividing the volumetric flow rate (in units of standard temperature and pressure), as determined by Reference Methods 2, 2A, 2C, or 2D in 40 CFR part 60 (see section 370.1(e) of this Title) as appropriate, by the unobstructed (free) cross-sectional area of the flare tip.
- (iv) The maximum allowed velocity in m/s, V_{max} , for a flare complying with clause (4)(iv)(‘c’) of this subdivision shall be determined by the following equation:

$$\text{Log}_{10}(V_{max}) = (H_T + 28.8)/31.7$$

where:

H_T = The net heating value as determined in subparagraph (ii) of this paragraph.

28.8 = Constant.

31.7 = Constant.

- (v) The maximum allowed velocity in m/s, V_{max} , for an air-assisted flare shall be determined by the following equation:

$$V_{max} = 8.706 + 0.7084 (H_T)$$

where:

8.706 = Constant.

0.7084 = Constant.

H_T = The net heating value as determined in subparagraph (ii) of this paragraph.

- (6) The owner or operator shall monitor and inspect each control device required to comply with this subdivision to ensure proper operation and maintenance of the control device by implementing the following requirements:
 - (i) Install, calibrate, maintain, and operate according to the manufacturer's specifications a flow indicator that provides a record of vent stream flow from each affected process vent to the control device at least once every hour. The flow indicator shall be installed in the vent stream

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at the nearest feasible point to the control device inlet, but before being combined with other vent streams.

- (ii) Install, calibrate, maintain, and operate according to the manufacturer's specifications a device to continuously monitor control device operation as specified below:
 - ('a') For a thermal vapor incinerator, a temperature monitoring device equipped with a continuous recorder. The device shall have an accuracy of ± 1 percent of the temperature being monitored in degrees C or $\pm 0.5^{\circ}\text{C}$, whichever is greater. The temperature sensor shall be installed at a location in the combustion chamber downstream of the combustion zone.
 - ('b') For a catalytic vapor incinerator, a temperature monitoring device equipped with a continuous recorder. The device shall be capable of monitoring temperature at two locations and have an accuracy of ± 1 percent of the temperature being monitored in degrees Celsius or $\pm 0.5^{\circ}\text{C}$, whichever is greater. One temperature sensor shall be installed in the vent stream at the nearest feasible point to the catalyst bed inlet and a second temperature sensor shall be installed in the vent stream at the nearest feasible point to the catalyst bed outlet.
 - ('c') For a flare, a heat sensing monitoring device equipped with a continuous recorder that indicates the continuous ignition of the pilot flame.
 - ('d') For a boiler or process heater having a design input heat capacity less than 44 MW, a temperature monitoring device equipped with a continuous recorder. The device shall have an accuracy of ± 1 percent of the temperature being monitored in degrees Celsius or $\pm 0.5^{\circ}\text{C}$, whichever is greater. The temperature sensor shall be installed at a location in the furnace downstream of the combustion zone.
 - ('e') For a boiler or process heater having a design heat input capacity greater than or equal to 44 MW, a monitoring device equipped with a continuous recorder to measure a parameter(s) that indicates good combustion operating practices are being used.
 - ('f') For a condenser, either:
 - ('1') a monitoring device equipped with a continuous recorder to measure the concentration level of the organic compounds in the exhaust vent stream from the condenser; or
 - ('2') a temperature monitoring device equipped with a continuous recorder. The device shall be capable of monitoring temperature with an accuracy of ± 1 percent of the temperature being monitored in degrees Celsius (degrees C) or $\pm 0.5^{\circ}\text{C}$, whichever is greater. The temperature sensor shall be installed at a location in the exhaust vent stream from the condenser exit (i.e., product side).
 - ('g') For a carbon adsorption system such as a fixed-bed carbon adsorber that regenerates the carbon bed directly in the control device, either:

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- (1') a monitoring device equipped with a continuous recorder to measure the concentration level of the organic compounds in the exhaust vent stream from the carbon bed; or
 - (2') a monitoring device equipped with a continuous recorder, to measure a parameter that indicates the carbon bed is regenerated on a regular, predetermined time cycle.
- (iii) Inspect the readings from each monitoring device required by subparagraphs (i) and (ii) of this paragraph at least once each operating day to check control device operation and, if necessary, immediately implement the corrective measures necessary to ensure the control device operates in compliance with the requirements of this subdivision.
- (7) An owner or operator using a carbon adsorption system such as a fixed-bed carbon adsorber that regenerates the carbon bed directly onsite in the control device, shall replace the existing carbon in the control device with fresh carbon at a regular, predetermined time interval that is no longer than the carbon service life established as a requirement of subclause (f)(2)(iv)(‘c’)(‘6’) of this section.
- (8) An owner or operator using a carbon adsorption system such as a carbon canister that does not regenerate the carbon bed directly onsite in the control device shall replace the existing carbon in the control device with fresh carbon on a regular basis by using one of the following procedures:
- (i) Monitor the concentration level of the organic compounds in the exhaust vent stream from the carbon adsorption system on a regular schedule and replace the existing carbon with fresh carbon immediately when carbon breakthrough is indicated. The monitoring frequency shall be daily or at an interval no greater than 20 percent of the time required to consume the total carbon working capacity established as a requirement of subclause (f)(2)(iv)(‘c’)(‘7’) of this section, whichever is longer.
 - (ii) Replace the existing carbon with fresh carbon at a regular, predetermined time interval that is less than the design carbon replacement interval established as a requirement of subclause (f)(2)(iv)(‘c’)(‘7’) of this section.
- (9) An owner or operator of an affected facility seeking to comply with the provisions of this Subpart by using a control device other than a thermal vapor incinerator, catalytic vapor incinerator, flare, boiler, process heater, condenser, or carbon adsorption system is required to develop documentation including sufficient information to describe the control device operation and identify the process parameter or parameters that indicate proper operation and maintenance of the control device.
- (10) A closed-vent system shall meet either of the following design requirements:
- (i) A closed-vent system shall be designed to operate with no detectable emissions, as indicated by an instrument reading of less than 500 ppmv above background as determined by the procedure in paragraph (e)(2) of this section, and by visual inspections.
 - (ii) A closed-vent system shall be designed to operate at a pressure below atmospheric pressure. The system shall be equipped with at least one pressure gauge or other pressure measurement

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device that can be read from a readily accessible location to verify that negative pressure is being maintained in the closed-vent system when the control device is operating.

- (11) The owner or operator shall monitor and inspect each closed-vent system required to comply with this section to ensure proper operation and maintenance of the closed-vent system by implementing the following requirements:
- (i) Each closed-vent system that is used to comply with subparagraph (10)(i) of this subdivision shall be inspected and monitored in accordance with the following requirements:
 - ('a') An initial leak detection monitoring of the closed-vent system shall be conducted by the owner or operator on or before the date that the system becomes subject to this subdivision. The owner or operator shall monitor the closed-vent system components and connections using the procedures specified in paragraph (e)(2) of this section to demonstrate that the closed-vent system operates with no detectable emissions, as indicated by an instrument reading of less than 500 ppmv above background.
 - ('b') After initial leak detection monitoring required in clause ('a') of this subparagraph, the owner or operator shall inspect and monitor the closed-vent system as follows:
 - ('1') Closed-vent system joints, seams, or other connections that are permanently or semi-permanently sealed (e.g., a welded joint between two sections of hard piping or a bolted and gasketed ducting flange) shall be visually inspected at least once per year to check for defects that could result in air pollutant emissions. The owner or operator shall monitor a component or connection using the procedures specified in paragraph (e)(2) of this section to demonstrate that it operates with no detectable emissions following any time the component is repaired or replaced (e.g., a section of damaged hard piping is replaced with new hard piping) or the connection is unsealed (e.g., a flange is unbolted).
 - ('2') Closed-vent system components or connections other than those specified in subclause ('1') of this clause shall be monitored annually and at other times as requested by the commissioner, except as provided for in paragraph (14) of this subdivision, using the procedures specified in paragraph (e)(2) of this section to demonstrate that the components or connections operate with no detectable emissions.
 - ('c') In the event that a defect or leak is detected, the owner or operator shall repair the defect or leak in accordance with the requirements of subparagraph (iii) of this paragraph.
 - ('d') The owner or operator shall maintain a record of the inspection and monitoring in accordance with the requirements specified in subdivision (f) of this section.
 - (ii) Each closed-vent system that is used to comply with subparagraph (10)(ii) of this subdivision shall be inspected and monitored in accordance with the following requirements:

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- (a) The closed-vent system shall be visually inspected by the owner or operator to check for defects that could result in air pollutant emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in ductwork or piping or loose connections.
 - (b) The owner or operator shall perform an initial inspection of the closed-vent system on or before the date that the system becomes subject to this section. Thereafter, the owner or operator shall perform the inspections at least once every year.
 - (c) In the event that a defect or leak is detected, the owner or operator shall repair the defect in accordance with the requirements of subparagraph (iii) of this paragraph.
 - (d) The owner or operator shall maintain a record of the inspection and monitoring in accordance with the requirements specified in subdivision (f) of this section.
- (iii) The owner or operator shall repair all detected defects as follows:
- (a) Detectable emissions, as indicated by visual inspection, or by an instrument reading greater than 500 ppmv above background, shall be controlled as soon as practicable, but not later than 15 calendar days after the emission is detected, except as provided for in clause ('c') of this subparagraph.
 - (b) A first attempt at repair shall be made no later than five calendar days after the emission is detected.
 - (c) Delay of repair of a closed-vent system for which leaks have been detected is allowed if the repair is technically infeasible without a process unit shutdown, or if the owner or operator determines that emissions resulting from immediate repair would be greater than the fugitive emissions likely to result from delay of repair. Repair of such equipment shall be completed by the end of the next process unit shutdown.
 - (d) The owner or operator shall maintain a record of the defect repair in accordance with the requirements specified in subdivision (f) of this section.
- (12) Closed-vent systems and control devices used to comply with provisions of this section shall be operated at all times when emissions may be vented to them.
- (13) The owner or operator using a carbon adsorption system to control air pollutant emissions shall document that all carbon that is a hazardous waste and that is removed from the control device is managed in one of the following manners, regardless of the average volatile organic concentration of the carbon:
- (i) Regenerated or reactivated in a thermal treatment unit that meets one of the following:
 - (a) The owner or operator of the unit has been issued a final permit under Subpart 373-1 of this Part which implements the requirements of section 373-2.24 of this Part or for a unit not located in New York State, under authority from 40 CFR part 270 which implements the requirements of 40 CFR 264 subpart X, or equivalent authority.

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- (b') The unit is equipped with and operating air emission controls in accordance with the applicable requirements of either this section and section 373-3.29 of this Subpart or sections 373-2.27 and 373-2.29 of this Part.
 - (c') The unit is equipped with and operating air emission controls in accordance with a national emission standard for hazardous air pollutants under 40 CFR part 61 or 40 CFR part 63 as incorporated by reference in section 370.1(e) of this Title.
 - (ii) Incinerated in a hazardous waste incinerator for which the owner or operator either:
 - (a') has been issued a final permit under Subpart 373-1 of this Part which implements the requirements of section 373-2.15 of this Part or for a unit not located in New York State, under authority from 40 CFR part 270 which implements the requirements of 40 CFR 264 subpart X, or equivalent authority; or
 - (b') has designed and operates the incinerator in accordance with the interim status requirements of section 373-3.15 of this Subpart.
 - (iii) Burned in a boiler or industrial furnace for which the owner or operator either:
 - (a') has been issued a final permit under Subpart 373-1 of this Part which implements the requirements of section 374-1.8 of this Title or for a unit not located in New York State, under authority from 40 CFR part 270 which implements the requirements of 40 CFR 264 subpart X, or equivalent authority; or
 - (b') has designed and operates the boiler or industrial furnace in accordance with the interim status requirements of section 374-1.8 of this Title.
- (14) Any components of a closed-vent system that are designated, as described in subparagraph (f)(3)(ix) of this section, as unsafe to monitor are exempt from the requirements of subclause (11)(i)(b')(2') of this subdivision if:
- (i) the owner or operator of the closed-vent system determines that the components of the closed-vent system are unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with subclause (11)(i)(b')(2') of this subdivision; and
 - (ii) the owner or operator of the closed-vent system adheres to a written plan that requires monitoring the closed-vent system components using the procedure specified in subclause (11)(i)(b')(2') of this subdivision as frequently as practicable during safe-to-monitor times.

(e) Test methods and procedures.

- (1) Each owner or operator subject to the provisions of this section shall comply with the test methods and procedures requirements provided in this subdivision.
- (2) When a closed-vent system is tested for compliance with no detectable emissions, as required in paragraph (d)(11) of this section, the test shall comply with the following requirements:

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- (i) Monitoring shall comply with Reference Method 21 in 40 CFR part 60 (see section 370.1(e) of this Part).
 - (ii) The detection instrument shall meet the performance criteria of Reference Method 21.
 - (iii) The instrument shall be calibrated before use on each day of its use by the procedures specified in Reference Method 21.
 - (iv) Calibration gases shall be:
 - ('a') zero air (less than 10 ppm of hydrocarbon in air);
 - ('b') a mixture of methane or n-hexane and air at a concentration of approximately, but less than, 10,000 ppm methane or n-hexane.
 - (v) The background level shall be determined as set forth in Reference Method 21.
 - (vi) The instrument probe shall be traversed around all potential leak interfaces as close to the interface as possible as described in Reference Method 21.
 - (vii) The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with 500 ppm for determining compliance.
- (3) Performance tests to determine compliance with paragraph (c)(1) of this section and with the total organic compound concentration limit of paragraph (d)(3) of this section shall comply with the following:
- (i) performance tests to determine total organic compound concentrations and mass flow rates entering and exiting control devices shall be conducted and data reduced in accordance with the following reference methods and calculation procedures:
 - ('a') Method 2 in 40 CFR part 60 (see section 370.1(e) of this Title) for velocity and volumetric flow rate.
 - ('b') Method 18 or Method 25A in 40 CFR part 60 (see section 370.1(e) of this Title) for organic content. If Method 25A is used, the organic HAP used as the calibration gas must be the single organic HAP representing the largest percent by volume of the emissions. The use of Method 25A is acceptable if the response from the high-level calibration gas is at least 20 times the standard deviation of the response from the zero calibration gas when the instrument is zeroed on the most sensitive scale.
 - ('c') Each performance test shall consist of three separate runs; each run conducted for at least one hour under the conditions that exist when the hazardous waste management unit is operating at the highest load or capacity level reasonably expected to occur. For the purpose of determining total organic compound concentrations and mass flow rates, the average of results of all runs shall apply. The average shall be computed on a time-weighted basis.

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('d') Total organic mass flow rates shall be determined by the following equation:

('1') For sources utilizing Method 18.

$$E_h = Q_{2sd} \times (\text{summation } \{i=1 \text{ to } n\}(C_i MW_i)) \times (0.0416) \times (10^{-6})$$

where:

E_h = Total organic mass flow rate, kg/h;

Q_{2sd} = Volumetric flow rate of gases entering or exiting control device, as determined by Method 2, dscm/h;

n = Number of organic compounds in the vent gas;

C_i = Organic concentration in ppm, dry basis, of compound i in the vent gas, as determined by Method 18;

MW_i = Molecular weight of organic compound i in the vent gas, kg/kg-mol;

0.0416 = Conversion factor for molar volume, kg-mol/m³ (@ 293 K and 760 mm Hg);

10^{-6} = Conversion from ppm.

('2') For sources utilizing Method 25A.

$$E_h = (Q)(C)(MW)(0.0416)(10^{-6})$$

where:

E_h = Total organic mass flow rate, kg/h;

Q = Volumetric flow rate of gases entering or exiting control device as determined by Method 2, dscm/h;

C = Organic concentration in ppm, dry basis, as determined by Method 25A;

MW = Molecular weight of propane, 44;

0.0416 = Conversion factor for molar volume, kg-mol/m³ (at 293 K and 760 mm Hg);

10^{-6} = Conversion from ppm.

('e') The annual total organic emission rate shall be determined by the following equation:

$$E_A = (E_h)(H)$$

where:

E_A = Total organic mass emission rate, kg/y;

E_h = Total organic mass flow rate for the process vent, kg/h;

H = Total annual hours of operations for the affected unit, h.

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- (f) Total organic emissions from all affected process vents at the facility shall be determined by summing the hourly total organic mass emission rates (E_h , as determined in clause ('d') of this subparagraph) and by summing the annual total organic mass emission rates (E_A , as determined in clause ('e') of this subparagraph) for all affected vents at the facility.
 - (ii) The owner or operator shall record such process information as may be necessary to determine the conditions of the performance tests. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test.
 - (iii) The owner or operator of an affected facility shall provide, or cause to be provided, performance testing facilities as follows:
 - ('a') sampling ports adequate for the test methods specified in subparagraph (i) of this paragraph;
 - ('b') safe sampling platform(s);
 - ('c') safe access to sampling platform(s); and
 - ('d') utilities for sampling and testing equipment.
 - (iv) For the purpose of making compliance determinations, the time-weighted average of the results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the owner or operator's control, compliance may, upon the commissioner's approval, be determined using the average of the results of the two other runs.
- (4) To show that a process vent associated with a hazardous waste distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operation is not subject to the requirements of this section, the owner or operator must make an initial determination that the time-weighted, annual average total organic concentration of the waste managed by the waste management unit is less than 10 ppmw using one of the following two methods:
- (i) Direct measurement of the organic concentration of the waste using the following procedures:
 - ('a') The owner or operator must take a minimum of four grab samples of waste for each waste stream managed in the affected unit under process conditions expected to cause the maximum waste organic concentration.
 - ('b') For waste generated onsite, the grab samples must be collected at a point before the waste is exposed to the atmosphere, such as in an enclosed pipe or other closed system that is used to transfer the waste after generation to the first affected distillation fractionation, thin-film evaporation, solvent extraction, or air or steam stripping

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operation. For waste generated offsite, the grab samples must be collected at the inlet to the first waste management unit that receives the waste, provided the waste has been transferred to the facility in a closed system such as a tank truck and the waste is not diluted or mixed with other waste.

(c) Each sample shall be analyzed and the total organic concentration of the sample shall be computed using Method 9060A of SW-846 (incorporated by reference under section 370.1(e) of this Title); or analyzed for its individual organic constituents.

(d) The arithmetic mean of the results of the analyses of the four samples shall apply for each waste stream managed in the unit in determining the time-weighted, annual average total organic concentration of the waste. The time-weighted average is to be calculated using the annual quantity of each waste stream processed and the mean organic concentration of each waste stream managed in the unit.

(ii) Using knowledge of the waste to determine that its total organic concentration is less than 10 ppmw. Documentation of the waste determination is required. Examples of documentation that shall be used to support a determination under this provision include production process information documenting that no organic compounds are used, information that the waste is generated by a process that is identical to a process at the same or another facility that has previously been demonstrated by direct measurement to generate a waste stream having a total organic content less than 10 ppmw, or prior speciation analysis results on the same waste stream where it can also be documented that no process changes have occurred since that analysis that could affect the waste total organic concentration.

(5) The determination that distillation fractionation, thin-film evaporation, solvent extraction, or air or stream stripping operations manage hazardous wastes with time-weighted annual average total organic concentrations less than 10 ppmw shall be made as follows:

(i) by the effective date that the facility becomes subject to the provisions of this section or by the date when the waste is first managed in a waste management unit, whichever is later; and

(ii) for continuously generated waste, annually; or

(iii) whenever there is a change in the waste being managed or a change in the process that generates or treats the waste.

(6) When an owner or operator and the department do not agree on whether a distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operation manages a hazardous waste with organic concentrations of at least 10 ppmw based on knowledge of the waste, the dispute may be resolved using direct measurement as specified at subparagraph (4)(i) of this subdivision.

(f) Recordkeeping requirements.

(1)

(i) Each owner or operator subject to the provisions of this section shall comply with the

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recordkeeping requirements of this subdivision.

- (ii) An owner or operator of more than one hazardous waste management unit subject to the provisions of this section may comply with the recordkeeping requirements for these hazardous waste management units in one recordkeeping system if the system identifies each record by each hazardous waste management unit.
- (2) Owners and operators must record the following information in the facility operating record:
- (i) For facilities that comply with the provisions of subparagraph (d)(1)(ii) of this section, an implementation schedule that includes dates by which the closed-vent system and control device will be installed and in operation. The schedule must also include a rationale of why the installation cannot be completed at an earlier date. The implementation schedule must be in the facility operating record by the effective date that the facility becomes subject to the provisions of this section.
 - (ii) Up-to-date documentation of compliance with the process vent standards in subdivision (c) of this section, including:
 - ('a') information and data identifying all affected process vents, annual throughput and operating hours of each affected unit, estimated emission rates for each affected vent and for the overall facility (i.e., the total emissions for all affected vents at the facility), and the approximate location within the facility of each affected unit (e.g., identify the hazardous waste management units on a facility plot plan); and
 - ('b') information and data supporting determinations of vent emissions and emission reductions achieved by add-on control devices based on engineering calculations or source tests. For the purpose of determining compliance, determinations of vent emissions must be made using operating parameter values (e.g., temperature, flow rates or vent stream organic compounds and concentrations) that represent the conditions that result in maximum organic emissions, such as when the waste management unit is operating at the highest load or capacity level reasonably expected to occur. If the owner or operator takes any action (e.g., managing a waste of different composition or increasing operating hours of affected waste management units) that would result in an increase in total organic emissions from affected process vents at the facility, then a new determination is required.
 - (iii) Where an owner or operator chooses to use test data to determine the organic removal efficiency or total organic compound concentration achieved by the control device, a performance test plan. The test plan must include:
 - ('a') a description of how it is determined that the planned test is going to be conducted when the hazardous waste management unit is operating at the highest load or capacity level reasonably expected to occur. This shall include the estimated or design flow rate and organic content of each vent stream and define the acceptable operating ranges of key process and control device parameters during the test program;

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- (b) a detailed engineering description of the closed-vent system and control device including:
 - (1) manufacturer's name and model number of control device;
 - (2) type of control device;
 - (3) dimensions of the control device;
 - (4) capacity; and
 - (5) construction materials;
- (c) a detailed description of sampling and monitoring procedures, including sampling and monitoring locations, the equipment to be used, sampling and monitoring frequency, and planned analytical procedures for sample analysis.
- (iv) Documentation of compliance with subdivision (d) of this section shall include the following information:
 - (a) A list of all information references and sources used in preparing the documentation.
 - (b) Records, including the dates, of each compliance test required by paragraph (d)(10) of this section.
 - (c) If engineering calculations are used, a design analysis, specifications, drawings, schematics, and piping and instrumentation diagrams based on the appropriate sections of "APTI Course 415: Control of Gaseous Emissions" (incorporated by reference as specified in section 370.1(e) of this Title) or other engineering texts acceptable to the commissioner that present basic control device design information. Documentation provided by the control device manufacturer or vendor that describes the control device design in accordance with subclauses ('1') through ('7') of this clause may be used to comply with this requirement. The design analysis shall address the vent stream characteristics and control device operation parameters as specified in this subparagraph.
 - (1) For a thermal vapor incinerator, the design analysis shall consider the vent stream composition, constituent concentrations, and flow rate. The design analysis shall also establish the design minimum and average temperature in the combustion zone and the combustion zone residence time.
 - (2) For a catalytic vapor incinerator, the design analysis shall consider the vent stream composition, constituent concentrations, and flow rate. The design analysis shall also establish the design minimum and average temperatures across the catalyst bed inlet and outlet.
 - (3) For a boiler or process heater, the design analysis shall consider the vent stream composition, constituent concentrations, and flow rate. The design analysis shall

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also establish the design minimum and average flame zone temperatures, combustion zone residence time, and description of method and location where the vent stream is introduced into the combustion zone.

- (4') For a flare, the design analysis shall consider the vent stream composition, constituent concentrations, and flow rate. The design analysis shall also consider the requirements specified in paragraph (d)(4) of this section.
 - (5') For a condenser, the design analysis shall consider the vent stream composition, constituent concentrations, flow rate, relative humidity, and temperature. The design analysis shall also establish the design outlet organic compound concentration level, design average temperature of the condenser exhaust vent stream, and design average temperatures of the coolant fluid at the condenser inlet and outlet.
 - (6') For a carbon adsorption system such as a fixed-bed adsorber that regenerates the carbon bed directly onsite in the control device, the design analysis shall consider the vent stream composition, constituent concentrations, flow rate, relative humidity, and temperature. The design analysis shall also establish the design exhaust vent stream organic compound concentration level, number and capacity of carbon beds, type and working capacity of activated carbon used for carbon beds, design total steam flow over the period of each complete carbon bed regeneration cycle, duration of the carbon bed steaming and cooling/drying cycles, design carbon bed temperature after regeneration, design carbon bed regeneration time, and design service life of carbon.
 - (7') For a carbon adsorption system such as a carbon canister that does not regenerate the carbon bed directly onsite in the control device, the design analysis shall consider the vent stream composition, constituent concentrations, flow rate, relative humidity, and temperature. The design analysis shall also establish the design outlet organic concentration level, capacity of carbon bed, type and working capacity of activated carbon used for carbon bed, and design carbon replacement interval based on the total carbon working capacity of the control device and source operating schedule.
- (d') A statement signed and dated by the owner or operator certifying that the operating parameters used in the design analysis reasonably represent the conditions that exist when the hazardous waste management unit is or would be operating at the highest load or capacity reasonably expected to occur.
 - (e') A statement signed and dated by the owner or operator certifying that the control device is designed to operate at an efficiency of 95 percent or greater unless the total organic concentration limit of paragraph (c)(1) of this section is achieved at an efficiency less than 95 weight percent or the total organic emission limits of paragraph (c)(1) of this section for affected process vents at the facility can be attained by a control device

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involving vapor recovery at an efficiency less than 95 weight percent. A statement provided by the control device manufacturer or vendor certifying that the control equipment meets the design specifications may be used to comply with this requirement.

- (f) If performance tests are used to demonstrate compliance, all test results.
- (3) Design documentation and monitoring, operating, and inspection information for each closed-vent system and control device required to comply with the provisions of this Subpart shall be recorded and kept up-to-date in the facility operating record. The information shall include:
- (i) Description and date of each modification that is made to the closed-vent system or control device design.
 - (ii) Identification of operating parameter, description of monitoring device, and diagram of monitoring sensor location or locations used to comply with subparagraphs (d)(6)(i) and (ii) of this section.
 - (iii) Monitoring, operating and inspection information required by paragraphs (d)(6) through (11) of this section.
 - (iv) Date, time, and duration of each period that occurs while the control device is operating when any monitored parameter exceeds the value established in the control device design analysis as specified below:
 - (a) For a thermal vapor incinerator designed to operate with a minimum residence time of 0.50 seconds at a minimum temperature of 760°C, period when the combustion temperature is below 760°C.
 - (b) For a thermal vapor incinerator designed to operate with an organic emission reduction efficiency of 95 percent or greater, period when the combustion zone temperature is more than 28°C below the design average combustion zone temperature established as a requirement of subclause (2)(iv)(c)(1) of this subdivision.
 - (c) For a catalytic vapor incinerator, period when:
 - (1) temperature of the vent stream at the catalyst bed inlet is more than 28 degrees Celsius below the average temperature of the inlet vent stream established as a requirement of subclause (2)(iv)(c)(2) of this subdivision; or
 - (2) temperature difference across the catalyst bed is less than 80 percent of the design average temperature difference established as a requirement of subclause (2)(iv)(c)(2) of this subdivision.
 - (d) For a boiler or process heater, period when:
 - (1) flame zone temperature is more than 28°C below the design average flame zone temperature established as a requirement of subclause (2)(iv)(c)(3) of this

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subdivision; or

- (2) position changes where the vent stream is introduced to the combustion zone from the location established as a requirement of subclause (2)(iv)(c)(3) of this subdivision;
- (e) for a flare, period when the pilot flame is not ignited;
- (f) for a condenser that complies with subclause (d)(6)(ii)(f)(1) of this section, period when the organic compound concentration level or readings of organic compounds in the exhaust vent stream from the condenser are more than 20 percent greater than the design outlet organic compound concentration level established as a requirement of subclause (2)(iv)(c)(5) of this subdivision;
- (g) for a condenser that complies with subclause (d)(6)(ii)(f)(2) of this section, period when:
 - (1) temperature of the exhaust vent stream from the condenser is more than 6 degrees Celsius above the design average exhaust vent stream temperature established as a requirement of subclause (2)(iv)(c)(5) of this subdivision; or
 - (2) temperature of the coolant fluid exiting the condenser is more than 6 degrees Celsius above the design average coolant fluid temperature at the condenser outlet established as a requirement of subclause (2)(iv)(c)(5) of this subdivision;
- (h) for a carbon adsorption system such as a fixed-bed carbon adsorber that regenerates the carbon bed directly onsite in the control device and complies with subclause (d)(6)(ii)(g)(1) of this section, period when the organic compound concentration level or readings of organic compounds in the exhaust vent stream from the carbon bed are more than 20 percent greater than the design exhaust vent stream organic compound concentration level established as a requirement of subclause (2)(iv)(c)(6) of this subdivision;
- (i) for a carbon adsorption system such as a fixed-bed carbon adsorber that regenerates the carbon bed directly onsite in the control device and complies with subclause (d)(6)(ii)(g)(2) of this section, period when the vent stream continues to flow through the control device beyond the predetermined carbon bed regeneration time established as a requirement of subclause (2)(iv)(c)(6) of this subdivision.
- (v) Explanation for each period recorded under subparagraph (iv) of this paragraph of the cause for control device operating parameter exceeding the design value and the measures implemented to correct the control device operation.
- (vi) For carbon adsorption systems operated subject to requirements specified in paragraph (d)(7) or subparagraph (d)(8)(ii) of this section, date when existing carbon in the control device is replaced with fresh carbon.

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- (vii) For carbon adsorption systems operated subject to requirements specified in subparagraph (d)(8)(i) of this section, a log that records:
 - ('a') date and time when control device is monitored for carbon breakthrough and the monitoring device reading;
 - ('b') date when existing carbon in the control device is replaced with fresh carbon;
- (viii) date of each control device startup and shutdown.
- (ix) An owner or operator designating any components of a closed-vent system as unsafe to monitor pursuant to paragraph (d)(14) of this section shall record in a log that is kept in the facility operating record the identification of closed-vent system components that are designated as unsafe to monitor in accordance with the requirements of paragraph (d)(14) of this section, an explanation for each closed-vent system component stating why the closed-vent system component is unsafe to monitor, and the plan for monitoring each closed-vent system component.
- (x) When each leak is detected as specified in paragraph (d)(11) of this section, the following information shall be recorded:
 - ('a') the instrument identification number, the closed-vent system component identification number, and the operator name, initials, or identification number;
 - ('b') the date the leak was detected and the date of first attempt to repair the leak;
 - ('c') the date of successful repair of the leak;
 - ('d') maximum instrument reading measured by Method 21 of 40 CFR part 60, appendix A as incorporated by reference in section 370.1(e) of this Title, after it is successfully repaired or determined to be nonrepairable; and
 - ('e') “repair delayed” and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak.
 - ('1') The owner or operator may develop a written procedure that identifies the conditions that justify a delay of repair. In such cases, reasons for delay of repair may be documented by citing the relevant sections of the written procedure.
 - ('2') If delay of repair was caused by depletion of stocked parts, there must be documentation that the spare parts were sufficiently stocked on-site before depletion and the reason for depletion.
- (4) Records of the monitoring, operating, and inspection information required by subparagraphs (3)(iii) through (x) of this subdivision shall be maintained by the owner or operator at least three years following the date of each occurrence, measurement, maintenance, corrective action, or record.
- (5) For a control device other than a thermal vapor incinerator, catalytic vapor incinerator, flare, boiler, process heater, condenser, or carbon adsorption system, monitoring and inspection information

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indicating proper operation and maintenance of the control device must be recorded in the facility operating record.

- (6) Up-to-date information and data used to determine whether or not a process vent is subject to the requirements in subdivision (c) of this section including supporting documentation as required by subparagraph (e)(4)(ii) of this section when application of the knowledge of the nature of the hazardous waste stream or the process by which it was produced is used, shall be recorded in a log that is kept in the facility operating record.

Section 373-3.28 Air emission standards for equipment leaks.

(a) Applicability.

- (1) The regulations in this section apply to owners and operators of facilities that treat, store, or dispose of hazardous wastes (except as provided in section 373-3.1(a) of this Subpart).
- (2) Except as provided in paragraph (o)(11) of this section, this section applies to equipment that contains or contacts hazardous wastes with organic concentrations of at least 10 percent by weight that are managed in one of the following:
 - (i) a unit that is subject to the permitting requirements of Subpart 373-1 of this Part; or
 - (ii) a unit (including a hazardous waste recycling unit) that is not exempt from permitting under the provisions of section 372.2(a)(8)(ii) of this Title (i.e., a hazardous waste recycling unit that is not a 90-day tank or container) and that is located at a hazardous waste management facility otherwise subject to the permitting requirements of Subpart 373-1 of this Title; or
 - (iii) a unit that is exempt from permitting under the provisions of section 372.2(a)(8)(ii) of this Title (i.e., a 90-day tank or container) and is not a recycling unit under the provisions of section 371.1(g) of this Title.
- (3) Each piece of equipment to which this section applies shall be marked in such a manner that it can be distinguished readily from other pieces of equipment.
- (4) Equipment that is in vacuum service is excluded from the requirements of subdivisions (c) through (k) if it is identified as required in subparagraph (o)(7)(v) of this section.
- (5) Equipment that contains or contacts hazardous waste with an organic concentration of at least 10 percent by weight for less than 300 hours per calendar year is excluded from the requirements of subdivisions (c) through (k) of this section if it is identified as required in subparagraph (o)(7)(vi) of this section.
- (6) Purged coatings and solvents from surface coating operations subject to the national emission standards for hazardous air pollutants (NESHAP) for the surface coating of automobiles and light-duty trucks at 40 CFR part 63, subpart III, as incorporated by reference in section 200.10 of this Title, are not subject to the requirements of this section.

Note: The requirements of subdivisions (c) through (o) of this section apply to equipment

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associated with hazardous waste recycling units previously exempt under section 371.1(g)(3)(i) of this Title. Other exemptions under sections 371.1(e) and 373-3.1(a) of this Title are not affected by these requirements.

(b) **Definitions.**

As used in this section, all terms shall have the meaning given them in section 373-2.27(b) of this Part, the ECL and Parts 370-374 and 376 of this Title.

(c) **Standards: pumps in light liquid service.**

(1)

- (i) Each pump in light liquid service shall be monitored monthly to detect leaks by the methods specified in paragraph (n)(2) of this section, except as provided in paragraphs (4) through (6) of this subdivision.
- (ii) Each pump in light liquid service shall be checked by visual inspection each calendar week for indications of liquids dripping from the pump seal.

(2)

- (i) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.
- (ii) If there are indications of liquids dripping from the pump seal, a leak is detected.

(3)

- (i) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in subdivision (j) of this section.
- (ii) A first attempt at repair (e.g., tightening the packing gland) shall be made no later than five calendar days after each leak is detected.

(4) Each pump equipped with a dual mechanical seal system that includes a barrier fluid system is exempt from the requirements of paragraph (1) of this subdivision, provided the following requirements are met:

- (i) each dual mechanical seal system must be:
 - ('a') operated with the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure; or
 - ('b') equipped with a barrier fluid degassing reservoir that is connected by a closed- vent system to a control device that complies with the requirements of subdivision (k) of this section; or
 - ('c') equipped with a system that purges the barrier fluid into a hazardous waste stream with no detectable emissions to the atmosphere.
- (ii) The barrier fluid system must not be a hazardous waste with organic concentrations 10

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percent or greater by weight.

- (iii) Each barrier fluid system must be equipped with a sensor that will detect failure of the seal system, the barrier fluid system or both.
- (iv) Each pump must be checked by visual inspection, each calendar week, for indications of liquids dripping from the pump seals.
- (v)
 - ('a') Each sensor as described in subparagraph (iii) of this paragraph must be checked daily or be equipped with an audible alarm that must be checked monthly to ensure that it is functioning properly.
 - ('b') The owner or operator must determine, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both.
- (vi)
 - ('a') If there are indications of liquids dripping from the pump seal or the sensor indicates failure of the seal system, the barrier fluid system, or both based on the criterion determined in clause (v)(‘b’) of this paragraph, a leak is detected.
 - ('b') When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in subdivision (j) of this section.
 - ('c') A first attempt at repair (e.g., relapping the seal) shall be made no later than five calendar days after each leak is detected.
- (5) Any pump that is designated, as described in subparagraph (o)(7)(ii) of this section, for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the requirements of paragraphs (1), (3), and (4) of this subdivision if the pump meets the following requirements:
 - (i) Must have no externally actuated shaft penetrating the pump housing.
 - (ii) Must operate with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background as measured by the methods specified in paragraph (n)(3) of this section.
 - (iii) Must be tested for compliance with subparagraph (ii) of this paragraph initially upon designation, annually, and at other times as requested by the commissioner.
- (6) If any pump is equipped with a closed-vent system capable of capturing and transporting any leakage from the seal or seals to a control device that complies with the requirements of subdivision (k) of this section, it is exempt from the requirements of paragraphs (1) through (5) of this subdivision.

(d) Standards: compressors.

- (1) Each compressor shall be equipped with a seal system that includes a barrier fluid system that prevents leakage of total organic emissions to the atmosphere, except as provided in paragraphs (8) and (9) of this subdivision.
- (2) Each compressor seal system as required in paragraph (1) of this subdivision shall be:
 - (i) operated with the barrier fluid at a pressure that is at all times greater than the compressor stuffing box pressure; or
 - (ii) equipped with a barrier fluid system that is connected by a closed-vent system to a control device that complies with the requirements of subdivision (k) of this section; or
 - (iii) equipped with a system that purges the barrier fluid into a hazardous waste stream with no detectable emissions to the atmosphere.
- (3) The barrier fluid must not be a hazardous waste with organic concentrations 10 percent or greater by weight.
- (4) Each barrier fluid system as described in paragraphs (1) through (3) of this subdivision shall be equipped with a sensor that will detect failure of the seal system, barrier fluid system, or both.
- (5)
 - (i) Each sensor as required in paragraph (4) of this subdivision shall be checked daily or shall be equipped with an audible alarm that must be checked monthly to ensure that it is functioning properly unless the compressor is located within the boundary of an unmanned plant site, in which case the sensor must be checked daily.
 - (ii) The owner or operator shall determine, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system or both.
- (6) If the sensor indicates failure of the seal system, the barrier fluid system, or both based on the criterion determined under subparagraph (5)(ii) of this subdivision, a leak is detected.
- (7)
 - (i) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in subdivision (j) of this section.
 - (ii) A first attempt at repair (e.g., tightening the packing gland) shall be made no later than five calendar days after each leak is detected.
- (8) A compressor is exempt from the requirements of paragraphs (1) and (2) of this subdivision if it is equipped with a closed-vent system capable of capturing and transporting any leakage from the seal to a control device that complies with the requirements of subdivision (k) of this section, except as provided in paragraph (9) of this subdivision.

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- (9) Any compressor that is designated, as described in subparagraph (o)(7)(ii) of this section, for no detectable emission as indicated by an instrument reading of less than 500 ppm above background, is exempt from the requirements of paragraphs (1) through (8) of this subdivision if the compressor:
- (i) is determined to be operating with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as measured by the method specified in paragraph (n)(3) of this section; and
 - (ii) is tested for compliance with subparagraph (i) of this paragraph initially upon designation, annually, and at other times as requested by the commissioner.

(e) Standards: pressure relief devices in gas/vapor service.

- (1) Except during pressure releases, each pressure relief device in gas/vapor service shall be operated with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as measured by the method specified in paragraph (n)(3) of this section.
- (2)
 - (i) After each pressure release, the pressure relief device shall be returned to a condition of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as soon as practicable, but no later than five calendar days after each pressure release, except as provided in subdivision (j) of this section.
 - (ii) No later than five calendar days after the pressure release, the pressure relief device shall be monitored to confirm the condition of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as measured by the method specified in paragraph (n)(3) of this section.
- (3) Any pressure relief device that is equipped with a closed-vent system capable of capturing and transporting leakage from the pressure relief device to a control device, as described in subdivision (k) of this section, is exempt from the requirements of paragraphs (1) and (2) of this subdivision.

(f) Standards: sampling connecting systems.

- (1) Each sampling connection system shall be equipped with a closed-purge, closed-loop or closed-vent system. This system shall collect the sample purge for return to the process or for routing to the appropriate treatment system. Gases displaced during filling of the sample container are not required to be collected or captured.
- (2) Each closed-purge, closed-loop or closed-vent system as required in paragraph (1) of this subdivision shall:
 - (i) return the purged process fluid directly to the process line;
 - (ii) collect and recycle the purged process fluid; or
 - (iii) be designed and operated to capture and transport all the purged process fluid to a waste management unit that complies with the applicable requirements of section 373-3.29(f)

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through (h) of this Subpart or a control device that complies with the requirements of subdivision (k) of this section.

- (3) *'In situ'* sampling systems and sampling systems without purges are exempt from the requirements of paragraphs (1) and (2) of this subdivision.

(g) Standards: open-ended valves or lines.

- (1)
 - (i) Each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve.
 - (ii) The cap, blind flange, plug, or second valve shall seal the open end at all times except during operations requiring hazardous waste stream flow through the open-ended valve or line.
- (2) Each open-ended valve or line equipped with a second valve shall be operated in a manner such that the valve on the hazardous waste stream end is closed before the second valve is closed.
- (3) When a double block and bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall comply with paragraph (1) of this subdivision at all other times.

(h) Standards: valves in gas/vapor service or in light liquid service.

- (1) Each valve in gas/vapor or light liquid service shall be monitored monthly to detect leaks by the methods specified in paragraph (n)(2) of this section and shall comply with paragraphs (2) through (5) of this subdivision, except as provided in paragraphs (6), (7), and (8) of this subdivision and subdivisions (l) and (m) of this section.
- (2) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.
- (3)
 - (i) Any valve for which a leak is not detected for two successive months may be monitored the first month of every succeeding quarter, beginning with the next quarter, until a leak is detected.
 - (ii) If a leak is detected, the valve shall be monitored monthly until a leak is not detected for two successive months.
- (4)
 - (i) When a leak is detected, it shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected, except as provided in subdivision (j) of this section.
 - (ii) A first attempt at repair shall be made no later than five calendar days after each leak is detected.
- (5) First attempts at repair include, but are not limited to, the following best practices where practicable:

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- (i) tightening of bonnet bolts;
 - (ii) replacement of bonnet bolts;
 - (iii) tightening of packing gland nuts; and
 - (iv) injection of lubricant into lubricated packing.
- (6) Any valve that is designated, as described in subparagraph (o)(7)(ii) of this section, for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the requirements of paragraph (1) of this subdivision if the valve:
- (i) has no external actuating mechanism in contact with the hazardous waste stream;
 - (ii) is operated with emissions less than 500 ppm above background as determined by the method specified in paragraph (n)(3) of this section;
 - (iii) is tested for compliance with subparagraph (ii) of this paragraph initially upon designation, annually, and at other times as requested by the commissioner.
- (7) Any valve that is designated, as described in subparagraph (o)(8)(i) of this section, as an unsafe-to-monitor valve is exempt from the requirements of paragraph (1) of this subdivision if:
- (i) the owner or operator of the valve determines that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with paragraph (1) of this subdivision; or
 - (ii) the owner or operator of the valve adheres to a written plan that requires monitoring of the valve as frequently as practicable during safe-to-monitor times.
- (8) Any valve that is designated, as described in subparagraph (o)(8)(ii) of this section, as a difficult-to-monitor valve is exempt from the requirements of paragraph (1) of this subdivision if:
- (i) the owner or operator of the valve determines that the valve cannot be monitored without elevating the monitoring personnel more than two meters above a support surface;
 - (ii) the hazardous waste management unit within which the valve is located was in operation before June 21, 1990; or
 - (iii) the owner or operator of the valve follows a written plan that requires monitoring of the valve at least once per calendar year.
- (i) **Standards: pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and flanges and other connectors.**
- (1) Pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and flanges and other connectors shall be monitored within five days by the method specified in paragraph (n)(2) of this section if evidence of a potential leak is found by visual, audible, olfactory, or any other detection method.

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- (2) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.
- (3)
 - (i) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in subdivision (j) of this section.
 - (ii) The first attempt at repair shall be made no later than five calendar days after each leak is detected.
- (4) First attempts at repair include, but are not limited to, the best practices described under paragraph (h)(5) of this section.
- (5) Any connector that is inaccessible or is ceramic or ceramic-lined (e.g., porcelain, glass, or glass-lined) is exempt from the monitoring requirements of paragraph (1) of this subdivision and from the recordkeeping requirements of subdivision (o) of this section.

(j) Standards: delay of repair.

- (1) Delay of repair of equipment for which leaks have been detected will be allowed if the repair is technically infeasible without a hazardous waste management unit shutdown. In such a case, repair of this equipment shall occur before the end of the next hazardous waste management unit shutdown.
- (2) Delay of repair of equipment for which leaks have been detected will be allowed for equipment that is isolated from the hazardous waste management unit and that does not continue to contain or contact hazardous waste with organic concentrations at least 10 percent by weight.
- (3) Delay of repair for valves will be allowed if:
 - (i) the owner or operator determines that emissions of purged material resulting from immediate repair are greater than the emissions likely to result from delay of repair; and
 - (ii) when repair procedures are effected, the purged material is collected and destroyed or recovered in a control device complying with subdivision (k) of this section.
- (4) Delay of repair for pumps will be allowed if:
 - (i) repair requires the use of a dual mechanical seal system that includes a barrier fluid system; and
 - (ii) repair is completed as soon as practicable, but not later than six months after the leak was detected.
- (5) Delay of repair beyond a hazardous waste management unit shutdown will be allowed for a valve if valve assembly replacement is necessary during the hazardous waste management unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies have been sufficiently stocked before the supplies were depleted. Delay of repair beyond the next hazardous waste management unit shutdown will not be allowed unless the next hazardous waste management unit

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shutdown occurs sooner than six months after the first hazardous waste management unit shutdown.

(k) Standards: closed-vent systems and control devices.

- (1) Owners or operators of closed-vent systems and control devices subject to this section shall comply with the provisions of section 373-3.27(d) of this Subpart.
- (2)
 - (i) The owner or operator of an existing facility who cannot install a closed-vent system and control device to comply with the provisions of this section on the effective date that the facility becomes subject to the provisions of this section must prepare an implementation schedule that includes dates by which the closed-vent system and control device will be installed and in operation. The controls must be installed as soon as possible, but the implementation schedule may allow up to 30 months after the effective date that the facility becomes subject to this section for installation and startup.
 - (ii) Any unit that begins operation after December 21, 1990, and is subject to the requirements of this section when operation begins, must comply with the rules immediately (i.e., must have control devices installed and operating on startup of the affected unit); the 30-month implementation schedule does not apply.
 - (iii)
 - ('a') If an existing facility is already subject to 40 CFR 264.1033(a)(2)(iii) at the time a State statutory or regulatory amendment renders the facility subject to this section, the requirements established under 40 CFR 264.1033(a)(2)(iii), as incorporated by reference in section 370.1(e) of this Title, will apply.
 - ('b') If an existing facility is not subject to 40 CFR 264.1033(a)(2)(iii) at the time a State statutory or regulatory amendment renders the facility subject to this section, the owner or operator of the facility in existence on the effective date of the State statutory or regulatory amendment that renders the facility subject to this section shall comply with all requirements of this section as soon as practicable but no later than 30 months after the State amendment's effective date. When control equipment required by the section cannot be installed and begin operation by the effective date of the amendment, the facility owner or operator shall prepare an implementation schedule that includes the following information: specific calendar dates for award of contracts or issuance of purchase orders for the control equipment, initiation of on-site installation of the control equipment, completion of the control equipment installation, and performance of any testing to demonstrate that the installed equipment meets the applicable standards of this section. The owner or operator shall enter the implementation schedule in the operating record or in a permanent, readily available file located at the facility.
 - (iv) Owners and operators of facilities and units that become newly subject to the requirements of this section after December 8, 1997 due to an action other than those described in

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subparagraph (iii) of this paragraph must comply with all applicable requirements immediately (i.e., must have control devices installed and operating on the date the facility or unit becomes subject to this section; the 30-month implementation schedule does not apply).

- (l) Alternative standards for valves in gas/vapor service or in light liquid service: percentage of valves allowed to leak.**
- (1) An owner or operator subject to the requirements of subdivision (h) of this section may elect to have all valves within a hazardous waste management unit comply with an alternative standard which allows no greater than two percent of the valves to leak.
 - (2) The following requirements shall be met if an owner or operator elects to comply with the alternative standard of allowing two percent of valves to leak:
 - (i) A performance test as specified in paragraph (3) of this subdivision shall be conducted initially upon designation, annually, and at other times requested by the department.
 - (ii) If a valve leak is detected, it shall be repaired in accordance with paragraphs (h)(4) and (5) of this section.
 - (3) Performance tests shall be conducted in the following manner:
 - (i) All valves subject to the requirements in subdivision (h) of this section within the hazardous waste management unit shall be monitored within one week by the methods specified in paragraph (n)(2) of this section.
 - (ii) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.
 - (iii) The leak percentage shall be determined by dividing the number of valves subject to the requirements in subdivision (h) of this section for which leaks are detected by the total number of valves subject to the requirements in subdivision (h) of this section within the hazardous waste management unit.
- (m) Alternative standards for valves in gas/vapor service or in light liquid service: skip period leak detection and repair.**
- (1) An owner or operator subject to the requirements of subdivision (h) of this section may elect for all valves within a hazardous waste management unit to comply with one of the alternative work practices specified in subparagraphs (2)(ii) and (iii) of this subdivision.
 - (2)
 - (i) An owner or operator shall comply with the requirements for valves, as described in subdivision (h) of this section, except as described in subparagraphs (ii) and (iii) of this paragraph.
 - (ii) After two consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than two percent, an owner or operator may begin to skip one of the quarterly leak detection periods (i.e., monitor for leaks once every six months) for the valves subject to

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the requirements in subdivision (h) of this section.

- (iii) After five consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than two percent, an owner or operator may begin to skip three of the quarterly leak detection periods (i.e., monitor for leaks once every year) for the valves subject to the requirements in subdivision (h) of this section.
- (iv) If the percentage of valves leaking is greater than two percent, the owner or operator shall monitor monthly in compliance with the requirements in subdivision (h) of this section, but may again elect to use this subdivision after meeting the requirements of subparagraph (h)(3)(i) of this section.

(n) Test methods and procedures.

- (1) Each owner operator subject to the provisions of this section shall comply with the test methods and procedures requirements provided in this subdivision.
- (2) Leak detection monitoring, as required in subdivisions (c) through (m) of this section, shall comply with the following requirements:
 - (i) Monitoring shall comply with Reference Method 21 in 40 CFR part 60 (see section 370.1(e) of this Title).
 - (ii) The detection instrument shall meet the performance criteria of Reference Method 21.
 - (iii) The instrument shall be calibrated before use on each day of its use by the procedures specified in Reference Method 21.
 - (iv) Calibration gases shall be:
 - ('a') zero air (less than 10 ppm of hydrocarbon in air); or
 - ('b') a mixture of methane or n-hexane and air at a concentration of approximately, but less than, 10,000 ppm methane or n-hexane.
 - (v) The instrument probe shall be traversed around all potential leak interfaces as close to the interface as possible as described in Reference Method 21.
- (3) When equipment is tested for compliance with no detectable emissions, as required in paragraphs (c)(5) and (d)(9), subdivision (e), and paragraph (h)(6) of this section, the test shall comply with the following requirements:
 - (i) The requirements of subparagraphs (2)(i) through (iv) of this subdivision shall apply.
 - (ii) The background level shall be determined, as set forth in Reference Method 21.
 - (iii) The instrument probe shall be traversed around all potential leak interfaces as close to the interface as possible as described in Reference Method 21.
 - (iv) The arithmetic difference between the maximum concentration indicated by the instrument

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and the background level is compared with 500 ppm for determining compliance.

- (4) In accordance with the waste analysis plan required by paragraph (d)(2) of this section, an owner or operator of a facility must determine, for each piece of equipment, whether the equipment contains or contacts a hazardous waste with organic concentration that equals or exceeds 10 percent by weight using the following:
 - (i) methods described in ASTM methods D 4420, E 169, E 168, E 260 (incorporated by reference under section 370.1(e) of this Title);
 - (ii) Method 9060A of SW-846 (incorporated by reference under section 370.1(e) of this Title) or analyzed for its individual organic constituents; or
 - (iii) application of the knowledge of the nature of the hazardous waste stream or the process by which it was produced. Documentation of a waste determination by knowledge is required. Examples of documentation that shall be used to support a determination under this provision include production process information documenting that no organic compounds are used, information that the waste is generated by a process that is identical to a process at the same or another facility that has previously been demonstrated by direct measurement to have a total organic content less than 10 percent, or prior speciation analysis results on the same waste stream where it can also be documented that no process changes have occurred since that analysis that could affect the waste total organic concentration.
 - (5) If an owner or operator determines that a piece of equipment contains or contacts a hazardous waste with organic concentrations at least 10 percent by weight, the determination can be revised only after following the procedures in subparagraph (4)(i) or (ii) of this subdivision.
 - (6) When an owner or operator and the commissioner do not agree on whether a piece of equipment contains or contacts a hazardous waste with organic concentrations of at least 10 percent by weight, the procedures in subparagraph (4)(i) or (ii) of this subdivision can be used to resolve the dispute.
 - (7) Samples used in determining the percent organic content shall be representative of the highest total organic content hazardous waste that is expected to be contained in or contact the equipment.
 - (8) To determine if pumps or valves are in light liquid service, the vapor pressures of constituents may be obtained from standard reference texts or may be determined by ASTM D-2879 (incorporated by reference under section 370.1(e) of this Title).
 - (9) Performance tests to determine if a control device achieves 95 weight percent organic emission reduction shall comply with the procedures of section 373-3.27(e)(3)(i) through (iv) of this Subpart.
- (o) **Recordkeeping requirements.**
- (1)
 - (i) Each owner or operator subject to the provisions of this section shall comply with the recordkeeping requirements of this subdivision.

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- (ii) An owner or operator of more than one hazardous waste management unit subject to the provisions of this section may comply with the recordkeeping requirements for these hazardous waste management units in one recordkeeping system if the system identifies each record by each hazardous waste management unit.
- (2) Owners and operators must record the following information in the facility operating record:
- (i) For each piece of equipment to which this section applies:
 - ('a') equipment identification number and hazardous waste management unit identification;
 - ('b') approximate locations within the facility (e.g., identify the hazardous waste management unit on a facility plot plan);
 - ('c') type of equipment (e.g., a pump or pipeline valve).
 - ('d') percent-by-weight total organics in the hazardous waste stream at the equipment;
 - ('e') hazardous waste state at the equipment (e.g., gas/vapor or liquid);
 - ('f') method of compliance with the standard (e.g., “monthly leak detection and repair” or “equipped with dual mechanical seals”).
 - (ii) For facilities that comply with the provisions of section 373-3.27(d)(1)(ii) of this Subpart, an implementation schedule as specified in section 373-3.27(d)(1)(ii).
 - (iii) Where an owner or operator chooses to use test data to demonstrate the organic removal efficiency or total organic compound concentration achieved by the control device, a performance test plan as specified in section 373-3.27(f)(2)(iii) of this Subpart.
 - (iv) Documentation of compliance with subdivision (k) of this section, including the detailed design documentation or performance test results specified in section 373-3.27(f)(2)(iv) of this Subpart.
- (3) When each leak is detected as specified in subdivisions (c), (d), (h), and (i) of this section, the following requirements apply:
- (i) A weatherproof and readily visible identification, marked with the equipment identification number, the date evidence of a potential leak was found in accordance with paragraph (i)(1) of this section, and the date the leak was detected, shall be attached to the leaking equipment.
 - (ii) The identification on equipment, except on a valve, may be removed after it has been repaired.
 - (iii) The identification on a valve may be removed after it has been monitored for two successive months as specified in paragraph (h)(3) of this section and no leak has been detected during those two months.

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- (4) When each leak is detected as specified in subdivisions (c), (d), (h), and (i) of this section, the following information shall be recorded in an inspection log and shall be kept in the facility operating record:
 - (i) the instrument and operator identification numbers and the equipment identification number;
 - (ii) the date evidence of a potential leak was found, in accordance with paragraph (i)(1) of this section;
 - (iii) the date the leak was detected and the dates of each attempt to repair the leak;
 - (iv) repair methods applied in each attempt to repair the leak;
 - (v) “above 10,000” if the maximum instrument reading measured by the methods specified in paragraph (n)(2) of this section after each repair attempt is equal to or greater than 10,000 ppm;
 - (vi) “repair delayed” and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak;
 - (vii) documentation supporting the delay of repair of a valve, in compliance with paragraph (j)(3) of this section;
 - (viii) the signature of the owner or operator (or designate) whose decision it was that repair could not be effected without a hazardous waste management unit shutdown;
 - (ix) the expected date of successful repair of the leak if a leak is not repaired within 15 calendar days; and
 - (x) the date of successful repair of the leak.
- (5) Design documentation and monitoring, operating, and inspection information for each closed-vent system and control device required to comply with the provisions of subdivision (k) of this section shall be recorded and kept up-to-date in the facility operating record as specified in section 373-3.27(f)(3) of this Subpart. Design documentation is specified in section 373-3.27(f)(3) of this Subpart. Design documentation is specified in section 373-3.27(f)(3)(i) and (ii), and monitoring, operating and inspection information in section 373-3.27(f)(3)(iii) through (viii) of this Subpart.
- (6) For a control device other than a thermal vapor incinerator, catalytic vapor incinerator, flare, boiler, process heater, condenser, or carbon adsorption system, monitoring and inspection information indicating proper operation and maintenance of the control device must be recorded in the facility operating record.
- (7) The following information pertaining to all equipment subject to the requirements in subdivisions (c) through (k) of this section shall be recorded in a log that is kept in the facility operating record:
 - (i) A list of identification numbers for equipment (except welded fittings) subject to the requirements of this section.

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- (ii)
 - ('a') A list of identification numbers for equipment that the owner or operator elects to designate for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, under the provisions of paragraphs (c)(5), (d)(9), and (h)(6) of this section.
 - ('b') The designation of this equipment as subject to the requirements of paragraphs (c)(5), (d)(9), and (h)(6) of this section shall be signed by the owner or operator.
- (iii) A list of equipment identification numbers for pressure relief devices required to comply with paragraph (e)(1) of this section.
- (iv)
 - ('a') The dates of each compliance test required in paragraphs (c)(5) and (d)(9), subdivision (e), and paragraph (h)(6) of this section.
 - ('b') The background level measured during each compliance test.
 - ('c') The maximum instrument reading measured at the equipment during each compliance test.
- (v) A list of identification numbers for equipment in vacuum service.
- (vi) Identification, either by list or location (area or group) of equipment that contains or contacts hazardous waste with an organic concentration of at least 10 percent by weight for less than 300 hours per calendar year.
- (8) The following information pertaining to all valves subject to the requirements of paragraphs (h)(7) and (8) of this section shall be recorded in a log that is kept in the facility operating record:
 - (i) A list of identification numbers for valves that are designated as unsafe to monitor, an explanation for each valve stating why the valve is unsafe to monitor, and the plan for monitoring each valve.
 - (ii) A list of identification numbers for valves that are designated as difficult to monitor, an explanation for each valve stating why the valve is difficult to monitor, and the planned schedule for monitoring each valve.
- (9) The following information shall be recorded in the facility operating record for valves complying with subdivision (m) of this section.
 - (i) A schedule of monitoring.
 - (ii) The percent of valves found leaking during each monitoring period.
- (10) The following information shall be recorded in a log that is kept in the facility operating record:
 - (i) Criteria required in clause (c)(4)(v)(‘b’) and subparagraph (d)(5)(ii) of this section, and an

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explanation of the criteria.

- (ii) Any changes to these criteria and the reasons for the changes.
- (11) The following information shall be recorded in a log that is kept in the facility operating record for use in determining exemptions as provided in the applicability subdivision of this section and other specific sections:
- (i) An analysis determining the design capacity of the hazardous waste management unit.
 - (ii) A statement listing the hazardous waste influent to and effluent from each hazardous waste management unit subject to the requirements in subdivisions (c) through (k) of this section, and an analysis determining whether these hazardous wastes are heavy liquids.
 - (iii) An up-to-date analysis and the supporting information and data used to determine whether or not equipment is subject to the requirements in subdivisions (c) through (k) of this section. The record shall include supporting documentation as required by subparagraph (n)(4)(iii) of this section when application of the knowledge of the nature of the hazardous waste stream or the process by which it was produced is used. If the owner or operator takes any action (e.g., changing the process that produced the waste) that could result in an increase in the total organic content of the waste contained in or contacted by equipment determined not to be subject to the requirements in subdivisions (c) through (k) of this section, then a new determination is required.
- (12) Records of the equipment leak information required by paragraph (4) of this subdivision and the operating information required by paragraph (5) of this subdivision need be kept only three years.
- (13) The owner or operator of any facility with equipment that is subject to this section and to leak detection, monitoring, and repair requirements under regulations at 40 CFR part 60, part 61, or part 63, as incorporated by reference in section 370.1(e) of this Title, may elect to determine compliance with this section either by documentation pursuant to this subdivision, or by documentation of compliance with the regulations at 40 CFR part 60, part 61, or part 63 as incorporated by reference in section 370.1(e) of this Title, pursuant to the relevant provisions of the regulations at 40 CFR part 60, part 61, or part 63 as incorporated by reference in section 370.1(e) of this Title. The documentation of compliance under regulation at 40 CFR part 60, part 61 or part 63 as incorporated by reference in section 370.1(e) of this Title, shall be kept with or made readily available with the facility operating record.

Section 373-3.29 Air emission standards for tanks, surface impoundments, and containers.

(a) Applicability.

- (1) The requirements of this section apply to owners and operators of all facilities that treat, store, or dispose of hazardous waste in tanks, surface impoundments, or containers subject to either section 373-3.9, 373-3.10 or 373-3.11 of this Subpart except as section 373-3.1 and paragraph (2) of this subdivision provide otherwise.

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- (2) The requirements of this section do not apply to the following waste management units at the facility:
- (i) a waste management unit that holds hazardous waste placed in a unit before December 6, 1996, and in which no hazardous waste is added to the unit on or after December 6, 1996;
 - (ii) a container that has a design capacity less than or equal to 0.1 m³;
 - (iii) a tank in which an owner or operator has stopped adding hazardous waste and the owner or operator has begun implementing or completed closure pursuant to an approved closure plan;
 - (iv) a surface impoundment in which an owner or operator has stopped adding hazardous waste (except to implement an approved closure plan) and the owner or operator has begun implementing or completed closure pursuant to an approved closure plan;
 - (v) a waste management unit that is used solely for on-site treatment or storage of hazardous waste that is placed in the unit as a result of implementing remedial activities required under the corrective action authorities of RCRA section 3004(u), 3004(v), or 3008(h); CERCLA authorities; or similar Federal or State authorities including, but not limited to, 6 NYCRR Parts 373 and 375, ECL 71-2727(3), and ECL article 27, titles 9 and 13;
 - (vi) a waste management unit that is used solely for the management of radioactive mixed waste in accordance with all applicable regulations under the authority of the Atomic Energy Act and the Nuclear Waste Policy Act;
 - (vii) a hazardous waste management unit that the owner or operator certifies is equipped with and operating air emission controls in accordance with the requirements of an applicable Clean Air Act regulation codified under 40 CFR part 60, part 61, or part 63 as incorporated by reference in section 370.1(e) of this Title. For the purpose of complying with this paragraph, a tank for which the air emission control includes an enclosure, as opposed to a cover, must be in compliance with the enclosure and control device requirements of paragraph (f)(9) of this section, except as provided in subparagraph (d)(3)(v) of this section; and
 - (viii) a tank that has a process vent as defined in section 373-2.27(b) of this Title.
- (3) For the owner or operator of a facility subject to this section who has received a final permit under this Part, prior to December 6, 1996, the following requirements apply:
- (i) The requirements of section 373-2.29 of this Part shall be incorporated into the permit when the permit is reissued in accordance with the requirements of Part 621 of this Title or reviewed in accordance with the requirements of section 373-1.8 of this Part.
 - (ii) Until the date when the permit is reissued in accordance with the requirements of Part 621 of this Title or reviewed in accordance with the requirements of section 373-1.8 of this Part, the owner or operator is subject to the requirements of this section.
- (4) The requirements of this section, except for the recordkeeping requirements specified in paragraph (k)(9) of this section, are administratively stayed for a tank or a container used for the management

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of hazardous waste generated by organic peroxide manufacturing and its associated laboratory operations when the owner or operator of the unit meets all of the following conditions:

- (i) The owner or operator identifies that the tank or container receives hazardous waste generated by an organic peroxide manufacturing process producing more than one functional family of organic peroxides or multiple organic peroxides within one functional family, that one or more of these organic peroxides could potentially undergo self-accelerating thermal decomposition at or below ambient temperatures, and that organic peroxides are the predominant products manufactured by the process. For the purpose of meeting the conditions of this paragraph, *'organic peroxide'* means an organic compound that contains the bivalent -O-O- structure and which may be considered to be a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms has been replaced by an organic radical.
- (ii) The owner or operator prepares documentation, in accordance with the requirements of paragraph (k)(9) of this section, explaining why an undue safety hazard would be created if air emission controls specified in subdivisions (f) through (i) of this section are installed and operated on the tanks and containers used at the facility to manage the hazardous waste generated by the organic peroxide manufacturing process or processes meeting the conditions of subparagraph (i) of this paragraph.
- (iii) The owner or operator notifies the commissioner in writing that hazardous waste generated by an organic peroxide manufacturing process or processes meeting the conditions of subparagraph (i) of this paragraph are managed at the facility in tanks or containers meeting the conditions of subparagraph (ii) of this paragraph. The notification shall state the name and address of the facility, and be signed and dated by an authorized representative of the facility owner or operator.

(b) Definitions.

As used in this section, all terms not defined herein shall have the meaning given to them in Parts 370 through Subpart 374-1 of this Title.

- (1) *'Average volatile organic concentration'* or *'average VO concentration'* means the mass-weighted average volatile organic concentration of a hazardous waste as determined in accordance with the requirements of subdivision (e) of this section.
- (2) *'Closure device'* means a cap, hatch, lid, plug, seal, valve, or other type of fitting that blocks an opening in a cover such that when the device is secured in the closed position it prevents or reduces air pollutant emissions to the atmosphere. Closure devices include devices that are detachable from the cover (e.g., a sampling port cap), manually operated (e.g., a hinged access lid or hatch), or automatically operated (e.g., a spring-loaded pressure relief valve).
- (3) *'Continuous seal'* means a seal that forms a continuous closure that completely covers the space between the edge of the floating roof and the wall of a tank. A continuous seal may be a vapor-mounted seal, liquid-mounted seal, or metallic shoe seal. A continuous seal may be constructed of fastened segments so as to form a continuous seal.

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- (4) **'Cover'** means a device that provides a continuous barrier over the hazardous waste managed in a unit to prevent or reduce air pollutant emissions to the atmosphere. A cover may have openings (such as access hatches, sampling ports, gauge wells) that are necessary for operation, inspection, maintenance, and repair of the unit on which the cover is used. A cover may be a separate piece of equipment which can be detached and removed from the unit or a cover may be formed by structural features permanently integrated into the design of the unit.
- (5) **'Enclosure'** means a structure that surrounds a tank or container, captures organic vapors emitted from the tank or container, and vents the captured vapors through a closed-vent system to a control device.
- (6) **'External floating roof'** means a pontoon-type or double-deck type cover that rests on the surface of the material managed in a tank with no fixed roof.
- (7) **'Fixed roof'** means a cover that is mounted on a unit in a stationary position and does not move with fluctuations in the level of the material managed in the unit.
- (8) **'Floating membrane cover'** means a cover consisting of a synthetic flexible membrane material that rests upon and is supported by the hazardous waste being managed in a surface impoundment.
- (9) **'Floating roof'** means a cover consisting of a double-deck, pontoon single deck, or internal floating cover which rests upon and is supported by the material being contained, and is equipped with a continuous seal.
- (10) **'Hard-piping'** means pipe or tubing that is manufactured and properly installed in accordance with relevant standards and good engineering practices.
- (11) **'In light material service'** means the container is used to manage a material for which both of the following conditions apply: the vapor pressure of one or more of the organic constituents in the material is greater than 0.3 kilopascals (kPa) at 20°C; and the total concentration of the pure organic constituents having a vapor pressure greater than 0.3 kPa at 20°C is equal to or greater than 20 percent by weight.
- (12) **'Internal floating roof'** means a cover that rests or floats on the material surface (but not necessarily in complete contact with it) inside a tank that has a fixed roof.
- (13) **'Liquid-mounted seal'** means a foam or liquid-filled primary seal mounted in contact with the hazardous waste between the tank wall and the floating roof continuously around the circumference of the tank.
- (14) **'Malfunction'** means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.
- (15) **'Maximum organic vapor pressure'** means the sum of the individual organic constituent partial pressures exerted by the material contained in a tank, at the maximum vapor pressure-causing conditions (i.e., temperature, agitation, pH effects of combining wastes, etc.) reasonably expected to

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occur in the tank. For the purpose of this section, maximum organic vapor pressure is determined using the procedures specified in paragraph (e)(3) of this section.

- (16) ***‘Metallic shoe seal’*** means a continuous seal that is constructed of metal sheets which are held vertically against the wall of the tank by springs, weighted levers, or other mechanisms and is connected to the floating roof by braces or other means. A flexible coated fabric (envelope) spans the annular space between the metal sheet and the floating roof.
- (17) ***‘No detectable organic emissions’*** means no escape of organics to the atmosphere as determined using the procedure specified in paragraph (e)(4) of this section.
- (18) ***‘Point of waste origination’*** means as follows:
- (i) When the facility owner or operator is the generator of the hazardous waste, the point of waste origination means the point where a solid waste produced by a system, process, or waste management unit is determined to be a hazardous waste as defined in Part 371 of this Title.

Note: In this case, this term is being used in a manner similar to the use of the term “point of generation” in air standards established for waste management operations under authority of the Clean Air Act in 40 CFR parts 60, 61, and 63 (incorporated by reference in section 370.1(e) of this Title).
 - (ii) When the facility owner or operator are not the generator of the hazardous waste, ***‘point of waste origination’*** means the point where the owner or operator accepts delivery or takes possession of the hazardous waste.
- (19) ***‘Point of waste treatment’*** means the point where a hazardous waste to be treated in accordance with subparagraph (d)(3)(ii) of this section exits the treatment process. Any waste determination shall be made before the waste is conveyed, handled, or otherwise managed in a manner that allows the waste to volatilize to the atmosphere.
- (20) ***‘Safety device’*** means a closure device such as a pressure relief valve, frangible disc, fusible plug, or any other type of device which functions exclusively to prevent physical damage or permanent deformation to a unit or its air emission control equipment by venting gases or vapors directly to the atmosphere during unsafe conditions resulting from an unplanned, accidental, or emergency event. For the purpose of this section, a safety device is not used for routine venting of gases or vapors from the vapor headspace underneath a cover such as during filling of the unit or to adjust the pressure in this vapor headspace in response to normal daily diurnal ambient temperature fluctuations. A safety device is designed to remain in a closed position during normal operations and open only when the internal pressure, or another relevant parameter, exceeds the device threshold setting applicable to the air emission control equipment as determined by the owner or operator based on manufacturer recommendations, applicable regulations, fire protection and prevention codes, standard engineering codes and practices, or other requirements for the safe handling of flammable, ignitable, explosive, reactive, or hazardous materials.
- (21) ***‘Single-seal system’*** means a floating roof having one continuous seal. This seal may be vapor-mounted, liquid-mounted, or a metallic shoe seal.

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- (22) ***'Vapor-mounted seal'*** means a continuous seal that is mounted such that there is a vapor space between the hazardous waste in the unit and the bottom of the seal.
- (23) ***'Volatile organic concentration'*** or ***'VO concentration'*** means the fraction by weight of the volatile organic compounds contained in a hazardous waste expressed in terms of parts per million (ppmw) as determined by direct measurement or by knowledge of the waste in accordance with the requirements of subdivision (e) of this section. For the purpose of determining the VO concentration of a hazardous waste, organic compounds with a Henry's Law constant value of at least 0.1 mole-fraction-in-the-gas-phase/mole-fraction-in-the-liquid-phase (0.1 Y/X) (which can also be expressed as 1.8×10^{-6} atmospheres/gram-mole/m³) at 25 degrees Celsius must be included. A list of compounds known to have a Henry's Law constant value less than the cutoff level can be found at appendix VI to 40 CFR part 265 as incorporated by reference in Appendix 55 of this Title.
- (24) ***'Waste determination'*** means performing all applicable procedures in accordance with the requirements of subdivision (e) of this section to determine whether a hazardous waste meets standards specified in this section. Examples of a waste determination include performing the procedures in accordance with the requirements of subdivision (e) of this section to determine the average VO concentration of a hazardous waste at the point of waste origination; the average VO concentration of a hazardous waste at the point of waste treatment and comparing the results to the exit concentration limit specified for the process used to treat the hazardous waste; the organic reduction efficiency and the organic biodegradation efficiency for a biological process used to treat a hazardous waste and comparing the results to the applicable standards; or the maximum volatile organic vapor pressure for a hazardous waste in a tank and comparing the results to the applicable standards.
- (25) ***'Waste stabilization process'*** means any physical or chemical process used to either reduce the mobility of hazardous constituents in a hazardous waste or eliminate free liquids as determined by Test Method 9095B (Paint Filter Liquids Test) in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication No. SW-846, as incorporated by reference in section 370.1(e) of this Title. A waste stabilization process includes mixing the hazardous waste with binders or other materials, and curing the resulting hazardous waste and binder mixture. Other synonymous terms used to refer to this process are ***'waste fixation'*** or ***'waste solidification.'*** This does not include the adding of absorbent materials to the surface of a waste, without mixing, agitation, or subsequent curing, to absorb free liquid.

(c) **Schedule for implementation of air emission standards.**

- (1) Owners or operators of facilities existing on December 6, 1996, and subject to sections 373-3.9, 373-3.10, and 373-3.11 of this Subpart shall meet the following requirements:
- (i) Install and begin operation of all control equipment or waste management units required to comply with this section and complete modifications of production or treatment processes to satisfy exemption criteria in accordance with paragraph (d)(3) of this section, except as provided for in subparagraph (ii) of this paragraph.

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- (ii) When control equipment or waste management units required to comply with this section cannot be installed and in operation or modifications of production or treatment processes to satisfy exemption criteria in accordance with paragraph (d)(3) of this section cannot be completed by December 6, 1996, the owner or operator shall:
 - ('a') Install and begin operation of the control equipment and waste management units, and complete modifications of production or treatment processes as soon as possible but no later than December 8, 1997.
 - ('b') Prepare an implementation schedule that includes the following information: specific calendar dates for award of contracts or issuance of purchase orders for the control equipment, waste management units, and production or treatment process modifications; initiation of on-site installation of control equipment or waste management units and modifications of production or treatment processes; completion of control equipment or waste management unit installation, and production or treatment processes modifications; and performance of testing to demonstrate that the installed equipment or waste management units and modified production or treatment processes meet the applicable standards of this section.
 - ('c') For facilities subject to the recordkeeping requirements of section 373-3.5(c) of this Subpart, the owner or operator shall enter the implementation schedule specified in clause ('b') of this subparagraph in the operating record no later than December 6, 1996.
 - ('d') For facilities not subject to section 373-3.5(c) of this Subpart, the owner or operator shall enter the implementation schedule specified in clause ('b') of this subparagraph in a permanent, readily available file located at the facility no later than December 6, 1996.
- (2) Owners or operators of facilities and units in existence on the effective date of statutory or regulatory amendment to this Title that renders the facility subject to section 373-3.9, 373-3.10, or 373-3.11 of this Subpart shall meet the following requirements:
 - (i) Install and begin operation of control equipment or waste management units required to comply with this section and complete modifications of production or treatment processes to satisfy exemption criteria of paragraph (d)(3) of this section by the effective date of the amendment except as provided for in subparagraph (ii) of this paragraph.
 - (ii) When control equipment or waste management units required to comply with this section cannot be installed and begin operation, or when modifications of production or treatment processes to satisfy exemption criteria of paragraph (d)(3) of this section cannot be completed by the effective date of the amendment, the owner or operator shall:
 - ('a') install and begin operation of the control equipment or waste management unit and, complete modification of production or treatment processes as soon as possible but no later than 30 months after the effective date of the amendment;

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- (b) for facilities subject to the recordkeeping requirements of section 373-3.5(c) of this Subpart, enter and maintain the implementation schedule specified in clause (1)(ii)(b) of this subdivision in the operating record no later than the effective date of the amendment; or
- (c) for facilities not subject to section 373-3.5(c) of this Subpart, the owner or operator shall enter and maintain the implementation schedule specified in clause (1)(ii)(b) of this subdivision in a permanent, readily available file located at the facility site no later than the effective date of the amendment.

- (3) Owners and operators of facilities and units that become newly subject to the requirements of this section after December 8, 1997 due to an action other than those described in paragraph (2) of this subdivision must comply with all applicable requirements immediately (i.e., must have control devices installed and operating on the date the facility or unit becomes subject to this section; the 30-month implementation schedule does not apply.
- (4) The commissioner may elect to extend the implementation date for control equipment at a facility, on a case-by-case basis, to a date later than December 8, 1997, when special circumstances that are beyond the facility owner's or operator's control delay installation or operation of control equipment and the owner or operator has made all reasonable and prudent attempts to comply with the requirements of this section.

(d) Standards: general.

- (1) This subdivision applies to the management of hazardous waste in tanks, surface impoundments, and containers subject to this section.
- (2) The owner or operator shall control air pollutant emissions from each hazardous waste management unit in accordance with standards specified in subdivisions (f) through (i) of this section, as applicable to the hazardous waste management unit, except as provided for in paragraph (3) of this subdivision.
- (3) A tank, surface impoundment, or container is exempt from standards specified in subdivisions (f) through (i) of this section, as applicable, provided that the waste management unit is one of the following:
 - (i) A tank, surface impoundment, or container for which all hazardous waste entering the unit has an average VO concentration at the point of waste origination of less than 500 parts per million by weight (ppmw). The average VO concentration shall be determined using the procedures specified in paragraph (e)(1) of this section. The owner or operator shall review and update, as necessary, this determination at least once every 12 months following the date of the initial determination for the hazardous waste streams entering the unit.
 - (ii) A tank, surface impoundment, or container for which the organic content of all the hazardous waste entering the waste management unit has been reduced by an organic destruction or removal process that achieves any one of the following conditions:

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- (a) A process that removes or destroys the organics contained in the hazardous waste to a level such that the average VO concentration of the hazardous waste at the point of waste treatment is less than the exit concentration limit (C_t) established for the process. The average VO concentration of the hazardous waste at the point of waste treatment and the exit concentration limit for the process shall be determined using the procedures specified in paragraph (e)(2) of this section.
- (b) A process that removes or destroys the organics contained in the hazardous waste to a level such that the organic reduction efficiency (R) for the process is equal to or greater than 95 percent, and the average VO concentration of the hazardous waste at the point of waste treatment is less than 100 ppmw. The organic reduction efficiency for the process and the average VO concentration of the hazardous waste at the point of waste treatment shall be determined using the procedures specified in paragraph (e)(2) of this section.
- (c) A process that removes or destroys the organics contained in the hazardous waste to a level such that the actual organic mass removal rate (MR) for the process is equal to or greater than the required organic mass removal rate (RMR) established for the process. The required organic mass removal rate and the actual organic mass removal rate for the process shall be determined using the procedures specified in paragraph (e)(2) of this section.
- (d) A biological process that destroys or degrades the organics contained in the hazardous waste, such that either of the following conditions is met:
 - (1) The organic reduction efficiency (R) for the process is equal to or greater than 95 percent, and the organic biodegradation efficiency (R_{bio}) for the process is equal to or greater than 95 percent. The organic reduction efficiency and the organic biodegradation efficiency for the process shall be determined using the procedures specified in paragraph (e)(2) of this section.
 - (2) The total actual organic mass biodegradation rate (MR_{bio}) for all hazardous waste treated by the process is equal to or greater than the required organic mass removal rate (RMR). The required organic mass removal rate and the actual organic mass biodegradation rate for the process shall be determined using the procedures specified in paragraph (e)(2) of this section.
- (e) A process that removes or destroys the organics contained in the hazardous waste and meets all of the following conditions:
 - (1) From the point of waste origination through the point where the hazardous waste enters the treatment process, the hazardous waste is managed continuously in waste management units which use air emission controls in accordance with the standards specified in subdivisions (f) through (i) of this section, as applicable to the waste management unit.

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- (2') From the point of waste origination through the point where the hazardous waste enters the treatment process, any transfer of the hazardous waste is accomplished through continuous hard-piping or other closed system transfer that does not allow exposure of the waste to the atmosphere. The department considers a drain system that meets the requirements of 40 CFR part 63, subpart RR—National Emission Standards for Individual Drain Systems, as incorporated by reference in section 370.1(e) of this Title, to be a closed system.
- (3') The average VO concentration of the hazardous waste at the point of waste treatment is less than the lowest average VO concentration at the point of waste origination determined for each of the individual waste streams entering the process or 500 ppmw, whichever value is lower. The average VO concentration of each individual waste stream at the point of waste origination shall be determined using the procedures specified in paragraph (e)(1) of this section. The average VO concentration of the hazardous waste at the point of waste treatment shall be determined using the procedures specified in paragraph (e)(2) of this section.
- ('f') A process that removes or destroys the organics contained in the hazardous waste to a level such that the organic reduction efficiency (R) for the process is equal to or greater than 95 percent and the owner or operator certifies that the average VO concentration at the point of waste origination for each of the individual waste streams entering the process is less than 10,000 ppmw. The organic reduction efficiency for the process and the average VO concentration of the hazardous waste at the point of waste origination shall be determined using the procedures specified in paragraphs (e)(2) and (1) of this section, respectively.
- ('g') A hazardous waste incinerator for which the owner or operator has either:
 - ('1') been issued a final permit under Subpart 373-1 of this Part which implements the requirements of section 373-2.15 of this Part; or
 - ('2') has designed and operates the incinerator in accordance with the interim status requirements of section 373-3.15 of this Subpart.
- ('h') A boiler or industrial furnace for which the owner or operator has either:
 - ('1') been issued a final permit under Subpart 373-1 of this Part which implements the requirements of section 374-1.8 of this Title; or
 - ('2') has designed and operates the boiler or industrial furnace in accordance with the interim status requirements of section 374-1.8 of this Title.
- ('i') For the purpose of determining the performance of an organic destruction or removal process in accordance with the conditions in each of clauses ('a') through ('f') of this subparagraph, the owner or operator shall account for VO concentrations determined to be below the limit of detection of the analytical method by using the following VO concentration:

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- (1') If Method 25D in 40 CFR part 60, appendix A, as incorporated by reference in section 370.1(e) of this Title, is used for the analysis, one-half the blank value determined in the method at section 4.4 of Method 25D in 40 CFR part 60, appendix A, as incorporated by reference in section 370.1(e) of this Title, or a value of 25 ppmw, whichever is less.
 - (2') If any other analytical method is used, one-half the sum of the limits of detection established for each organic constituent in the waste that has a Henry's Law constant value at least 0.1 mole-fraction-in-the-gas-phase/mole-fraction-in-the-liquid-phase (0.1 Y/X) (which can also be expressed as 1.8×10^{-6} atmospheres/gram-mole/m³) at 25°C.
- (iii) A tank or surface impoundment used for biological treatment of hazardous waste in accordance with the requirements of clause (ii)('d') of this paragraph.
 - (iv) A tank, surface impoundment, or container for which all hazardous waste placed in the unit either:
 - ('a') meets the numerical concentration limits for organic hazardous constituents, applicable to the hazardous waste, as specified in Part 376 of this Title, Land Disposal Restrictions under Table "Treatment Standards for Hazardous Waste" in section 376.4 of this Title; or
 - ('b') the organic hazardous constituents in the waste have been treated by the treatment technology established by the department for the waste in section 376.4(c)(1) of this Title, or have been removed or destroyed by an equivalent method of treatment approved by the US EPA and the department pursuant to section 376.4(c)(2) of this Title.
 - (v) A tank used for bulk feed of hazardous waste to a waste incinerator and all of the following conditions are met:
 - ('a') The tank is located inside an enclosure vented to a control device that is designed and operated in accordance with all applicable requirements specified under 40 CFR part 61, subpart FF—National Emission Standards for Benzene Waste Operations, as incorporated by reference in section 370.1(e) of this Title, for a facility at which the total annual benzene quantity from the facility waste is equal to or greater than 10 megagrams per year.
 - ('b') The enclosure and control device serving the tank were installed and began operation prior to November 25, 1996.
 - ('c') The enclosure is designed and operated in accordance with the criteria for a permanent total enclosure as specified in "Procedure T—Criteria for and Verification of a Permanent or Temporary Total Enclosure" under 40 CFR 52.741, appendix B, as incorporated by reference in section 370.1(e) of this Title. The enclosure may have

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permanent or temporary openings to allow worker access; passage of material into or out of the enclosure by conveyor, vehicles, or other mechanical or electrical equipment; or to direct air flow into the enclosure. The owner or operator shall perform the verification procedure for the enclosure as specified in section 5.0 to “Procedure T—Criteria for and Verification of a Permanent or Temporary Total Enclosure” annually.

- (4) The commissioner may at any time perform or request that the owner or operator perform a waste determination for a hazardous waste managed in a tank, surface impoundment, or container exempted from using air emission controls under the provisions of this section as follows:
- (i) The waste determination for average VO concentration of a hazardous waste at the point of waste origination shall be performed using direct measurement in accordance with the applicable requirements of paragraph (e)(1) of this section. The waste determination for a hazardous waste at the point of waste treatment shall be performed in accordance with the applicable requirements of paragraph (e)(2) of this section.
 - (ii) In performing a waste determination pursuant to subparagraph (i) of this paragraph, the sample preparation and analysis shall be conducted as follows:
 - ('a') In accordance with the method used by the owner or operator to perform the waste analysis, except in the case specified in clause ('b') of this subparagraph.
 - ('b') If the commissioner determines that the method used by the owner or operator was not appropriate for the hazardous waste managed in the tank, surface impoundment, or container, then the commissioner may choose an appropriate method.
 - (iii) In a case when the owner or operator is requested to perform the waste determination, the commissioner may elect to have an authorized representative observe the collection of the hazardous waste samples used for the analysis.
 - (iv) In a case when the results of the waste determination performed or requested by the commissioner do not agree with the results of a waste determination performed by the owner or operator using knowledge of the waste, then the results of the waste determination performed in accordance with the requirements of subparagraph (i) of this paragraph shall be used to establish compliance with the requirements of this section.
 - (v) In a case when the owner or operator has used an averaging period greater than one hour for determining the average VO concentration of a hazardous waste at the point of waste origination, the commissioner may elect to establish compliance with this section by performing or requesting that the owner or operator perform a waste determination using direct measurement based on waste samples collected within a one-hour period as follows:
 - ('a') The average VO concentration of the hazardous waste at the point of waste origination shall be determined by direct measurement in accordance with the requirements of paragraph (e)(1) of this section.

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- (b) Results of the waste determination performed or requested by the commissioner showing that the average VO concentration of the hazardous waste at the point of waste origination is equal to or greater than 500 ppmw shall constitute noncompliance with this section except in a case as provided for in clause ('c') of this subparagraph.
- (c) For the case when the average VO concentration of the hazardous waste at the point of waste origination previously has been determined by the owner or operator using an averaging period greater than one hour to be less than 500 ppmw but because of normal operating process variations the VO concentration of the hazardous waste determined by direct measurement for any given one-hour period may be equal to or greater than 500 ppmw, information that was used by the owner or operator to determine the average VO concentration of the hazardous waste (e.g., test results, measurements, calculations, and other documentation) and recorded in the facility records in accordance with the requirements of paragraph (e)(1) and subdivision (k) of this section shall be considered by the commissioner together with the results of the waste determination performed or requested by the commissioner in establishing compliance with this section.

(e) Waste determination procedures.

- (1) Waste determination procedure to determine average volatile organic (VO) concentration of a hazardous waste at the point of waste origination.
 - (i) An owner or operator shall determine the average VO concentration at the point of waste origination for each hazardous waste placed in a waste management unit exempted under the provisions of subparagraph (d)(3)(i) of this section from using air emission controls in accordance with standards specified in subdivisions (f) through (i) of this section, as applicable to the waste management unit.
 - (a) An initial determination of the average VO concentration of the waste stream shall be made before the first time any portion of the material in the hazardous waste stream is placed in a waste management unit exempted under the provisions of subparagraph (d)(3)(i) of this section from using air emission controls, and thereafter an initial determination of the average VO concentration of the waste stream shall be made for each averaging period that a hazardous waste is managed in the unit.
 - (b) Perform a new waste determination whenever changes to the source generating the waste stream are reasonably likely to cause the average VO concentration of the hazardous waste to increase to a level that is equal to or greater than the VO concentration limit specified in subparagraph (d)(3)(i) of this section.
- (ii) For a waste determination that is required by subparagraph (i) of this paragraph, the average VO concentration of a hazardous waste at the point of waste origination shall be determined using either direct measurement as specified in subparagraph (iii) of this paragraph or by knowledge as specified in subparagraph (iv) of this paragraph.

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- (iii) Direct measurement to determine average VO concentration of a hazardous waste at the point of waste origination.
 - ('a') Identification. The owner or operator shall identify and record the point of waste origination for the hazardous waste.
 - ('b') Sampling. Samples of the hazardous waste stream shall be collected at the point of waste origination in manner such that volatilization of organics contained in the waste and in the subsequent sample is minimized and an adequately representative sample is collected and maintained for analysis by the selected method.
 - ('1') The averaging period to be used for determining the average VO concentration for the hazardous waste stream on a mass-weighted average basis shall be designated and recorded. The averaging period can represent any time interval that the owner or operator determines is appropriate for the hazardous waste stream but shall not exceed one year.
 - ('2') A sufficient number of samples, but no less than four samples, shall be collected and analyzed for a hazardous waste determination. All of the samples for a given waste determination shall be collected within a one-hour period. The average of the four or more sample results constitutes a waste determination for the waste stream. One or more waste determinations may be required to represent the complete range of waste compositions and quantities that occur during the entire averaging period due to normal variations in the operating conditions for the source or process generating the hazardous waste stream. Examples of such normal variations are seasonal variations in waste quantity or fluctuations in ambient temperature.
 - ('3') All samples shall be collected and handled in accordance with written procedures prepared by the owner or operator and documented in a site sampling plan. This plan shall describe the procedure by which representative samples of the hazardous waste stream are collected such that a minimum loss of organics occurs throughout the sample collection and handling process, and by which sample integrity is maintained. A copy of the written sampling plan shall be maintained on-site in the facility operating records. An example of acceptable sample collection and handling procedures for a total volatile organic constituent concentration may be found in Method 25D in 40 CFR part 60, appendix A as incorporated by reference in section 370.1(e) of this Title.
 - ('4') Sufficient information, as specified in the site-sampling plan required under subclause ('3') of this clause, shall be prepared and recorded to document the waste quantity represented by the samples and, as applicable, the operating conditions for the source or process generating the hazardous waste represented by the samples.

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- (c) Analysis. Each collected sample shall be prepared and analyzed in accordance with method 25D in 40 CFR part 60, appendix A as incorporated by reference in section 370.1(e) of this Title, for the total concentration of volatile organic constituents, or using one or more methods when the individual organic compound concentrations are identified and summed and the summed waste concentration accounts for and reflects all organic compounds in the waste with Henry's Law constant values at least 0.1 mole-fraction-in-the-gas-phase/mole-fraction-in-the-liquid-phase (0.1y/x) (which can also be expressed as 1.8×10^{-6} atmospheres/gram-mole/m³) at 25°C. At the owner's or operator's discretion, the owner or operator may adjust test data obtained by any appropriate method to discount any contribution to the total volatile organic concentration that is the result of including a compound with a Henry's Law constant value of less than 0.1Y/X at 25°C. To adjust these data, the measured concentration of each individual chemical constituent contained in the waste is multiplied by the appropriate constituent-specific adjustment factor (f_{m25D}). If the owner or operator elects to adjust test data, the adjustment must be made to all individual chemical constituents with a Henry's Law constant value greater than or equal to 0.1Y/X at 25°C contained in the waste. Constituent-specific adjustment factors (f_{m25D}) can be obtained by contacting the Waste and Chemical Processes Group, Office of Air Quality Planning and Standards, Research Triangle Park, NC 27711. Other test methods may be used if they meet the requirements in subclause ('1') or ('2') of this clause and provided the requirement to reflect all organic compounds in the waste with Henry's Law constant values greater than or equal to 0.1Y/X (which can also be expressed as 1.8×10^{-6} atmospheres/gram-mole/m³) at 25°C, is met.
- (1) Any EPA standard method that has been validated in accordance with "Alternative Validation Procedure for EPA Waste and Wastewater Methods," 40 CFR part 63, appendix D, as incorporated by reference in section 370.1(e) of this Title.
- (2) Any other analysis method that has been validated in accordance with the procedures specified in section 5.1 or 5.3, and the corresponding calculations in section 6.1 or 6.3, of Method 301 in 40 CFR part 63, appendix A, as incorporated by reference in section 370.1(e) of this Title. The data are acceptable if they meet the criteria specified in section 6.1.5 or 6.3.3 of Method 301. If correction is required under section 6.3.3 of Method 301, the data are acceptable if the correction factor is within the range 0.7 to 1.30. Other sections of Method 301 are not required.
- (d) Calculations.

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- (1) The average VO concentration (\bar{C}) on a mass-weighted basis shall be calculated by using the results for all waste determinations conducted in accordance with clauses ('b') and ('c') of this subparagraph and the following equation:

$$\bar{C} = \frac{1}{Q_T} \times \sum_{i=1}^n (Q_i \times C_i)$$

Where:

\bar{C} = Average VO concentration of the hazardous waste at the point of waste origination on a mass-weighted basis, ppmw.

i = Individual waste determination "i" of the hazardous waste.

n = Total number of waste determinations of the hazardous waste conducted for the averaging period (not to exceed 1 year).

Q_i = Mass quantity of hazardous waste stream represented by C_i , kg/hr.

Q_T = Total mass quantity of hazardous waste during the averaging period, kg/hr.

C_i = Measured VO concentration of waste determination "i" as determined in accordance with the requirements of clause ('c') of this subparagraph, (i.e., the average of the four or more samples specified in subclause ('b')(2') of this subparagraph), ppmw.

- (2) For the purpose of determining C_i , for individual waste samples analyzed in accordance with clause ('c') of this subparagraph, the owner or operator shall account for VO concentrations determined to be below the limit of detection of the analytical method by using the following VO concentration:
- (i) If Method 25D in 40 CFR part 60, appendix A, as incorporated by reference in section 370.1(e) of this Title, is used for the analysis, one-half the blank value determined in the method at section 4.4 of Method 25D in 40 CFR part 60, appendix A, as incorporated by reference in section 370.1(e) of this Title.
 - (ii) If any other analytical method is used, one-half the sum of the limits of detection established for each organic constituent in the waste that has a Henry's Law constant values at least 0.1 mole-fraction-in-the-gas-phase/mole-fraction-in-the-liquid-phase (0.1 Y/X) (which can be expressed as 1.8×10^{-6} atmospheres/gram-mole/m³) at 25°C.
- (e) Provided that the test method is appropriate for the waste as required under clause ('c') of this subparagraph, the department will determine compliance based on the test method used by the owner or operator as recorded pursuant to subparagraph (k)(6)(i) of this section.

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- (iv) Use of owner or operator knowledge to determine average VO concentration of a hazardous waste at the point of waste origination.
 - ('a') Documentation shall be prepared that presents the information used as the basis for the owner's or operator's knowledge of the hazardous waste stream's average VO concentration. Examples of information that may be used as the basis for knowledge include: material balances for the source or process generating the hazardous waste stream; constituent-specific chemical test data for the hazardous waste stream from previous testing that are still applicable to the current waste stream; previous test data for other locations managing the same type of waste stream; or other knowledge based on information included in manifests, shipping papers, or waste certification notices.
 - ('b') If test data are used as the basis for knowledge, then the owner or operator shall document the test method, sampling protocol, and the means by which sampling variability and analytical variability are accounted for in the determination of the average VO concentration. For example, an owner or operator may use organic concentration test data for the hazardous waste stream that are validated in accordance with Method 301 in 40 CFR part 63, appendix A, as incorporated by reference in section 370.1(e) of this Title, as the basis for knowledge of the waste.
 - ('c') An owner or operator using chemical constituent-specific concentration test data as the basis for knowledge of the hazardous waste may adjust the test data to the corresponding average VO concentration value which would have been obtained had the waste samples been analyzed using Method 25D in 40 CFR part 60, appendix A as incorporated by reference in section 370.1(e) of this Title. To adjust these data, the measured concentration for each individual chemical constituent contained in the waste is multiplied by the appropriate constituent-specific adjustment factor (f_{m25D}).
 - ('d') In the event that the commissioner and the owner or operator disagree on a determination of the average VO concentration for a hazardous waste stream using knowledge, then the results from a determination of average VO concentration using direct measurement as specified in subparagraph (iii) of this paragraph shall be used to establish compliance with the applicable requirements of this section. The commissioner may perform or request that the owner or operator perform this determination using direct measurement. The owner or operator may choose one or more appropriate methods to analyze each collected sample in accordance with the requirements of clause (iii)(c) of this paragraph.
- (2) Waste determination procedures for treated hazardous waste.
 - (i) An owner or operator shall perform the applicable waste determination for each treated hazardous waste placed in a waste management unit exempted under the provisions of clauses (d)(3)(ii)(a) through (f) of this section from using air emission controls in accordance with standards specified in subdivisions (f) through (i) of this section, as applicable to the waste management unit.

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- (a) An initial determination of the average VO concentration of the waste stream shall be made before the first time any portion of the material in the treated waste stream is placed in a waste management unit exempted under the provisions of subparagraph (d)(3)(ii), (iii) or (iv) of this section from using air emission controls, and thereafter update the information used for the waste determination at least once every 12 months following the date of the initial waste determination.
 - (b) Perform a new waste determination whenever changes to the process generating or treating the waste stream are reasonably likely to cause the average VO concentration of the hazardous waste to increase to a level such that the applicable treatment conditions specified in subparagraph (d)(3)(ii), (iii) or (iv) of this section are not achieved.
- (ii) The owner or operator shall designate and record the specific provision in subparagraph (d)(3)(ii) of this section under which the waste determination is being performed. The waste determination for the treated hazardous waste shall be performed using the applicable procedures specified in applicable subparagraphs (iii) through (ix) of this paragraph.
 - (iii) Procedure to determine the average VO concentration of a hazardous waste at the point of waste treatment.
 - (a) Identification. The owner or operator shall identify and record the point of waste treatment for the hazardous waste.
 - (b) Sampling. Samples of the hazardous waste stream shall be collected at the point of waste treatment in a manner such that volatilization of organics contained in the waste and in the subsequent sample is minimized and an adequately representative sample is collected and maintained for analysis by the selected method.
 - (1) The averaging period to be used for determining average VO concentration for the hazardous waste stream on a mass-weighted average basis shall be designated and recorded. The averaging period can represent any time interval that the owner or operator determines is appropriate for the hazardous waste stream but shall not exceed one year.
 - (2) A sufficient number of samples, but no less than four samples, shall be collected and analyzed for a hazardous waste determination. All of the samples for a given waste determination shall be collected within a one-hour period. The average of the four or more sample results constitutes a waste determination for the waste stream. One or more waste determinations may be required to represent the complete range of waste compositions and quantities that occur during the entire averaging period due to normal variations in the operating conditions for the process generating or treating the hazardous waste stream. Examples of such normal variations are seasonal variations in waste quantity or fluctuations in ambient temperature.

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- (3') All samples shall be collected and handled in accordance with written procedures prepared by the owner or operator and documented in a site sampling plan. This plan shall describe the procedure by which representative samples of the hazardous waste stream are collected such that a minimum loss of organics occurs throughout the sample collection and handling process, and by which sample integrity is maintained. A copy of the written sampling plan shall be maintained on-site in the facility operating records. An example of an acceptable sample collection and handling procedures for a total volatile organic constituent concentration may be found in Method 25D in 40 CFR part 60, appendix A, as incorporated by reference in section 370.1(e) of this Title.
- (4') Sufficient information, as specified in the site sampling plan required under subclause ('3') of this clause, this clause, shall be prepared and recorded to document the waste quantity represented by the samples and, as applicable, the operating conditions for the process treating the hazardous waste represented by the samples.
- (c') Analysis. Each collected sample shall be prepared and analyzed in accordance with Method 25D in 40 CFR part 60, appendix A, as incorporated by reference in section 370.1(e) of this Title, for the total concentration of volatile organic constituents, or using one or more methods when the individual organic compound concentrations are identified and summed and the summed waste concentration accounts for and reflects all organic compounds in the waste with Henry's Law constant values at least 0.1 mole-fraction-in-the-gas-phase/mole-fraction-in-the-liquid-phase (0.1 Y/X) (which can also be expressed as 1.8×10^{-6} atmospheres/gram-mole/m³) at 25°C. When the owner or operator is making a waste determination for a treated hazardous waste that is to be compared to an average VO concentration at the point of waste origination or the point of waste entry to the treatment system, to determine if the conditions of sections 373-2.29(c)(3)(ii)(a) through (f) of this Part, or clauses (d)(3)(ii)(a) through (f) of this section are met, the waste samples shall be prepared and analyzed using the same method or methods as were used in making the initial waste determinations at the point of waste origination or at the point of entry to the treatment system. At the owner's or operator's discretion, the owner or operator may adjust test data obtained by any appropriate method to discount any contribution to the total volatile organic concentration that is a result of including a compound with a Henry's Law constant value less than 0.1 Y/X at 25°C. To adjust these data, the measured concentration of each individual chemical constituent contained in the waste is multiplied by the appropriate constituent-specific adjustment factor (f_{m25D}). If the owner or operator elects to adjust test data, the adjustment must be made to all individual chemical constituents with a Henry's Law constant value greater than or equal to 0.1 Y/X at 25°C contained in the waste. Constituent-specific adjustment factors (f_{m25D}) can be obtained by contacting the Waste and Chemical Processes Group, Office of Air Quality Planning and

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Standards, Research Triangle Park, NC 27711 (see section 370.1(e) of this Title). Other test methods may be used if they meet the requirements of subclause ('1') or ('2') of this clause and provided the requirement to reflect all organic compounds in the waste with Henry's Law constant values greater than or equal to 0.1 Y/X (which can also be expressed as 1.8×10^{-6} atmospheres/gram-mole/m³) at 25°C, is met.

('1') Any EPA standard method that has been validated in accordance with "Alternative Validation Procedures for EPA Waste and Wastewater Methods," 40 CFR part 63, appendix D, as incorporated by reference in section 370.1(e) of this Title.

('2') Any other analysis method that has been validated in accordance with the procedures specified in section 5.1 or 5.3, and the corresponding calculations in section 6.1 or 6.3, of Method 301 in 40 CFR part 63, appendix A, as incorporated by reference in section 370.1(e) of this Title. The data are acceptable if they meet the criteria specified in section 6.1.5 or 6.3.3 of Method 301 (see section 370.1(e) of this Title). If correction is required under section 6.3.3 of Method 301 (see section 370.1(e) of this Title), the data are acceptable if the correction factor is within the range 0.7 to 1.30. Other sections of Method 301 (see section 370.1(e) of this Title) are not required.

('d') Calculations. The average VO concentration (\bar{C}) on a mass-weighted basis shall be calculated by using the results for all waste determinations conducted in accordance with clauses ('b') and ('c') of this subparagraph and the following equation:

$$\bar{C} = \frac{1}{Q_T} \times \sum_{i=1}^n (Q_i \times C_i)$$

Where:

\bar{C} = Average VO concentration of the hazardous waste at the point of waste treatment on a mass-weighted basis, ppmw.

i = Individual waste determination "i" of the hazardous waste.

n = Total number of waste determinations of the hazardous waste conducted for the averaging period (not to exceed 1 year).

Q_i = Mass quantity of hazardous waste stream represented by C_i , kg/hr.

Q_T = Total mass quantity of hazardous waste during the averaging period, kg/hr.

C_i = Measured VO concentration of waste determination "i" as determined in accordance with the requirements of clause ('c') of this subparagraph, (i.e., the average of the four or more samples specified in subclause ('b')('2') of this subparagraph), ppmw.

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- (e) Provided that the test method is appropriate for the waste as required under clause ('c') of this subparagraph, compliance shall be determined based on the test method used by the owner or operator as recorded pursuant to subparagraph (k)(6)(i) of this section.
- (iv) Procedure to determine the exit concentration limit (C_t) for a treated hazardous waste.
- (a) The point of waste origination for each hazardous waste treated by the process at the same time shall be identified.
- (b) If a single hazardous waste stream is identified in clause ('a') of this subparagraph, then the exit concentration limit (C_t) shall be 500 ppmw.
- (c) If more than one hazardous waste stream is identified in clause ('a') of this subparagraph, then the average VO concentration of each hazardous waste stream at the point of waste origination shall be determined in accordance with the requirements of paragraph (1) of this subdivision. The exit concentration limit (C_t) shall be calculated by using the results determined for each individual hazardous waste stream and the following equation:

$$C_t = \frac{\sum_{x=1}^m (Q_x \times \bar{C}_x) + \sum_{y=1}^n (Q_y \times 500 \text{ ppmw})}{\sum_{x=1}^m Q_x + \sum_{y=1}^n Q_y}$$

Where:

C_t = Exit concentration limit for treated hazardous waste, ppmw.

x = Individual hazardous waste stream "x" that has an average VO concentration less than 500 ppmw at the point of waste origination as determined in accordance with the requirements of paragraph (1) of this subdivision.

y = Individual hazardous waste stream "y" that has an average VO concentration equal to or greater than 500 ppmw at the point of waste origination as determined in accordance with the requirements of paragraph (1) of this subdivision.

m = Total number of "x" hazardous waste streams treated by process.

n = Total number of "y" hazardous waste streams treated by process.

Q_x = Annual mass quantity of hazardous waste stream "x," kg/yr.

Q_y = Annual mass quantity of hazardous waste stream "y," kg/yr.

C_x = Average VO concentration of hazardous waste stream "x" at the point of waste origination as determined in accordance with the requirements of paragraph (1) of this subdivision, ppmw.

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- (v) Procedure to determine the organic reduction efficiency (R) for a treated hazardous waste.
- (a) The organic reduction efficiency (R) for a treatment process shall be determined based on results for a minimum of three consecutive runs.
- (b) All hazardous waste streams entering the treatment process and all hazardous waste streams exiting the treatment process shall be identified. The owner or operator shall prepare a sampling plan for measuring these streams that accurately reflects the retention time of the hazardous waste in the process.
- (c) For each run, information shall be determined for each hazardous waste stream identified in clause (b) of this subparagraph using following procedures:
- (1) The mass quantity of each hazardous waste stream entering the process (Q_b) and the mass quantity of each hazardous waste stream exiting the process (Q_a) shall be determined.
- (2) The average VO concentration at the point of waste origination of each hazardous waste stream entering the process (\bar{C}_b) during the run shall be determined in accordance with the requirements of subparagraph (1)(iii) of this subdivision. The average VO concentration at the point of waste treatment of each waste stream exiting the process (\bar{C}_a) during the run shall be determined in accordance with the requirements of subparagraph (iii) of this paragraph.
- (d) The waste volatile organic mass flow entering the process (E_b) and the waste volatile organic mass flow exiting the process (E_a) shall be calculated by using the results determined in accordance with clause (c) of this subparagraph and the following equations:

$$E_b = \frac{1}{10^6} \sum_{j=1}^m (Q_{bj} \times \bar{C}_{bj})$$

$$E_a = \frac{1}{10^6} \sum_{j=1}^m (Q_{aj} \times \bar{C}_{aj})$$

Where:

E_a = Waste volatile organic mass flow exiting process, kg/hr.

E_b = Waste volatile organic mass flow entering process, kg/hr.

m = Total number of runs (at least 3)

j = Individual run "j"

Q_b = Mass quantity of hazardous waste entering process during run "j," kg/hr.

Q_a = Average mass quantity of hazardous waste exiting process during run "j," kg/hr.

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\bar{C}_a = Average VO concentration of hazardous waste exiting process during run “j” as determined in accordance with the requirements of subparagraph (iii) of this paragraph, ppmw.

\bar{C}_b = Average VO concentration of hazardous waste entering process during run “j” as determined in accordance with the requirements of subparagraph (1)(iii) of this subdivision, ppmw.

- (e) The organic reduction efficiency of the process shall be calculated by using the results determined in accordance with clause (‘d’) of this subparagraph and the following equation:

$$R = \frac{E_b - E_a}{E_b} \times 100\%$$

Where:

R = Organic reduction efficiency, percent.

E_b = Waste volatile organic mass flow entering process as determined in accordance with the requirements of clause (‘d’) of this subparagraph, kg/hr.

E_a = Waste volatile organic mass flow exiting process as determined in accordance with the requirements of clause (‘d’) of this subparagraph, kg/hr.

- (vi) Procedure to determine the organic biodegradation efficiency (R_{bio}) for a treated hazardous waste.

(a) The fraction of organics biodegraded (F_{bio}) shall be determined using the procedure specified in 40 CFR part 63, appendix C, as incorporated by reference in section 370.1(e) of this Title.

(b) The (R_{bio}) shall be calculated by using the following equation:

$$R_{bio} = F_{bio} \times 100\%$$

Where:

R_{bio} = Organic biodegradation efficiency, percent.

F_{bio} = Fraction of organic biodegraded as determined in accordance with the requirements of clause (‘a’) of this subparagraph.

- (vii) Procedure to determine the required organic mass removal rate (RMR) for a treated hazardous waste.

(a) All of the hazardous waste streams entering the treatment process shall be identified.

(b) The average VO concentration of each hazardous waste stream at the point of waste origination shall be determined in accordance with the requirements of paragraph (1) of this subdivision.

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- (c) For each individual hazardous waste stream that has an average VO concentration equal to or greater than 500 ppmw at the point of waste origination, the average volumetric flow rate and the density of the hazardous waste stream at the point of waste origination shall be determined.
- (d) The RMR shall be calculated by using the average VO concentration, average volumetric flow rate, and density determined for each individual hazardous waste stream, and the following equation:

$$RMR = \sum_{y=1}^n \left[V_y \times k_y \times \frac{(\bar{C}_y - 500 \text{ ppmw})}{10^6} \right]$$

Where:

RMR = Required organic mass removal rate, kg/hr.

y = Individual hazardous waste stream “y” that has an average VO concentration equal to or greater than 500 ppmw at the point of waste origination as determined in accordance with the requirements of paragraph (1) of this subdivision.

n = Total number of “y” hazardous waste streams treated by process.

V_y = Average volumetric flow rate of hazardous waste stream “y” at the point of waste origination, m³/hr.

k_y = Density of hazardous waste stream “y,” kg/m³.

\bar{C}_y = Average VO concentration of hazardous waste stream “y” at the point of waste origination as determined in accordance with the requirements of paragraph (1) of this subdivision, ppmw.

- (viii) Procedure to determine the actual organic mass removal rate (MR) for a treated hazardous waste.
- (a) The MR shall be determined based on results for a minimum of three consecutive runs. The sampling time for each run shall be one hour.
- (b) The waste volatile organic mass flow entering the process (*E_b*) and the waste volatile organic mass flow exiting the process (*E_a*) shall be determined in accordance with the requirements of clause (v)(d’) of this paragraph.
- (c) The MR shall be calculated by using the mass flow rate determined in accordance with the requirements of clause (b’) of this subparagraph and the following equation:

$$MR = E_b - E_a$$

Where:

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MR = Actual organic mass removal rate, kg/hr.

E_b = Waste volatile organic mass flow entering process as determined in accordance with the requirements of clause (v)(‘d’) of this paragraph, kg/hr.

E_a = Waste volatile organic mass flow exiting process as determined in accordance with the requirements of clause (v)(‘d’) of this paragraph, kg/hr.

- (ix) Procedure to determine the actual organic mass biodegradation rate (MR_{bio}) for a treated hazardous waste.
- (‘a’) The MR_{bio} shall be determined based on results for a minimum of three consecutive runs. The sampling time for each run shall be one hour.
- (‘b’) The waste organic mass flow entering the process (E_b) shall be determined in accordance with the requirements of clause (v)(‘d’) of this paragraph.
- (‘c’) The fraction of organic biodegraded (F_{bio}) shall be determined using the procedure specified in 40 CFR part 63, appendix C, as incorporated by reference in section 370.1(e) of this Title.
- (‘d’) The MR_{bio} shall be calculated by using the mass flow rates and fraction of organic biodegraded determined in accordance with the requirements of clauses (‘b’) and (‘c’), respectively, of this subparagraph and the following equation:

$$MR_{bio} = E_b \times F_{bio}$$

Where:

MR_{bio} = Actual organic mass biodegradation rate, kg/hr.

E_b = Waste organic mass flow entering process as determined in accordance with the requirements of clause (v)(‘d’) of this paragraph, kg/hr.

F_{bio} = Fraction of organic biodegraded as determined in accordance with the requirements of clause (‘c’) of this subparagraph.

- (3) Procedure to determine the maximum organic vapor pressure of a hazardous waste in a tank.
- (i) An owner or operator shall determine the maximum organic vapor pressure for each hazardous waste placed in a tank using Tank Level 1 controls in accordance with standards specified in paragraph (f)(3) of this section.
- (ii) An owner or operator shall use either direct measurement as specified in subparagraph (iii) of this paragraph or knowledge of the waste as specified by subparagraph (iv) of this paragraph to determine the maximum organic vapor pressure which is representative of the hazardous waste composition stored or treated in the tank.
- (iii) Direct measurement to determine the maximum organic vapor pressure of a hazardous waste.

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- (a) Sampling. A sufficient number of samples shall be collected to be representative of the waste contained in the tank. All samples shall be collected and handled in accordance with written procedures prepared by the owner or operator and documented in a site sampling plan. This plan shall describe the procedure by which representative samples of the hazardous waste are collected such that a minimum loss of organics occurs throughout the sample collection and handling process and by which sample integrity is maintained. A copy of the written sampling plan shall be maintained on-site in the facility operating records. An example of acceptable sample collection and handling procedures may be found in Method 25D in 40 CFR part 60, appendix A, as incorporated by reference in section 370.1(e) of this Title.
 - (b) Analysis. Any appropriate one of the following methods may be used to analyze the samples and compute the maximum organic vapor pressure of the hazardous waste:
 - (1) Method 25E in 40 CFR part 60 appendix A, as incorporated by reference in section 370.1(e) of this Title;
 - (2) methods described in American Petroleum Institute Publication 2517, Third Edition, February 1989, "Evaporative Loss from External Floating-Roof Tanks," as incorporated by reference in section 370.1(e) of this Title;
 - (3) methods obtained from standard reference texts;
 - (4) ASTM Method 2879-92, as incorporated by reference in section 370.1(e) of this Title; and
 - (5) any other method approved by the commissioner.
 - (iv) Use of knowledge to determine the maximum organic vapor pressure of the hazardous waste. Documentation shall be prepared and recorded that presents the information used as the basis for the owner's or operator's knowledge that the maximum organic vapor pressure of the hazardous waste is less than the maximum vapor pressure limit listed in clause (f)(2)(i)(a) of this section for the applicable tank design capacity category. An example of information that may be used is documentation that the hazardous waste is generated by a process for which at other locations it previously has been determined by direct measurement that the waste maximum organic vapor pressure is less than the maximum vapor pressure limit for the appropriate tank design capacity category.
- (4) Procedure for determining no detectable organic emissions for the purpose of complying with this section:
- (i) The test shall be conducted in accordance with the procedures specified in Method 21 of 40 CFR part 60, appendix A, as incorporated by reference in section 370.1(e) of this Title. Each potential leak interface (i.e., a location where organic vapor leakage could occur) on the cover and associated closure devices shall be checked. Potential leak interfaces that are associated with covers and closure devices include, but are not limited to: the interface of the cover and

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its foundation mounting; the periphery of any opening on the cover and its associated closure device; and the sealing seat interface on a spring-loaded pressure relief valve.

- (ii) The test shall be performed when the unit contains a hazardous waste having an organic concentration representative of the range of concentrations for the hazardous waste expected to be managed in the unit. During the test, the cover and closure devices shall be secured in the closed position.
- (iii) The detection instrument shall meet the performance criteria of Method 21 of 40 CFR part 60, appendix A, as incorporated by reference in section 370.1(e) of this Title, except the instrument response factor criteria in section 3.1.2(a) of Method 21 shall be for the average composition of the organic constituents in the hazardous waste placed in the waste management unit, not for each individual organic constituent.
- (iv) The detection instrument shall be calibrated before use on each day of its use by the procedures specified in Method 21 of 40 CFR part 60, appendix A, as incorporated by reference in section 370.1(e) of this Title.
- (v) Calibration gases shall be as follows:
 - ('a') zero air (less than 10 ppmv hydrocarbon in air); and
 - ('b') a mixture of methane or n-hexane and air at a concentration of approximately, but less than 10,000 ppmv methane or n-hexane.
- (vi) The background level shall be determined according to the procedures in Method 21 of 40 CFR part 60, appendix A, as incorporated by reference in section 370.1(e) of this Title.
- (vii) Each potential leak interface shall be checked by traversing the instrument probe around the potential leak interface as close to the interface as possible, as described in Method 21 of 40 CFR part 60, appendix A, as incorporated by reference in section 370.1(e) of this Title. In the case when the configuration of the cover or closure device prevents a complete traverse of the interface, all accessible portions of the interface shall be sampled. In the case when the configuration of the closure device prevents any sampling at the interface and the device is equipped with an enclosed extension or horn (e.g., some pressure relief devices), the instrument probe inlet shall be placed at approximately the center of the exhaust area to the atmosphere.
- (viii) The arithmetic difference between the maximum organic concentration indicated by the instrument and the background level shall be compared with the value of 500 ppmv except when monitoring a seal around a rotating shaft that passes through a cover opening, in which case the comparison shall be as specified in subparagraph (ix) of this paragraph. If the difference is less than 500 ppmv, then the potential leak interface is determined to operate with no detectable organic emissions.
- (ix) For the seals around a rotating shaft that passes through a cover opening, the arithmetic difference between the maximum organic concentration indicated by the instrument and the

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background level shall be compared with the value of 10,000 ppmw. If the difference is less than 10,000 ppmw, then the potential leak interface is determined to operate with no detectable organic emissions.

(f) Standards: tanks.

(1) The provisions of this section apply to the control of air pollutant emissions from tanks for which paragraph (d)(2) of this section references the use of this subdivision for such air emission control.

(2) The owner or operator shall control air pollutant emissions from each tank subject to this subdivision in accordance with following requirements, as applicable:

(i) For a tank that manages hazardous waste that meets all of the conditions specified in clauses ('a') through ('c') of this subparagraph, the owner or operator shall control air pollutant emissions from the tank in accordance with the Tank Level 1 controls specified in paragraph (3) of this subdivision or Tank Level 2 controls specified in paragraph (4) of this subdivision.

('a') The hazardous waste in the tank has a maximum organic vapor pressure which is less than the maximum organic vapor pressure limit for the tank's design capacity category as follows:

(1') For a tank design capacity equal to or greater than 151 m³, the maximum organic vapor pressure limit for the tank is 5.2 kPa.

(2') For a tank design capacity equal to or greater than 75 m³ but less than 151 m³, the maximum organic vapor pressure limit for the tank is 27.6 kPa.

(3') For a tank design capacity less than 75 m³, the maximum organic vapor pressure limit for the tank is 76.6 kPa.

('b') The hazardous waste in the tank is not heated by the owner or operator to a temperature that is greater than the temperature at which the maximum organic vapor pressure of the hazardous waste is determined for the purpose of complying with clause ('a') of this subparagraph.

('c') The hazardous waste in the tank is not treated by the owner or operator using a waste stabilization process, as defined in subdivision (b) of this section.

(ii) For a tank that manages hazardous waste that does not meet all of the conditions specified in clauses ('a') through ('c') of this subparagraph, the owner or operator shall control air pollutant emissions from the tank by using Tank Level 2 controls in accordance with the requirements of paragraph (4) of this subdivision. Examples of tanks required to use Tank Level 2 controls include: a tank used for a waste stabilization process; and a tank for which the hazardous waste in the tank has a maximum organic vapor pressure that is equal to or greater than the maximum organic vapor pressure limit for the tank's design capacity category as specified in clause (i)('a') of this paragraph.

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- (3) Owners and operators controlling air pollutant emissions from a tank using Tank Level 1 controls shall meet the requirements specified in subparagraphs (i) through (iv) of this paragraph:
- (i) The owner or operator shall determine the maximum organic vapor pressure for a hazardous waste to be managed in the tank using Tank Level 1 controls before the first time the hazardous waste is placed in the tank. The maximum organic vapor pressure shall be determined using the procedures specified in paragraph (e)(3) of this section. Thereafter, the owner or operator shall perform a new determination whenever changes to the hazardous waste managed in the tank could potentially cause the maximum organic vapor pressure to increase to a level that is equal to or greater than the maximum organic vapor pressure limit for the tank design capacity category specified in clause (2)(i)(‘a’) of this subdivision, as applicable to the tank.
 - (ii) The tank shall be equipped with a fixed roof designed to meet the following specifications:
 - (‘a’) The fixed roof and its closure devices shall be designed to form a continuous barrier over the entire surface area of the hazardous waste in the tank. The fixed roof may be a separate cover installed on the tank (e.g., a removable cover mounted on an open-top tank) or may be an integral part of the tank structural design (e.g., a horizontal cylindrical tank equipped with a hatch).
 - (‘b’) The fixed roof shall be installed in a manner such that there are no visible cracks, holes, gaps, or other open spaces between roof section joints or between the interface of the roof edge and the tank wall.
 - (‘c’) Each opening in the fixed roof, and any manifold system associated with the fixed roof, shall be either:
 - (‘1’) equipped with a closure device designed to operate such that when the closure device is secured in the closed position there are no visible cracks, holes, gaps, or other open spaces in the closure device or between the perimeter of the opening and the closure device; or
 - (‘2’) connected by a closed-vent system that is vented to a control device. The control device shall remove or destroy organics in the vent stream, and shall be operating whenever hazardous waste is managed in the tank, except as provided for in items (‘i’) and (‘ii’) of this subclause.
 - (‘i’) During periods it is necessary to provide access to the tank for performing the activities of item (‘ii’) of this subclause, venting of the vapor headspace underneath the fixed roof to the control device is not required, opening of the closure devices is allowed and removal of the fixed roof is allowed. Following completion of the activity, the owner or operator shall promptly secure the closure device in the closed position or reinstall the cover, as acceptable, and resume operation of the control device.

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- (ii) During periods of routine inspection, maintenance, or other activities needed for normal operations, and for the removal of accumulated sludge or other residues from the bottom of the tank.
- (d) The fixed roof and its closure devices shall be made of suitable materials that will minimize exposure of the hazardous waste to the atmosphere, to the extent practical, and will maintain the integrity of the fixed roof and closure devices throughout their intended service life. Factors to be considered when selecting the materials for and designing the fixed roof and closure devices shall include: organic vapor permeability, the effects of any contact with the hazardous waste or its vapors managed in the tank; the effects of outdoor exposure to wind, moisture, and sunlight; and the operating practices used for the tank on which the fixed roof is installed.
- (iii) Whenever a hazardous waste is in the tank, the fixed roof shall be installed with each closure device secured in the closed position except as follows:
 - (a) Opening of the closure devices or removal of the fixed roof is allowed at the following times:
 - (1) To provide access to the tank for performing routine inspection, maintenance, or other activities needed for normal operations. Examples of such activities include those times when a worker needs to open a port to sample the liquid in the tank, or when a worker needs to open a hatch to maintain or repair equipment. Following completion of the activity, the owner or operator shall promptly secure the closure device in the closed position or reinstall the cover, as applicable, to the tank.
 - (2) To remove accumulated sludge or other residues from the bottom of the tank.
 - (b) Opening of a spring-loaded pressure-vacuum relief valve, conservation vent, or similar type of pressure relief device which vents to the atmosphere is allowed during normal operations for the purpose of maintaining the tank internal pressure in accordance with the tank design specifications. The device shall be designed to operate with no detectable organic emissions when the device is secured in the closed position. The settings at which the device opens shall be established such that the device remains in the closed position whenever the tank internal pressure is within the internal pressure operating range determined by the owner or operator based on the tank manufacturer recommendations, applicable regulations, fire protection and prevention codes, standard engineering codes and practices, or other requirements for the safe handling of flammable, ignitable, explosive, reactive, or hazardous materials. Examples of normal operating conditions that may require these devices to open are during those times when the tank internal pressure exceeds the internal pressure operating range for the tank as a result of loading operations or diurnal ambient temperature fluctuations.
 - (c) Opening of a safety device, as defined in subdivision (b) of this section, is allowed at any time conditions require doing so to avoid an unsafe condition.

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- (iv) The owner or operator shall inspect the air emission control equipment in accordance with the following requirements.
 - ('a') The fixed roof and its closure devices shall be visually inspected by the owner or operator to check for defects that could result in air pollutant emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in the roof sections or between the roof and the tank wall; broken, cracked, or otherwise damaged seals or gaskets on closure devices; and broken or missing hatches, access covers, caps, or other closure devices.
 - ('b') The owner or operator shall perform an initial inspection of the fixed roof and its closure devices on or before the date that the tank becomes subject to this subdivision. Thereafter, the owner or operator shall perform the inspections at least once every year except under the special conditions provided for in paragraph (12) of this subdivision.
 - ('c') In the event that a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of paragraph (11) of this subdivision.
 - ('d') The owner or operator shall maintain a record of the inspection in accordance with the requirements specified in paragraph (k)(2) of this section.
- (4) Owners and operators controlling air pollutant emissions from a tank using Tank Level 2 controls shall use one of the following tanks:
 - (i) a fixed-roof tank equipped with an internal floating roof in accordance with the requirements specified in paragraph (5) of this subdivision;
 - (ii) a tank equipped with an external floating roof in accordance with the requirements specified in paragraph (6) of this subdivision;
 - (iii) a tank vented through a closed-vent system to a control device in accordance with the requirements specified in paragraph (7) of this subdivision;
 - (iv) a pressure tank designed and operated in accordance with the requirements specified in paragraph (8) of this subdivision; or
 - (v) a tank located inside an enclosure that is vented through a closed-vent system to an enclosed combustion control device in accordance with the requirements specified in paragraph (9) of this subdivision.
- (5) The owner or operator who controls air pollutant emissions from a tank using a fixed- roof with an internal floating roof shall meet the requirements specified in subparagraphs (i) through (iii) of this paragraph.
 - (i) The tank shall be equipped with a fixed roof and an internal floating roof in accordance with the following requirements:
 - ('a') The internal floating roof shall be designed to float on the liquid surface except when

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the floating roof must be supported by the leg supports.

- (b) The internal floating roof shall be equipped with a continuous seal between the wall of the tank and the floating roof edge that meets either of the following requirements:
 - (1) a single continuous seal that is either a liquid-mounted seal or a metallic shoe seal, as defined in subdivision (b) of this section; or
 - (2) two continuous seals mounted one above the other. The lower seal may be a vapor-mounted seal.
- (c) The internal floating roof shall meet the following specifications:
 - (1) Each opening in a noncontact internal floating roof except for automatic bleeder vents (vacuum breaker vents) and the rim space vents is to provide a projection below the liquid surface.
 - (2) Each opening in the internal floating roof shall be equipped with a gasketed cover or gasketed lid except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells and stub drains.
 - (3) Each penetration of the internal floating roof for the purpose of sampling shall have a slit fabric cover that covers at least 90 percent of the opening.
 - (4) Each automatic bleeder vent and rim space vent shall be gasketed.
 - (5) Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover.
 - (6) Each penetration of the internal floating roof that allows for passage of a column supporting the fixed roof shall have a flexible fabric sleeve seal or a gasketed sliding cover.
- (ii) The owner or operator shall operate the tank in accordance with the following requirements:
 - (a) When the floating roof is resting on the leg supports, the process of filling, emptying, or refilling shall be continuous and shall be completed as soon as practical.
 - (b) Automatic bleeder vents are to be set closed at all times when the roof is floating, except when the roof is being floated off or is being landed on the leg supports.
 - (c) Prior to filling the tank, each cover, access hatch, gauge float well or lid on any opening in the internal floating roof shall be bolted or fastened closed (i.e., no visible gaps). Rim space vents are to be set to open only when the internal floating roof is not floating or when the pressure beneath the rim exceeds the manufacturer's recommended setting.
- (iii) The owner or operator shall inspect the internal floating roof in accordance with the procedures specified as follows:

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- (a) The floating roof and its closure devices shall be visually inspected by the owner or operator to check for defects that could result in air pollutant emissions. Defects include, but are not limited to: the internal floating roof is not floating on the surface of the liquid inside the tank; liquid has accumulated on top of the internal floating roof; any portion of the roof seals have detached from the roof rim; holes, tears, or other openings are visible in the seal fabric; the gaskets no longer close off the hazardous waste surface from the atmosphere; or the slotted membrane has more than 10 percent open area.
- (b) The owner or operator shall inspect the internal floating roof components as follows except as provided in clause ('c') of this subparagraph:
 - (1) Visually inspect the internal floating roof components through openings on the fixed-roof (e.g., manholes and roof hatches) at least once every 12 months after initial fill.
 - (2) Visually inspect the internal floating roof, primary seal, secondary seal (if one is in service), gaskets, slotted membranes, and sleeve seals (if any) each time the tank is emptied and degassed and at least every 10 years.
- (c) As an alternative to performing the inspections specified in clause ('b') of this subparagraph for an internal floating roof equipped with two continuous seals mounted one above the other, the owner or operator may visually inspect the internal floating roof, primary and secondary seals, gaskets, slotted membranes, and sleeve seals (if any) each time the tank is emptied and degassed and at least every five years.
- (d) Prior to each inspection required by clause ('b') or ('c') of this subparagraph, the owner or operator shall notify the commissioner in advance of each inspection to provide the commissioner with the opportunity to have an observer present during the inspection. The owner or operator shall notify the commissioner of the date and location of the inspection as follows:
 - (1) Prior to each visual inspection of an internal floating roof in a tank that has been emptied and degassed, written notification shall be prepared and sent by the owner or operator so that it is received by the commissioner at least 30 calendar days before refilling the tank except when an inspection is not planned as provided for in subclause ('2') of this clause.
 - (2) When a visual inspection is not planned and the owner or operator could not have known about the inspection 30 calendar days before refilling the tank, the owner or operator shall notify the commissioner as soon as possible, but no later than seven calendar days before refilling of the tank. This notification may be made by telephone and immediately followed by a written explanation for why the inspection is unplanned. Alternatively, written notification, including the explanation for the unplanned inspection, may be sent so that it is received by the

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commissioner at least seven calendar days before refilling the tank.

- (e') In the event that a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of paragraph (11) of this subdivision.
- (f') The owner or operator shall maintain a record of the inspection in accordance with the requirements specified in paragraph (k)(2) of this section.
- (iv) Safety devices, as defined in subdivision (b) of this section, may be installed and operated as necessary on any tank complying with the requirements of this paragraph.
- (6) The owner or operator who controls air pollutant emissions from a tank using an external floating roof shall meet the requirements specified in subparagraphs (i) through (iii) of this paragraph.
 - (i) The owner or operator shall design the external floating roof in accordance with the following requirements:
 - (a') The external floating roof shall be designed to float on the liquid surface except when the floating roof must be supported by the leg supports.
 - (b') The floating roof shall be equipped with two continuous seals, one above the other, between the wall of the tank and the roof edge. The lower seal is referred to as the primary seal, and the upper seal is referred to as the secondary seal.
 - (1') The primary seal shall be a liquid-mounted seal or a metallic shoe seal, as defined in subdivision (b) of this section. The total area of the gaps between the tank wall and the primary seal shall not exceed 212 square centimeters (cm²) per meter of tank diameter, and the width of any portion of these gaps shall not exceed 3.8 centimeters (cm). If a metallic shoe seal is used for the primary seal, the metallic shoe seal shall be designed so that one end extends into the liquid in the tank and the other end extends a vertical distance of at least 61 centimeters above the liquid surface.
 - (2') The secondary seal shall be mounted above the primary seal and cover the annular space between the floating roof and the wall of the tank. The total area of the gaps between the tank wall and the secondary seal shall not exceed 21.2 square centimeters (cm²) per meter of the tank diameter, and the width of any portion of these gaps shall not exceed 1.3 centimeters (cm).
 - (c') The external floating roof shall meet the following specifications:
 - (1') Except for automatic bleeder vents (vacuum breaker vents) and rim space vents, each opening in a noncontact external floating roof shall provide a projection below the liquid surface.
 - (2') Except for automatic bleeder vents, rim space vents, roof drains, and leg sleeves, each opening in the roof shall be equipped with a gasketed cover, seal or lid.

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- (3') Each access hatch and each gauge float well shall be equipped with a cover designed to be bolted or fastened when the cover is secured in the closed position.
 - (4') Each automatic bleeder vent and each rim space vent shall be equipped with a gasket.
 - (5') Each roof drain that empties into the liquid managed in the tank shall be equipped with a slotted membrane fabric cover that covers at least 90 percent of the area of the opening.
 - (6') Each unslotted and slotted guide pole well shall be equipped with a gasketed sliding cover or a flexible fabric sleeve seal.
 - (7') Each unslotted guide pole shall be equipped with a gasketed cap on the end of the pole.
 - (8') Each slotted guide pole shall be equipped with a gasketed float or other device which closes off the liquid surface from the atmosphere.
 - (9') Each gauge hatch and each sample well shall be equipped with a gasketed cover.
- (ii) The owner or operator shall operate the tank in accordance with the following requirements:
- ('a') When the floating roof is resting on the leg supports, the process of filling, emptying, or refilling shall be continuous and shall be completed as soon as practical.
 - ('b') Except for automatic bleeder vents, rim space vents, roof drains, and leg sleeves, each opening in the roof shall be secured and maintained in a closed position at all times except when the closure device must be open for access.
 - ('c') Covers on each access hatch and each gauge float well shall be bolted or fastened when secured in the closed position.
 - ('d') Automatic bleeder vents shall be set closed at all times when the roof is floating, except when the roof is being floated off or is being landed on the leg supports.
 - ('e') Rim space vents shall be set to open only at those times that the roof is being floated off the roof leg supports or when the pressure beneath the rim seal exceeds the manufacturer's recommended setting.
 - ('f') The cap on the end of each unslotted guide pole shall be secured in the closed position at all times except when measuring the level or collecting samples of the liquid in the tank.
 - ('g') The cover on each gauge hatch or sample well shall be secured in the closed position at all times except when the hatch or well must be opened for access.
 - ('h') Both the primary seal and the secondary seal shall completely cover the annular space between the external floating roof and the wall of the tank in a continuous fashion

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except during inspections.

- (iii) The owner or operator shall inspect the external floating roof in accordance with the procedures specified as follows:
 - ('a') The owner or operator shall measure the external floating roof seal gaps in accordance with the following requirements:
 - ('1') The owner or operator shall perform measurements of gaps between the tank wall and the primary seal within 60 calendar days after initial operation of the tank following installation of the floating roof and, thereafter, at least once every five years.
 - ('2') The owner or operator shall perform measurements of gaps between the tank wall and the secondary seal within 60 calendar days after initial operation of the tank following installation of the floating roof and, thereafter, at least once every year.
 - ('3') If a tank ceases to hold hazardous waste for a period of one year or more, subsequent introduction of hazardous waste into the tank shall be considered an initial operation for the purposes of subclauses ('1') and ('2') of this clause.
 - ('4') The owner or operator shall determine the total surface area of gaps in the primary seal and in the secondary seal individually using the following procedure:
 - ('i') The seal gap measurements shall be performed at one or more floating roof levels when the roof is floating off the roof supports.
 - ('ii') Seal gaps, if any, shall be measured around the entire perimeter of the floating roof in each place where a 0.32-centimeter (cm) diameter uniform probe passes freely (without forcing or binding against the seal) between the seal and the wall of the tank and measure the circumferential distance of each such location.
 - ('iii') For a seal gap measured under this subparagraph, the gap surface area shall be determined by using probes of various widths to measure accurately the actual distance from the tank wall to the seal and multiplying each such width by its respective circumferential distance.
 - ('iv') The total gap area shall be calculated by adding the gap surface areas determined for each identified gap location for the primary seal and the secondary seal individually, and then dividing the sum for each seal type by the nominal diameter of the tank. These total gap areas for the primary seal and secondary seal are then compared to the respective standards for the seal type as specified in clause (i)('b') of this paragraph.
 - ('5') In the event that the seal gap measurements do not conform to the specifications in clause (i)('b') of this paragraph, the owner or operator shall repair the defect in

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accordance with the requirements of paragraph (11) of this subdivision.

- (6) The owner or operator shall maintain a record of the inspection in accordance with the requirements specified in paragraph (k)(2) of this section.
- ('b') The owner or operator shall visually inspect the external floating roof in accordance with the following requirements:
 - (1) The floating roof and its closure devices shall be visually inspected by the owner or operator to check for defects that could result in air pollutant emissions. Defects include, but are not limited to: holes, tears, or other openings in the rim seal or seal fabric of the floating roof; a rim seal detached from the floating roof; all or a portion of the floating roof deck being submerged below the surface of the liquid in the tank; broken, cracked, or otherwise damaged seals or gaskets on closure devices; and broken or missing hatches, access covers, caps, or other closure devices.
 - (2) The owner or operator shall perform an initial inspection of the external floating roof and its closure devices on or before the date that the tank becomes subject to this subdivision. Thereafter, the owner or operator shall perform the inspections at least once every year except for the special conditions provided for in paragraph (12) of this subdivision.
 - (3) In the event that a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of paragraph (11) of this subdivision.
 - (4) The owner or operator shall maintain a record of the inspection in accordance with the requirements specified in paragraph (k)(2) of this section.
- ('c') Prior to each inspection required by clause ('a') or ('b') of this subparagraph, the owner or operator shall notify the commissioner in advance of each inspection to provide the commissioner with the opportunity to have an observer present during the inspection. The owner or operator shall notify the commissioner of the date and location of the inspection as follows:
 - (1) Prior to each inspection to measure external floating roof seal gaps as required under clause ('a') of this subparagraph, written notification shall be prepared and sent by the owner or operator so that it is received by the commissioner at least 30 calendar days before the date the measurements are scheduled to be performed.
 - (2) Prior to each visual inspection of the external floating roof in a tank that has been emptied and degassed, written notification shall be prepared and sent by the owner or operator so that it is received by the commissioner at least 30 calendar days before refilling the tank except when an inspection is not planned as provided for in subclause ('3') of this clause.

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- (3') When a visual inspection is not planned and the owner or operator could not have known about the inspection 30 calendar days before refilling the tank, the owner or operator shall notify the commissioner as soon as possible, but no later than seven calendar days before refilling of the tank. This notification may be made by telephone and immediately followed by a written explanation for why the inspection is unplanned. Alternatively, written notification, including the explanation for the unplanned inspection, may be sent so that it is received by the commissioner at least seven calendar days before refilling the tank.
- (iv) Safety devices, as defined in subdivision (b) of this section, may be installed and operated as necessary on any tank complying with the requirements of this paragraph.
- (7) The owner or operator who controls air pollutant emissions from a tank by venting the tank to a control device shall meet the requirements specified in subparagraphs (i) through (iii) of this paragraph.
 - (i) The tank shall be covered by a fixed roof and vented directly through a closed-vent system to a control device in accordance with the following requirements:
 - ('a') The fixed roof and its closure devices shall be designed to form a continuous barrier over the entire surface area of the liquid in the tank.
 - ('b') Each opening in the fixed roof not vented to the control device shall be equipped with a closure device. If the pressure in the vapor headspace underneath the fixed roof is less than atmospheric pressure when the control device is operating, the closure devices shall be designed to operate such that when the closure device is secured in the closed position there are no visible cracks, holes, gaps, or other open spaces in the closure device or between the perimeter of the cover opening and the closure device. If the pressure in the vapor headspace underneath the fixed roof is equal to or greater than atmospheric pressure when the control device is operating, the closure device shall be designed to operate with no detectable organic emissions.
 - ('c') The fixed roof and its closure devices shall be made of suitable materials that will minimize exposure of the hazardous waste to the atmosphere, to the extent practical, and will maintain the integrity of the fixed roof and closure devices throughout their intended service life. Factors to be considered when selecting the materials for and designing the fixed roof and closure devices shall include: organic vapor permeability, the effects of any contact with the liquid and its vapor managed in the tank; the effects of outdoor exposure to wind, moisture, and sunlight; and the operating practices used for the tank on which the fixed roof is installed.
 - ('d') The closed-vent system and control device shall be designed and operated in accordance with the requirements of subdivision (i) of this section.

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- (ii) Whenever a hazardous waste is in the tank, the fixed roof shall be installed with each closure device secured in the closed position and the vapor headspace underneath the fixed roof vented to the control device except as follows:
 - ('a') Venting to the control device is not required, and opening of closure devices or removal of the fixed roof is allowed at the following times:
 - ('1') To provide access to the tank for performing routine inspection, maintenance, or other activities needed for normal operations. Examples of such activities include those times when a worker needs to open a port to sample liquid in the tank, or when a worker needs to open a hatch to maintain or repair equipment. Following completion of the activity, the owner or operator shall promptly secure the closure device in the closed position or reinstall the cover, as applicable, to the tank.
 - ('2') To remove accumulated sludge or other residues from the bottom of a tank.
 - ('b') Opening of a safety device, as defined in subdivision (b) of this section, is allowed at any time conditions require doing so to avoid an unsafe condition.
- (iii) The owner or operator shall inspect and monitor the air emission control equipment in accordance with the following procedures:
 - ('a') The fixed roof and its closure devices shall be visually inspected by the owner or operator to check for defects that could result in air pollutant emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in the roof sections or between the roof and the tank wall; broken, cracked, or otherwise damaged seals or gaskets on closure devices; and broken or missing hatches, access covers, caps, or other closure devices.
 - ('b') The closed-vent system and control device shall be inspected and monitored by the owner or operator in accordance with the procedures specified in subdivision (i) of this section.
 - ('c') The owner or operator shall perform an initial inspection of the air emission control equipment on or before the date that the tank becomes subject to this subdivision. Thereafter, the owner or operator shall perform the inspections at least once every year except for the special conditions provided for in paragraph (12) of this subdivision.
 - ('d') In the event that a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of paragraph (11) of this subdivision.
 - ('e') The owner or operator shall maintain a record of the inspection in accordance with the requirements specified in paragraph (k)(2) of this section.
- (8) The owner or operator who controls air pollutant emissions by using a pressure tank shall meet the following requirements:

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- (i) The tank shall be designed not to vent to the atmosphere as a result of compression of the vapor headspace in the tank during filling of the tank to its design capacity.
 - (ii) All tank openings shall be equipped with closure devices designed to operate with no detectable organic emissions as determined using the procedure specified in paragraph (e)(4) of this section.
 - (iii) Whenever a hazardous waste is in the tank, the tank shall be operated as a closed system that does not vent to the atmosphere except under either of the following conditions as specified in clause ('a') or ('b') of this subparagraph:
 - ('a') at those times when opening of a safety device, as defined in subdivision (b) of this section, is required to avoid an unsafe condition; and
 - ('b') at those times when purging of inerts from the tank is required and the purge stream is routed to a closed-vent system and control device designed and operated in accordance with the requirements of subdivision (i) of this section.
- (9) The owner or operator who controls air pollutant emissions by using an enclosure vented through a closed-vent system to an enclosed combustion control device shall meet the requirements specified in subparagraphs (i) through (iv) of this paragraph.
- (i) The tank shall be located inside an enclosure. The enclosure shall be designed and operated in accordance with the criteria for a permanent total enclosure as specified in “ Procedure T— Criteria for and Verification of a Permanent or Temporary Total Enclosure” under 40 CFR 52.741, appendix B, as incorporated by reference in section 370.1(e) of this Title. The enclosure may have permanent or temporary openings to allow worker access; passage of material into or out of the enclosure by conveyor, vehicles, or other mechanical means; entry of permanent mechanical or electrical equipment; or direct airflow into the enclosure. The owner or operator shall perform the verification procedure for the enclosure as specified in section 5.0 to “Procedure T—Criteria for and Verification of a Permanent or Temporary Total Enclosure” initially when the enclosure is first installed and, thereafter, annually.
 - (ii) The enclosure shall be vented through a closed-vent system to an enclosed combustion control device that is designed and operated in accordance with the standards for either a vapor incinerator, boiler, or process heater specified in subdivision (i) of this section.
 - (iii) Safety devices, as defined in subdivision (b) of this section, may be installed and operated as necessary on any enclosure, closed-vent system, or control device used to comply with the requirements of subparagraphs (i) and (ii) of this paragraph.
 - (iv) The owner or operator shall inspect and monitor the closed-vent system and control device as specified in subdivision (i) of this section.
- (10) The owner or operator shall transfer hazardous waste to a tank subject to this subdivision in accordance with the following requirements:

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- (i) Transfer of hazardous waste, except as provided in subparagraph (ii) of this paragraph, to the tank from another tank subject to this subdivision or from a surface impoundment subject to subdivision (g) of this section shall be conducted using continuous hard- piping or another closed system that does not allow exposure of the hazardous waste to the atmosphere. For the purpose of complying with this provision, an individual drain system is considered to be a closed system when it meets the requirements of 40 CFR part 63, subpart RR—National Emission Standards for Individual Drain Systems, as incorporated by reference in section 370.1(e) of this Title.
 - (ii) The requirements of subparagraph (i) of this paragraph do not apply when transferring a hazardous waste to the tank under any of the following conditions:
 - ('a') The hazardous waste meets the average VO concentration conditions specified in subparagraph (d)(3)(i) of this section at the point of waste origination.
 - ('b') The hazardous waste has been treated by an organic destruction or removal process to meet the requirements in subparagraph (d)(3)(ii) of this section.
 - ('c') The hazardous waste meets the requirements of subparagraph (d)(3)(iv) of this section.
- (11) The owner or operator shall repair each defect detected during an inspection performed in accordance with the requirements of subparagraph (3)(iv), (5)(iii), (6)(iii), or (7)(iii) of this subdivision as follows:
- (i) The owner or operator shall make first efforts at repair of the defect no later than five calendar days after detection, and repair shall be completed as soon as possible but no later than 45 calendar days after detection except as provided in subparagraph (ii) of this paragraph.
 - (ii) Repair of a defect may be delayed beyond 45 calendar days if the owner or operator determines that repair of the defect requires emptying or temporary removal from service of the tank and no alternative tank capacity is available at the site to accept the hazardous waste normally managed in the tank. In this case, the owner or operator shall repair the defect the next time the process or unit that is generating the hazardous waste managed in the tank stops operation. Repair of the defect shall be completed before the process or unit resumes operation.
- (12) Following the initial inspection and monitoring of the cover as required by the applicable provisions of this section, subsequent inspection and monitoring may be performed at intervals longer than one year under the following special conditions:
- (i) In the case when inspecting or monitoring the cover would expose a worker to dangerous, hazardous, or other unsafe conditions, then the owner or operator may designate a cover as an “unsafe to inspect and monitor cover” and comply with all of the following requirements:
 - ('a') Prepare a written explanation for the cover stating the reasons why the cover is unsafe to visually inspect or to monitor, if required.

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(b') Develop and implement a written plan and schedule to inspect and monitor the cover, using the procedures specified in the applicable subdivision of this section, as frequently as practicable during those times when a worker can safely access the cover.

(ii) In the case when a tank is buried partially or entirely underground, an owner or operator is required to inspect and monitor, as required by the applicable provisions of this subdivision, only those portions of the tank cover and those connections to the tank (e.g., fill ports, access hatches, gauge wells, etc.) that are located on or above the ground surface.

(g) **Standards: surface impoundments.**

- (1) The provisions of this subdivision apply to the control of air pollutant emissions from surface impoundments for which paragraph (d)(2) of this section references the use of this subdivision for such air emission control.
- (2) The owner or operator shall control air pollutant emissions from the surface impoundment by installing and operating either of the following:
 - (i) a floating membrane cover in accordance with the provisions specified in paragraph (3) of this subdivision; or
 - (ii) a cover that is vented through a closed-vent system to a control device in accordance with the requirements specified in paragraph (4) of this subdivision.
- (3) The owner or operator who controls air pollutant emissions from a surface impoundment using a floating membrane cover shall meet the requirements specified in subparagraphs (i) through (iii) of this paragraph.
 - (i) The surface impoundment shall be equipped with a floating membrane cover designed to meet the following specifications:
 - (a') The floating membrane cover shall be designed to float on the liquid surface during normal operations and form a continuous barrier over the entire surface area of the liquid.
 - (b') The cover shall be fabricated from a synthetic membrane material that is either:
 - (1') high density polyethylene (HDPE) with a thickness no less than 2.5 millimeters (mm); or
 - (2') a material or a composite of different materials determined to have both organic permeability properties that are equivalent to those of the material listed in subclause ('1') of this clause and chemical and physical properties that maintain the material integrity for the intended service life of the material.
 - (c') The cover shall be installed in a manner such that there are no visible cracks, holes, gaps, or other open spaces between cover section seams or between the interface of the cover edge and its foundation mountings.

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- (d) Except as provided for in clause ('e') of this subparagraph, each opening in the floating membrane cover shall be equipped with a closure device designed to operate such that when the closure device is secured in the closed position there are no visible cracks, holes, gaps, or other open spaces in the closure device or between the perimeter of the cover opening and the closure device.
 - (e) The floating membrane cover may be equipped with one or more emergency cover drains for removal of stormwater. Each emergency cover drain shall be equipped with a slotted membrane fabric cover that covers at least 90 percent of the area of the opening or a flexible fabric sleeve seal.
 - (f) The closure devices shall be made of suitable materials that will minimize exposure of the hazardous waste to the atmosphere, to the extent practical, and will maintain the integrity of the closure devices throughout their intended service life. Factors to be considered when selecting the materials of construction and designing the cover and closure devices shall include: organic vapor permeability; the effects of any contact with the liquid and its vapor managed in the surface impoundment; the effects of outdoor exposure to wind, moisture, and sunlight; and the operating practices used for the surface impoundment on which the floating membrane cover is installed.
- (ii) Whenever a hazardous waste is in the surface impoundment, the floating membrane cover shall float on the liquid and each closure device shall be secured in the closed position except as follows:
- (a) Opening of closure devices or removal of the cover is allowed at the following times:
 - (1) To provide access to the surface impoundment for performing routine inspection, maintenance, or other activities needed for normal operations. Examples of such activities include those times when a worker needs to open a port to sample the liquid in the surface impoundment, or when a worker needs to open a hatch to maintain or repair equipment. Following completion of the activity, the owner or operator shall promptly replace the cover and secure the closure device in the closed position, as applicable.
 - (2) To remove accumulated sludge or other residues from the bottom of surface impoundment.
 - (b) Opening of a safety device, as defined in subdivision (b) of this section, is allowed at any time conditions require doing so to avoid an unsafe condition.
 - (c) The hazardous waste meets the requirements of subparagraphs (d)(3)(iv) of this section.
- (iii) The owner or operator shall inspect the floating membrane cover in accordance with the following procedures:
- (a) The floating membrane cover and its closure devices shall be visually inspected by the owner or operator to check for defects that could result in air pollutant emissions.

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Defects include, but are not limited to, visible cracks, holes, or gaps in the cover section seams or between the interface of the cover edge and its foundation mountings; broken, cracked, or otherwise damaged seals or gaskets on closure devices; and broken or missing hatches, access covers, caps, or other closure devices.

- (b') The owner or operator shall perform an initial inspection of the floating membrane cover and its closure devices on or before the date that the surface impoundment becomes subject to this subdivision. Thereafter, the owner or operator shall perform the inspections at least once every year except for the special conditions provided for in paragraph (7) of this subdivision.
 - (c') In the event that a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of paragraph (6) of this subdivision.
 - (d') The owner or operator shall maintain a record of the inspection in accordance with the requirements specified in paragraph (k)(3) of this section.
- (4) The owner or operator who controls air pollutant emissions from a surface impoundment using a cover vented to a control device shall meet the requirements specified subparagraphs (i) through (iii) of this paragraph.
- (i) The surface impoundment shall be covered by a cover and vented directly through a closed-vent system to a control device in accordance with the following requirements:
 - (a') The cover and its closure devices shall be designed to form a continuous barrier over the entire surface area of the liquid in the surface impoundment.
 - (b') Each opening in the cover not vented to the control device shall be equipped with a closure device. If the pressure in the vapor headspace underneath the cover is less than atmospheric pressure when the control device is operating, the closure devices shall be designed to operate such that when the closure device is secured in the closed position there are no visible cracks, holes, gaps, or other open spaces in the closure device or between the perimeter of the cover opening and the closure device. If the pressure in the vapor headspace underneath the cover is equal to or greater than atmospheric pressure when the control device is operating, the closure device shall be designed to operate with no detectable organic emissions using the procedure specified in paragraph (e)(4) of this section.
 - (c') The cover and its closure devices shall be made of suitable materials that will minimize exposure of the hazardous waste to the atmosphere, to the extent practical, and will maintain the integrity of the cover and closure devices throughout their intended service life. Factors to be considered when selecting the materials of construction and designing the cover and closure devices shall include: organic vapor permeability; the effects of any contact with the liquid or its vapors managed in the surface impoundment; the effects of outdoor exposure to wind, moisture, and sunlight; and the operating practices used for the surface impoundment on which the cover is installed.

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- (d) The closed-vent system and control device shall be designed and operated in accordance with the requirements of subdivision (i) of this section.
- (ii) Whenever a hazardous waste is in the surface impoundment, the cover shall be installed with each closure device secured in the closed position and the vapor headspace underneath the cover vented to the control device except as follows:
 - (a) Venting to the control device is not required, and opening of closure devices or removal of the cover is allowed at the following times:
 - (1) To provide access to the surface impoundment for performing routine inspection, maintenance, or other activities needed for normal operations. Examples of such activities include those times when a worker needs to open a port to sample liquid in the surface impoundment, or when a worker needs to open a hatch to maintain or repair equipment. Following completion of the activity, the owner or operator shall promptly secure the closure device in the closed position or reinstall the cover, as applicable, to the surface impoundment.
 - (2) To remove accumulated sludge or other residues from the bottom of the surface impoundment.
 - (b) Opening of a safety device, as defined in subdivision (b) of this section, is allowed at any time conditions require doing so to avoid an unsafe condition.
 - (c) The hazardous waste meets the requirements of subparagraph (d)(3)(iv) of this section.
- (iii) The owner or operator shall inspect and monitor the air emission control equipment in accordance with the following procedures:
 - (a) The surface impoundment cover and its closure devices shall be visually inspected by the owner or operator to check for defects that could result in air pollutant emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in the cover section seams or between the interface of the cover edge and its foundation mountings; broken, cracked, or otherwise damaged seals or gaskets on closure devices; and broken or missing hatches, access covers, caps, or other closure devices.
 - (b) The closed-vent system and control device shall be inspected and monitored by the owner or operator in accordance with the procedures specified in subdivision (i) of this section.
 - (c) The owner or operator shall perform an initial inspection of the air emission control equipment on or before the date that the surface impoundment becomes subject to this subdivision. Thereafter, the owner or operator shall perform the inspections at least once every year except for the special conditions provided for in paragraph (7) of this subdivision.
 - (d) In the event that a defect is detected, the owner or operator shall repair the defect in

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accordance with the requirements of paragraph (6) of this subdivision.

- (e') The owner or operator shall maintain a record of the inspection in accordance with the requirements specified in paragraph (k)(3) of this section.
- (5) The owner or operator shall transfer hazardous waste to a surface impoundment subject to this subdivision in accordance with the following requirements:
- (i) Transfer of hazardous waste, except as provided in subparagraph (ii) of this paragraph, to the surface impoundment from another surface impoundment subject to this subdivision or from a tank subject to subdivision (f) of this section shall be conducted using continuous hard-piping or another closed system that does not allow exposure of the waste to the atmosphere. For the purpose of complying with this provision, an individual drain system is considered to be a closed system when it meets the requirements of 40 CFR part 63, subpart RR—National Emission Standards for Individual Drain Systems, as incorporated by reference in section 370.1(e) of this Title.
 - (ii) The requirements of subparagraph (i) of this paragraph do not apply when transferring a hazardous waste to the surface impoundment under either of the following conditions:
 - (a') The hazardous waste meets the average VO concentration conditions specified in subparagraph (d)(3)(i) of this section at the point of waste origination.
 - (b') The hazardous waste has been treated by an organic destruction or removal process to meet the requirements in subparagraph (d)(3)(ii) of this section.
- (6) The owner or operator shall repair each defect detected during an inspection performed in accordance with the requirements of subparagraph (3)(iii) or (4)(iii) of this subdivision as follows:
- (i) The owner or operator shall make first efforts at repair of the defect no later than five calendar days after detection, and repair shall be completed as soon as possible but no later than 45 calendar days after detection except as provided in subparagraph (ii) of this paragraph.
 - (ii) Repair of a defect may be delayed beyond 45 calendar days if the owner or operator determines that the repair of the defect requires emptying or temporary removal from service of the surface impoundment and no alternative capacity is available at the site to accept the hazardous waste normally managed in the surface impoundment. In this case, the owner or operator shall repair the defect the next time the process or unit that is generating the hazardous waste managed in the tank stops operation. Repair of the defect shall be completed before the process or unit resumes operation.
- (7) Following the initial inspection and monitoring of the cover as required by the applicable provisions of this section, subsequent inspection and monitoring may be performed at intervals longer than one year in the case when inspecting or monitoring the cover would expose a worker to dangerous, hazardous, or other unsafe conditions. In this case, the owner or operator may designate the cover as an “unsafe to inspect and monitor cover” and comply with all of the following requirements:

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- (i) Prepare a written explanation for the cover stating the reasons why the cover is unsafe to visually inspect or to monitor, if required.
- (ii) Develop and implement a written plan and schedule to inspect and monitor the cover using the procedures specified in the applicable subdivision of this section as frequently as practicable during those times when a worker can safely access the cover.

(h) Standards: containers.

- (1) The provisions of this subdivision apply to the control of air pollutant emissions from containers for which paragraph (d)(2) of this section references the use of this subdivision for such air emission control.
- (2) General requirements.
 - (i) The owner or operator shall control air pollutant emissions from each container subject to this subdivision in accordance with the following requirements, as applicable to the container, except when the special provisions for waste stabilization processes specified in subparagraph (ii) of this paragraph apply to the container.
 - ('a') For a container having a design capacity greater than 0.1 m³ and less than or equal to 0.46 m³, the owner or operator shall control air pollutant emissions from the container in accordance with the Container Level 1 standards specified in paragraph (3) of this subdivision.
 - ('b') For a container having a design capacity greater than 0.46 m³ that is not in light material service, the owner or operator shall control air pollutant emissions from the container in accordance with the Container Level 1 standards specified in paragraph (3) of this subdivision.
 - ('c') For a container having a design capacity greater than 0.46 m³ that is in light material service, the owner or operator shall control air pollutant emissions from the container in accordance with the Container Level 2 standards specified in paragraph (4) of this subdivision.
 - (ii) When a container having a design capacity greater than 0.1 m³ is used for treatment of a hazardous waste by a waste stabilization process, the owner or operator shall control air pollutant emissions from the container in accordance with the Container Level 3 standards specified in paragraph (5) of this subdivision at those times during the waste stabilization process when the hazardous waste in the container is exposed to the atmosphere.
- (3) Container Level 1 standards.
 - (i) A container using Container Level 1 controls is one of the following:
 - ('a') A container that meets the applicable U.S. Department of Transportation (DOT) regulations on packaging hazardous materials for transportation as specified in paragraph (6) of this subdivision.

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- (b) A container equipped with a cover and closure devices that form a continuous barrier over the container openings such that when the cover and closure devices are secured in the closed position there are no visible holes, gaps, or other open spaces into the interior of the container. The cover may be a separate cover installed on the container (e.g., a lid on a drum or a suitably secured tarp on a roll-off box) or may be an integral part of the container structural design (e.g., a “portable tank” or bulk cargo container equipped with a screw-type cap).
 - (c) An open-top container in which an organic-vapor suppressing barrier is placed on or over the hazardous waste in the container such that no hazardous waste is exposed to the atmosphere. One example of such a barrier is application of a suitable organic-vapor suppressing foam.
- (ii) A container used to meet the requirements of clause (‘b’) or (‘c’) of this subparagraph shall be equipped with covers and closure devices, as applicable to the container, that are composed of suitable materials to minimize exposure of the hazardous waste to the atmosphere and to maintain the equipment integrity for as long as it is in service. Factors to be considered in selecting the materials of construction and designing the cover and closure devices shall include: organic vapor permeability, the effects of contact with the hazardous waste or its vapor managed in the container; the effects of outdoor exposure of the closure device or cover material to wind, moisture, and sunlight; and the operating practices for which the container is intended to be used.
 - (iii) Whenever a hazardous waste is in a container using Container Level 1 controls, the owner or operator shall install all covers and closure devices for the container, as applicable to the container, and secure and maintain each closure device in the closed position except as follows:
 - (a) Opening of a closure device or cover is allowed for the purpose of adding hazardous waste or other material to the container as follows:
 - (1) In the case when the container is filled to the intended final level in one continuous operation, the owner or operator shall promptly secure the closure devices in the closed position and install the covers, as applicable to the container, upon conclusion of the filling operation.
 - (2) In the case when discrete quantities or batches of material intermittently are added to the container over a period of time, the owner or operator shall promptly secure the closure devices in the closed position and install covers, as applicable to the container, upon either the container being filled to the intended final level; the completion of a batch loading after which no additional material will be added to the container within 15 minutes; the person performing the loading operation leaving the immediate vicinity of the container; or the shutdown of the process generating the material being added to the container, whichever condition occurs first.

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- (b) Opening of a closure device or cover is allowed for the purpose of removing hazardous waste from the container as follows:
 - (1) For the purpose of meeting the requirements of this subdivision, an empty container as defined in section 371.1(h)(2) of this Title, may be open to the atmosphere at any time (i.e., covers and closure devices are not required to be secured in the closed position on an empty container).
 - (2) In the case when discrete quantities or batches of material are removed from the container but the container does not meet the conditions to be an empty container as defined in section 371.1(h)(2) of this Title, the owner or operator shall promptly secure the closure devices in the closed position and install covers, as applicable to the container, upon the completion of a batch removal after which no additional material will be removed from the container within 15 minutes or the person performing the unloading operation leaves the immediate vicinity of the container, whichever condition occurs first.
- (c) Opening of a closure device or cover is allowed when access inside the container is needed to perform routine activities other than transfer of hazardous waste. Examples of such activities include those times when a worker needs to open a port to measure the depth of or sample the material in the container, or when a worker needs to open a manhole hatch to access equipment inside the container. Following completion of the activity, the owner or operator shall promptly secure the closure device in the closed position or reinstall the cover, as applicable to the container.
- (d) Opening of a spring-loaded, pressure-vacuum relief valve, conservation vent, or similar type of pressure relief device which vents to the atmosphere is allowed during normal operations for the purpose of maintaining the container internal pressure in accordance with the design specifications of the container. The device shall be designed to operate with no detectable organic emissions when the device is secured in the closed position. The settings at which the device opens shall be established such that the device remains in the closed position whenever the internal pressure of the container is within the internal pressure operating range determined by the owner or operator based on container manufacturer recommendations, applicable regulations, fire protection and prevention codes, standard engineering codes and practices, or other requirements for the safe handling of flammable, ignitable, explosive, reactive, or hazardous materials. Examples of normal operating conditions that may require these devices to open are during those times when the internal pressure of the container exceeds the internal pressure operating range for the container as a result of loading operations or diurnal ambient temperature fluctuations.
- (e) Opening of a safety device, as defined in subdivision (b) of this section, is allowed at any time conditions require doing so to avoid an unsafe condition.

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- (iv) The owner or operator of containers using Container Level 1 controls shall inspect the containers and their covers and closure devices as follows:
 - ('a') In the case when a hazardous waste already is in the container at the time the owner or operator first accepts possession of the container at the facility and the container is not emptied (i.e., does not meet the conditions for an empty container as specified in section 371.1(h)(2) of this Title) within 24 hours after the container is accepted at the facility, the owner or operator shall visually inspect the container and its cover and closure devices to check for visible cracks, holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured in the closed position. The container visual inspection shall be conducted on or before the date that the container is accepted at the facility (i.e., the date the container becomes subject to the standards in this subdivision). For purposes of this requirement, the date of acceptance is the date of signature that the facility owner or operator enters on item 20 of the Uniform Hazardous Waste Manifest in Appendix 30 of this Title, as required under section 373-3.5(b) of this Subpart. If a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of clause ('c') of this subparagraph.
 - ('b') In the case when a container used for managing hazardous waste remains at the facility for a period of one year or more, the owner or operator shall visually inspect the container and its cover and closure devices initially and thereafter, at least once every 12 months, to check for visible cracks, holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured in the closed position. If a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of clause ('c') of this subparagraph.
 - ('c') When a defect is detected for the container, cover, or closure devices, the owner or operator shall make first efforts at repair of the defect no later than 24 hours after detection, and repair shall be completed as soon as possible but no later than five calendar days after detection. If repair of a defect cannot be completed within five calendar days, then the hazardous waste shall be removed from the container and the container shall not be used to manage hazardous waste until the defect is repaired.
 - (v) The owner or operator shall maintain at the facility a copy of the procedure used to determine that containers with capacity of 0.46 m³ or greater, which do not meet applicable DOT regulations as specified in paragraph (6) of this subdivision, are not managing hazardous waste in light material service.
- (4) Container Level 2 standards.
- (i) A container using Container Level 2 controls is one of the following:
 - ('a') A container that meets the applicable U.S. Department of Transportation (DOT) regulations on packaging hazardous materials for transportation as specified in paragraph (6) of this subdivision.

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- (b) A container that operates with no detectable organic emissions as defined in subdivision (b) of this section and determined in accordance with the procedure specified in paragraph (7) of this subdivision.
- (c) A container that has been demonstrated within the preceding 12 months to be vapor-tight by using 40 CFR part 60, appendix A, Method 27, as incorporated by reference in section 370.1(e) of this Title, in accordance with the procedure specified in paragraph (8) of this subdivision.
- (ii) Transfer of hazardous waste in or out of a container using Container Level 2 controls shall be conducted in such a manner as to minimize exposure of the hazardous waste to the atmosphere, to the extent practical, considering the physical properties of the hazardous waste and good engineering and safety practices for handling flammable, ignitable, explosive, reactive or other hazardous materials. Examples of container loading procedures that the department considers to meet the requirements of this paragraph include using any one of the following: a submerged-fill pipe or other submerged-fill method to load liquids into the container; a vapor-balancing system or a vapor-recovery system to collect and control the vapors displaced from the container during filling operations; or a fitted opening in the top of a container through which the hazardous waste is filled and subsequently purging the transfer line before removing it from the container opening.
- (iii) Whenever a hazardous waste is in a container using Container Level 2 controls, the owner or operator shall install all covers and closure devices for the container, and secure and maintain each closure device in the closed position except as follows:
 - (a) Opening of a closure device or cover is allowed for the purpose of adding hazardous waste or other material to the container as follows:
 - (1) In the case when the container is filled to the intended final level in one continuous operation, the owner or operator shall promptly secure the closure devices in the closed position and install the covers, as applicable to the container, upon conclusion of the filling operation.
 - (2) In the case when discrete quantities or batches of material intermittently are added to the container over a period of time, the owner or operator shall promptly secure the closure devices in the closed position and install covers, as applicable to the container, upon either the container being filled to the intended final level; the completion of a batch loading after which no additional material will be added to the container within 15 minutes; the person performing the loading operation leaving the immediate vicinity of the container; or the shutdown of the process generating the material being added to the container, whichever condition occurs first.
 - (b) Opening of a closure device or cover is allowed for the purpose of removing hazardous waste from the container as follows:

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- (1') For the purpose of meeting the requirements of this subdivision, an empty container as defined in section 371.1(h)(2) of this Title, may be open to the atmosphere at any time (i.e., covers and closure devices are not required to be secured in the closed position on an empty container).
 - (2') In the case when discrete quantities or batches of material are removed from the container but the container does not meet the conditions to be an empty container as defined in section 371.1(h)(2) of this Title, the owner or operator shall promptly secure the closure devices in the closed position and install covers, as applicable to the container, upon the completion of a batch removal after which no additional material will be removed from the container within 15 minutes or the person performing the unloading operation leaves the immediate vicinity of the container, whichever condition occurs first.
- (c') Opening of a closure device or cover is allowed when access inside the container is needed to perform routine activities other than transfer of hazardous waste. Examples of such activities include those times when a worker needs to open a port to measure the depth of or sample the material in the container, or when a worker needs to open a manhole hatch to access equipment inside the container. Following completion of the activity, the owner or operator shall promptly secure the closure device in the closed position or reinstall the cover, as applicable to the container.
 - (d') Opening of a spring-loaded, pressure-vacuum relief valve, conservation vent, or similar type of pressure relief device which vents to the atmosphere is allowed during normal operations for the purpose of maintaining the internal pressure of the container in accordance with the container design specifications. The device shall be designed to operate with no detectable organic emission when the device is secured in the closed position. The settings at which the device opens shall be established such that the device remains in the closed position whenever the internal pressure of the container is within the internal pressure operating range determined by the owner or operator based on container manufacturer recommendations, applicable regulations, fire protection and prevention codes, standard engineering codes and practices, or other requirements for the safe handling of flammable, ignitable, explosive, reactive, or hazardous materials. Examples of normal operating conditions that may require these devices to open are during those times when the internal pressure of the container exceeds the internal pressure operating range for the container as a result of loading operations or diurnal ambient temperature fluctuations.
 - (e') Opening of a safety device, as defined in subdivision (b) of this section, is allowed at any time conditions require doing so to avoid an unsafe condition.
- (iv) The owner or operator of containers using Container Level 2 controls shall inspect the containers and their covers and closure devices as follows:

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- (a) In the case when a hazardous waste already is in the container at the time the owner or operator first accepts possession of the container at the facility and the container is not emptied (i.e., does not meet the conditions for an empty container as specified in section 371.1(h)(2) of this Title) within 24 hours after the container arrives at the facility, the owner or operator shall visually inspect the container and its cover and closure devices to check for visible cracks, holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured in the closed position. The container visual inspection shall be conducted on or before the date that the container is accepted at the facility (i.e., the date the container becomes subject to the standards in this subdivision). For purposes of this requirement, the date of acceptance is the date of signature that the facility owner or operator enters on item 20 of the Uniform Hazardous Waste Manifest in Appendix 30 of this Title, as required under section 373-3.5(b) of this Subpart. If a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of clause ('c') of this subparagraph.
 - (b) In the case when a container used for managing hazardous waste remains at the facility for a period of one year or more, the owner or operator shall visually inspect the container and its cover and closure devices initially and thereafter, at least once every 12 months, to check for visible cracks, holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured in the closed position. If a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of clause ('c') of this subparagraph.
 - (c) When a defect is detected for the container, cover, or closure devices, the owner or operator shall make first efforts at repair of the defect no later than 24 hours after detection, and repair shall be completed as soon as possible but no later than five calendar days after detection. If repair of a defect cannot be completed within five calendar days, then the hazardous waste shall be removed from the container and the container shall not be used to manage hazardous waste until the defect is repaired.
- (5) Container Level 3 standards.
- (i) A container using Container Level 3 controls is one of the following:
 - (a) A container that is vented directly through a closed-vent system to a control device in accordance with the requirements of clause (ii)(b') of this paragraph.
 - (b) A container that is vented inside an enclosure which is exhausted through a closed-vent system to a control device in accordance with the requirements of clauses (ii)(a') and (b') of this paragraph.
 - (ii) The owner or operator shall meet the following requirements, as applicable to the type of air emission control equipment selected by the owner or operator:
 - (a) The container enclosure shall be designed and operated in accordance with the criteria for a permanent total enclosure as specified in "Procedure T—Criteria for and

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Verification of a Permanent or Temporary Total Enclosure” under 40 CFR 52.741, appendix B, as incorporated by reference in section 370.1(e) of this Title. The enclosure may have permanent or temporary openings to allow worker access; passage of containers through the enclosure by conveyor or other mechanical means; entry of permanent mechanical or electrical equipment; or direct airflow into the enclosure. The owner or operator shall perform the verification procedure for the enclosure as specified in section 5.0 to “Procedure T—Criteria for and Verification of a Permanent or Temporary Total Enclosure” initially when the enclosure is first installed and, thereafter, annually.

- (b) The closed-vent system and control device shall be designed and operated in accordance with the requirements of subdivision (i) of this section.
 - (iii) Safety devices, as defined in subdivision (b) of this section, may be installed and operated as necessary on any container, enclosure, closed-vent system, or control device used to comply with the requirements of subparagraph (i) of this paragraph.
 - (iv) Owners and operators using Container Level 3 controls in accordance with the provisions of this section shall inspect and monitor the closed-vent systems and control devices as specified in subdivision (i) of this section.
 - (v) Owners and operators that use Container Level 3 controls in accordance with the provisions of this section shall prepare and maintain the records specified in paragraph (k)(4) of this section.
 - (vi) Transfer of hazardous waste in or out of a container using Container Level 3 controls shall be conducted in such a manner as to minimize exposure of the hazardous waste to the atmosphere, to the extent practical, considering the physical properties of the hazardous waste and good engineering and safety practices for handling flammable, ignitable, explosive, reactive, or other hazardous materials. Examples of container loading procedures that the department considers to meet the requirements of this subparagraph include using any one of the following: a submerged-fill pipe or other submerged-fill method to load liquids into the container; a vapor-balancing system or a vapor-recovery system to collect and control the vapors displaced from the container during filling operations; or a fitted opening in the top of a container through which the hazardous waste is filled and subsequently purging the transfer line before removing it from the container opening.
- (6) For the purpose of compliance with clause (3)(i)(‘a’) or (4)(i)(‘a’) of this subdivision, containers shall be used that meet the applicable U.S. Department of Transportation (DOT) regulations on packaging hazardous materials for transportation, as incorporated by reference in section 370.1(e) of this Title, as follows:
- (i) The container meets the applicable requirements specified in 49 CFR part 178—Specifications for Packaging or 49 CFR part 179—Specifications for Tank Cars.

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- (ii) Hazardous waste is managed in the container in accordance with the applicable requirements specified in 49 CFR part 107, subpart B—Exemptions; 49 CFR part 172—Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements; 49 CFR part 173—Shippers—General Requirements for Shipments and Packages; and 49 CFR part 180—Continuing Qualification and Maintenance of Packagings.
 - (iii) For the purpose of complying with this section, no exceptions to the 49 CFR part 178 or part 179 regulations are allowed except as provided for in subparagraph (iv) of this paragraph.
 - (iv) For a lab pack that is managed in accordance with the requirements of 49 CFR part 178 for the purpose of complying with this section, an owner or operator may comply with the exceptions for combination packagings specified in 49 CFR 173.12(b).
- (7) To determine compliance with the no detectable organic emissions requirements of clause (4)(i)(‘b’) of this subdivision, the procedures specified in paragraph (e)(4) of this section shall be used.
- (i) Each potential leak interface (i.e., a location where organic vapor leakage could occur) on the container, its cover, and associated closure devices, as applicable to the container, shall be checked. Potential leak interfaces that are associated with containers include, but are not limited to: the interface of the cover rim and the container wall; the periphery of any opening on the container or container cover and its associated closure device; and the sealing seat interface on a spring-loaded pressure-relief valve.
 - (ii) The test shall be performed when the container is filled with a material having a volatile organic concentration representative of the range of volatile organic concentrations for the hazardous wastes expected to be managed in this type of container. During the test, the container cover and closure devices shall be secured in the closed position.
- (8) Procedure for determining a container to be vapor-tight using Method 27 of 40 CFR part 60, appendix A, as incorporated by reference in section 370.1(e) of this Title, for the purpose of complying with clause (4)(i)(‘c’) of this subdivision.
- (i) The test shall be performed in accordance with Method 27 of 40 CFR part 60, appendix A, as incorporated by reference in section 370.1(e) of this Title.
 - (ii) A pressure measurement device shall be used that has a precision of ± 2.5 mm water and that is capable of measuring above the pressure at which the container is to be tested for vapor tightness.
 - (iii) If the test results determined by Method 27 indicate that the container sustains a pressure change less than or equal to 750 Pascals within five minutes after it is pressurized to a minimum of 4,500 Pascals, then the container is determined to be vapor-tight.

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(i) **Standards: Closed-vent systems and control devices.**

- (1) This subdivision applies to each closed-vent system and control device installed and operated by the owner or operator to control air emissions in accordance with standards of this section.
- (2) The closed-vent system shall meet the following requirements:
 - (i) The closed-vent system shall route the gases, vapors, and fumes emitted from the hazardous waste in the waste management unit to a control device that meets the requirements specified in paragraph (3) of this subdivision.
 - (ii) The closed-vent system shall be designed and operated in accordance with the requirements specified in section 373-3.27(d)(10) of this Subpart.
 - (iii) In the case when the closed-vent system includes bypass devices that could be used to divert the gas or vapor stream to the atmosphere before entering the control device, each bypass device shall be equipped with either a flow indicator as specified in clause ('a') of this subparagraph or a seal or locking device as specified in clause ('b') of this subparagraph. For the purpose of complying with this paragraph, low leg drains, high point bleeds, analyzer vents, open-ended valves or lines, spring-loaded pressure relief valves, and other fittings used for safety purposes are not considered to be bypass devices.
 - ('a') If a flow indicator is used to comply with this subparagraph, the indicator shall be installed at the inlet to the bypass line used to divert gases and vapors from the closed-vent system to the atmosphere at a point upstream of the control device inlet. For this paragraph, a ***flow indicator*** means a device which indicates the presence of either gas or vapor flow in the bypass line.
 - ('b') If a seal or locking device is used to comply with this subparagraph, the device shall be placed on the mechanism by which the bypass device position is controlled (e.g., valve handle, damper lever) when the bypass device is in the closed position such that the bypass device cannot be opened without breaking the seal or removing the lock. Examples of such devices include, but are not limited to, a car-seal or a lock-and-key configuration valve. The owner or operator shall visually inspect the seal or closure mechanism at least once every month to verify that the bypass mechanism is maintained in the closed position.
 - (iv) The closed-vent system shall be inspected and monitored by the owner or operator in accordance with the procedure specified in section 373-3.27(d)(11) of this Subpart.
- (3) The control device shall meet the following requirements:
 - (i) The control device shall be one of the following devices:
 - ('a') a control device designed and operated to reduce the total organic content of the inlet vapor stream vented to the control device by at least 95 percent by weight;

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- (b) an enclosed combustion device designed and operated in accordance with the requirements of section 373-3.27(d)(3) of this Subpart; or
 - (c) A flare designed and operated in accordance with the requirements of section 373-3.27(d)(4) of this Subpart.
- (ii) The owner or operator who elects to use a closed-vent system and control device to comply with the requirements of this subdivision shall comply with the requirements specified in clauses ('a') through ('f') of this subparagraph.
- (a) Periods of planned routine maintenance of the control device, during which the control device does not meet the specifications of clauses (i)(a), (b), or (c) of this paragraph, as applicable, shall not exceed 240 hours per year.
 - (b) The specifications and requirements in clauses (i)(a), (b), and (c) of this paragraph for control devices do not apply during periods of planned routine maintenance.
 - (c) The specifications and requirements in clauses (i)(a), (b), or (c) of this paragraph for control devices do not apply during a control device system malfunction.
 - (d) The owner or operator shall demonstrate compliance with the requirements of clause (a) of this subparagraph (i.e., planned routine maintenance of a control device, during which the control device does not meet the specifications of clauses (i)(a), (b), or (c) of this paragraph, as applicable, shall not exceed 240 hours per year) by recording the information specified in clause (k)(5)(i)(e) of this section.
 - (e) The owner or operator shall correct control device system malfunctions as soon as practicable after their occurrence in order to minimize excess emissions of air pollutants.
 - (f) The owner or operator shall operate the closed-vent system such that gases, vapors, and/or fumes are not actively vented to the control device during periods of planned maintenance or control device system malfunction (i.e., periods when the control device is not operating or not operating normally) except in cases when it is necessary to vent the gases, vapors, or fumes to avoid an unsafe condition or to implement malfunction corrective actions or planned maintenance actions.
- (iii) The owner or operator using a carbon adsorption system to comply with subparagraph (i) of this paragraph shall operate and maintain the control device in accordance with the following requirements:
- (a) Following the initial startup of the control device, all activated carbon in the control device shall be replaced with fresh carbon on a regular basis in accordance with the requirements of section 373-3.27(d)(7) or (8) of this Subpart.
 - (b) All carbon that is a hazardous waste and that is removed from the control device shall be managed in accordance with the requirements of section 373-3.27(d)(13) of this

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Subpart, regardless of the average volatile organic concentration of the carbon.

- (iv) An owner or operator using a control device other than a thermal vapor incinerator, flare, boiler, process heater, condenser, or carbon adsorption system to comply with subparagraph (i) of this paragraph shall operate and maintain the control device in accordance with the requirements of section 373-3.27(d)(9) of this Subpart.
- (v) The owner or operator shall demonstrate that a control device achieves the performance requirements of subparagraph (i) of this paragraph as follows:
 - ('a') An owner or operator shall demonstrate using either a performance test as specified in clause ('c') of this subparagraph or a design analysis as specified in clause ('d') of this subparagraph the performance of each control device except for the following:
 - ('1') a flare;
 - ('2') a boiler or process heater with a design heat input capacity of 44 megawatts or greater;
 - ('3') a boiler or process heater into which the vent stream is introduced with the primary fuel;
 - ('4') a boiler or industrial furnace burning hazardous waste for which the owner or operator has been issued a final permit under Subpart 373-1 of this Part and has designed and operates the unit in accordance with the requirements of section 374-1.8 of this Title; or
 - ('5') a boiler or industrial furnace burning hazardous waste for which the owner or operator has designed and operates in accordance with the interim status requirements of section 374-1.8 of this Title.
 - ('b') An owner or operator shall demonstrate the performance of each flare in accordance with the requirements specified in section 373-3.27(d)(5) of this Subpart.
 - ('c') For a performance test conducted to meet the requirements of clause ('a') of this subparagraph, the owner or operator shall use the test methods and procedures specified in section 373-3.27(e)(3)(i) through (iv) of this Subpart.
 - ('d') For a design analysis conducted to meet the requirements of clause ('a') of this subparagraph, the design analysis shall meet the requirements specified in section 373-3.27(f)(2)(iv)(c') of this Subpart.
 - ('e') The owner or operator shall demonstrate that a carbon adsorption system achieves the performance requirements of subparagraph (i) of this paragraph based on the total quantity of organics vented to the atmosphere from all carbon adsorption system equipment that is used for organic adsorption, organic desorption or carbon regeneration, organic recovery, and carbon disposal.

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- (vi) If the owner or operator and the commissioner do not agree on a demonstration of control device performance using a design analysis then the disagreement shall be resolved using the results of a performance test performed by the owner or operator in accordance with the requirements of clause (v)(‘c’) of this paragraph. The commissioner may choose to have an authorized representative observe the performance test.
- (vii) The closed-vent system and control device shall be inspected and monitored by the owner or operator in accordance with the procedures specified in section 373-3.27(d)(6)(ii) and (d)(11) of this Subpart. The readings from each monitoring device required by section 373-3.27(d)(6)(ii) of this Subpart, shall be inspected at least once each operating day to check control device operation. Any necessary corrective measures shall be immediately implemented to ensure the control device is operated in compliance with the requirements of this subdivision.

(j) Inspection and monitoring requirements.

- (1) The owner or operator shall inspect and monitor air emission control equipment used to comply with this section in accordance with the applicable requirements specified in subdivisions (f) through (i) of this section.
- (2) The owner or operator shall develop and implement a written plan and schedule to perform the inspections and monitoring required by paragraph (1) of this subdivision. The owner or operator shall incorporate this plan and schedule into the facility inspection plan required under section 373-3.2(f) of this Subpart.

(k) Recordkeeping requirements.

- (1) Each owner or operator of a facility subject to requirements in this section shall record and maintain the information specified in paragraphs (2) through (10) of this subdivision, as applicable to the facility. Except for air emission control equipment design documentation and information required by paragraphs (9) and (10) of this subdivision, records required by this subdivision shall be maintained in the operating record for a minimum of three years. Air emission control equipment design documentation shall be maintained in the operating record until the air emission control equipment is replaced or otherwise no longer in service. Information required by paragraphs (9) and (10) of this subdivision shall be maintained in the operating record for as long as the waste management unit is not using air emission controls specified in subdivisions (f) through (h) of this section in accordance with the conditions specified in paragraph (a)(4) or subparagraph (a)(2)(vii) of this section.
- (2) The owner or operator of a tank using air emission controls in accordance with the requirements of subdivision (f) of this section shall prepare and maintain records for the tank that include the following information:
 - (i) For each tank using air emission controls in accordance with the requirements of subdivision (f) of this section, the owner or operator shall record:

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- (a) a tank identification number (or other unique identification description as selected by the owner or operator); and
- (b) a record for each inspection required by subdivision (f) of this section that includes the following information:
 - (1) date inspection was conducted;
 - (2) for each defect detected during the inspection: the location of the defect, a description of the defect, the date of detection, and corrective action taken to repair the defect. In the event that repair of the defect is delayed in accordance with the provisions of subdivision (f) of this section, the owner or operator shall also record the reason for the delay and the date that completion of repair of the defect is expected.
- (ii) In addition to the information required by subparagraph (i) of this paragraph, the owner or operator shall record the following information, as applicable to the tank:
 - (a) The owner or operator using a fixed roof to comply with the Tank Level 1 control requirements specified in paragraph (f)(3) of this section shall prepare and maintain records for each determination for the maximum organic vapor pressure of the hazardous waste in the tank performed in accordance with the requirements of paragraph (f)(3) of this section. The records shall include the date and time the samples were collected, the analysis method used, and the analysis results.
 - (b) The owner or operator using an internal floating roof to comply with the Tank Level 2 control requirements specified in paragraph (f)(5) of this section shall prepare and maintain documentation describing the floating roof design.
 - (c) Owners and operators using an external floating roof to comply with the Tank Level 2 control requirements specified in paragraph (f)(6) of this section shall prepare and maintain the following records:
 - (1) documentation describing the floating roof design and the dimensions of the tank; and
 - (2) records for each seal gap inspection required by subparagraph (f)(6)(iii) of this section describing the results of the seal gap measurements. The records shall include the date that the measurements were performed, the raw data obtained for the measurements, and the calculations of the total gap surface area. In the event that the seal gap measurements do not conform to the specifications in subparagraph (f)(6)(i) of this section, the records shall include a description of the repairs that were made, the date the repairs were made, and the date the tank was emptied, if necessary.

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- (d) Each owner or operator using an enclosure to comply with the Tank Level 2 control requirements specified in paragraph (f)(9) of this section shall prepare and maintain the following records:
 - (1) records for the most recent set of calculations and measurements performed by the owner or operator to verify that the enclosure meets the criteria of a permanent total enclosure as specified in “Procedure T—Criteria for and Verification of a Permanent or Temporary Total Enclosure” under 40 CFR 52.741, appendix B, as incorporated by reference in section 370.1(e) of this Title; and
 - (2) records required for the closed-vent system and control device in accordance with the requirements of paragraph (5) of this subdivision.
- (3) The owner or operator of a surface impoundment using air emission controls in accordance with the requirements of subdivision (g) of this section shall prepare and maintain records for the surface impoundment that include the following information:
 - (i) a surface impoundment identification number (or other unique identification description as selected by the owner or operator);
 - (ii) documentation describing the floating membrane cover or cover design, as applicable to the surface impoundment, that includes information prepared by the owner or operator or provided by the cover manufacturer or vendor describing the cover design, and certification by the owner or operator that the cover meets the specifications listed in paragraph (g)(3) of this section;
 - (iii) a record for each inspection required by subdivision (g) of this section that includes the following information:
 - (a) date inspection was conducted; and
 - (b) for each defect detected during the inspection the following information: the location of the defect, a description of the defect, the date of detection, and corrective action taken to repair the defect. In the event that repair of the defect is delayed in accordance with the provisions of paragraph (g)(6) of this section, the owner or operator shall also record the reason for the delay and the date that completion of repair of the defect is expected; and
 - (iv) for a surface impoundment equipped with a cover and vented through a closed-vent system to a control device, the owner or operator shall prepare and maintain the records specified in paragraph (5) of this subdivision.
- (4) The owner or operator of containers using Container Level 3 air emission controls in accordance with the requirements of subdivision (h) of this section shall prepare and maintain records that include the following information:
 - (i) records for the most recent set of calculations and measurements performed by the owner or

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operator to verify that the enclosure meets the criteria of a permanent total enclosure as specified in “Procedure T—Criteria for and Verification of a Permanent or Temporary Total Enclosure” under 40 CFR 52.741, appendix B, as incorporated by reference in section 370.1(e) of this Title; and

- (ii) records required for the closed-vent system and control device in accordance with the requirements of paragraph (5) of this subdivision.
- (5) The owner or operator using a closed-vent system and control device in accordance with the requirements of subdivision (i) of this section shall prepare and maintain records that include the following information:
- (i) Documentation for the closed-vent system and control device that includes:
 - (‘a’) Certification that is signed and dated by the owner or operator stating that the control device is designed to operate at the performance level documented by a design analysis as specified in clause (‘b’) of this subparagraph or by performance tests as specified in clause (‘c’) of this subparagraph when the tank, surface impoundment, or container is or would be operating at capacity or the highest level reasonably expected to occur.
 - (‘b’) If a design analysis is used, then design documentation as specified in section 373-3.27(f)(2)(iv) of this Subpart. The documentation shall include information prepared by the owner or operator or provided by the control device manufacturer or vendor that describes the control device design in accordance with section 373-3.27(f)(2)(iv)(‘c’) of this Subpart and certification by the owner or operator that the control equipment meets the applicable specifications.
 - (‘c’) If performance tests are used, then a performance test plan as specified in section 373-3.27(f)(2)(iii) of this Subpart and all test results.
 - (‘d’) Information as required by section 373-3.27(f)(3)(i) and (ii) of this Subpart, as applicable.
 - (‘e’) An owner or operator shall record, on a semiannual basis, the information specified in subclauses (‘1’) and (‘2’) of this clause for those planned routine maintenance operations that would require the control device not to meet the requirements of clause (i)(3)(i)(‘a’), (‘b’), or (‘c’) of this section, as applicable.
 - (‘1’) A description of the planned routine maintenance that is anticipated to be performed for the control device during the next six-month period. This description shall include the type of maintenance necessary, planned frequency of maintenance, and lengths of maintenance periods.
 - (‘2’) A description of the planned routine maintenance that was performed for the control device during the previous six-month period. This description shall include the type of maintenance performed and the total number of hours during those six months that the control device did not meet the requirements of clause

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(i)(3)(i)(‘a’), (‘b’), or (‘c’) of this section, as applicable, due to planned routine maintenance.

(‘f’) An owner or operator shall record the information specified in subclauses (‘1’) through (‘3’) of this clause for those unexpected control device system malfunctions that would require the control device not to meet the requirements of clause (i)(3)(i)(‘a’), (‘b’), or (‘c’) of this section, as applicable.

(‘1’) The occurrence and duration of each malfunction of the control device system.

(‘2’) The duration of each period during a malfunction when gases, vapors, or fumes are vented from the waste management unit through the closed-vent system to the control device while the control device is not properly functioning.

(‘3’) Actions taken during periods of malfunction to restore a malfunctioning control device to its normal or usual manner of operation.

(‘g’) Records of the management of carbon removed from a carbon adsorption system conducted in accordance with clause (i)(3)(iii)(‘b’) of this section.

(6) The owner or operator of a tank surface impoundment, or container exempted from standards in accordance with the provisions of paragraph (d)(3) of this section shall prepare and maintain the following records, as applicable:

(i) For tanks, surface impoundments, or containers exempted under the hazardous waste organic concentration conditions specified in subparagraph (d)(3)(i) or clauses (d)(3)(ii)(‘a’) through (‘f’) of this section, the owner or operator shall record the information used for each waste determination (e.g., test results, measurements, calculations, and other documentation) in the facility operating log. If analysis results for waste samples are used for the waste determination, then the owner or operator shall record the date, time, and location that each waste sample is collected in accordance with the applicable requirements of subdivision (e) of this section.

(ii) For tanks, surface impoundments, or containers exempted under the provisions of clause (d)(3)(ii)(‘g’) or (‘h’) of this section, the owner or operator shall record the identification number for the incinerator, boiler, or industrial furnace in which the hazardous waste is treated.

(7) An owner or operator designating a cover as “unsafe to inspect and monitor” pursuant to paragraph (f)(12) or (g)(7) of this section shall record in a log that is kept in the facility operating record the following information: the identification numbers for waste management units with covers that are designated as “unsafe to inspect and monitor,” the explanation for each cover stating why the cover is unsafe to inspect and monitor, and the plan and schedule for inspecting and monitoring each cover.

(8) The owner or operator of a facility that is subject to this section and to the control device standards in 40 CFR part 60, subpart VV, or 40 CFR part 61, subpart V, as incorporated by reference in

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section 370.1(e)(2) of this Title, may elect to demonstrate compliance with the applicable subdivisions of this section by documentation either pursuant to this section, or pursuant to the provisions of 40 CFR part 60, subpart VV, or 40 CFR part 61, subpart V, as incorporated by reference in section 370.1(e)(2) of this Title, to the extent that the documentation required by 40 CFR parts 60 or 61 duplicates the documentation required by this subdivision.

- (9) For each tank or container not using air emission controls specified in subdivisions (f) through (i) of this section in accordance with the conditions specified in paragraph (a)(4) of this section, the owner or operator shall record and maintain the following information:
- (i) a list of the individual organic peroxide compounds manufactured at the facility that meet the conditions specified in subparagraph (a)(4)(i) of this section;
 - (ii) a description of how the hazardous waste containing the organic peroxide compounds identified in subparagraph (i) of this paragraph are managed at the facility in tanks and containers. This description shall include the following information:
 - ('a') for the tanks used at the facility to manage this hazardous waste, sufficient information shall be provided to describe for each tank: a facility identification number for the tank; the purpose and placement of this tank in the management train of this hazardous waste; and the procedures used to ultimately dispose of the hazardous waste managed in the tanks;
 - ('b') for containers used at the facility to manage these hazardous wastes, sufficient information shall be provided to describe: a facility identification number for the container or group of containers; the purpose and placement of this container, or group of containers, in the management train of this hazardous waste; and the procedures used to ultimately dispose of the hazardous waste handled in the containers; and
 - (iii) an explanation of why managing the hazardous waste containing the organic peroxide compounds identified in subparagraph (i) of this paragraph in the tanks and containers as described in subparagraph (ii) of this paragraph would create an undue safety hazard if the air emission controls, as required under subdivisions (f) through (i) of this section, are installed and operated on these waste management units. This explanation shall include the following information:
 - ('a') For tanks used at the facility to manage these hazardous wastes, sufficient information shall be provided to explain: how use of the required air emission controls on the tanks would affect the tank design features and facility operating procedures currently used to prevent an undue safety hazard during the management of this hazardous waste in the tanks; and why installation of safety devices on the required air emission controls, as allowed under this section, will not address those situations in which evacuation of tanks equipped with these air emission controls is necessary and consistent with good engineering and safety practices for handling organic peroxides.

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- (b') For containers used at the facility to manage these hazardous wastes, sufficient information shall be provided to explain: how use of the required air emission controls on the containers would affect the container design features and handling procedures currently used to prevent an undue safety hazard during the management of this hazardous waste in the containers; and why installation of safety devices on the required air emission controls, as allowed under this section, will not address those situations in which evacuation of containers equipped with these air emission controls is necessary and consistent with good engineering and safety practices for handling organic peroxides.
- (10) For each hazardous waste management unit not using air emission controls specified in subdivisions (f) through (i) of this section in accordance with the provisions of subparagraph (a)(2)(vii) of this section, the owner or operator shall record and maintain the following information:
- (i) certification that the waste management unit is equipped with and operating air emission controls in accordance with the requirements of an applicable Clean Air Act regulation codified under 40 CFR part 60, part 61, or part 63, as incorporated by reference in section 370.1(e) of this Title; and
 - (ii) identification of the specific requirements codified under 40 CFR part 60, part 61, or part 63, as incorporated by reference in section 370.1(e) of this Title, with which the waste management unit is in compliance.

Section 373-3.30 Containment buildings.

(a) Applicability.

The requirements of this section apply to owners or operators who store or treat hazardous waste in units designed and operated under subdivision (b) of this section. The owner or operator is not subject to the definition of land disposal in section 370.2(b) of this Title provided that the unit:

- (1) is a completely enclosed, self-supporting structure that is designed and constructed of humanmade materials of sufficient strength and thickness to support themselves, the waste contents, and any personnel and heavy equipment that operate within the units, and to prevent failure due to pressure gradients, settlement, compression, or uplift, physical contact with the hazardous wastes to which they are exposed; climatic conditions; and the stresses of daily operation, including the movement of heavy equipment within the unit and contact of such equipment with containment walls;
- (2) has a primary barrier that is designed to be sufficiently durable to withstand the movement of personnel and handling equipment within the unit;
- (3) if the unit used to manage liquids, has:
 - (i) a primary barrier designed and constructed of materials to prevent migration of hazardous constituents into the barrier;

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- (ii) a liquid collection system designed and constructed of materials to minimize the accumulation of liquid on the primary barrier; and
 - (iii) a secondary containment system designed and constructed of materials to prevent migration of hazardous constituents into the barrier, with a leak detection and liquid collection system capable of detecting, collecting, and removing leaks of hazardous constituents at the earliest possible time, unless the unit has been granted a variance from the secondary containment system requirements under subparagraph (b)(2)(iv) of this section;
- (4) has controls sufficient to prevent fugitive dust emissions, in order to meet the no visible emission standard in clause (b)(3)(i)(‘d’) of this section; and
- (5) is designed and operated to ensure containment and prevent the tracking of materials from the unit by personnel or equipment.

(b) Design and operating standards.

- (1) All containment buildings must comply with the following design standards:
- (i) The containment building must be completely enclosed with a floor, walls, and a roof to prevent exposure to the elements (e.g., precipitation, wind, run-on), and to assure containment of managed wastes.
 - (ii) The floor and containment walls of the unit, including the secondary containment unit system if required under paragraph (2) of this subdivision, must be designed and constructed of materials of sufficient strength and thickness to support themselves, the waste contents, and any personnel and heavy equipment that operates within the unit, and to prevent failure due to pressure gradients, settlement, compression, or uplift, physical contact with the hazardous wastes to which they are exposed; climatic conditions; and the stresses of daily operation, including the movement of heavy equipment within the unit and contact of such equipment with containment walls. The unit must be designed so that it has sufficient structural strength to prevent collapse or other failure. All surfaces to be in contact with hazardous wastes must be chemically compatible with those wastes. DEC will consider standards established by professional organizations generally recognized by the industry such as the American Concrete Institute (ACI) and the American Society of Testing Materials (ASTM) in judging the structural integrity requirements of this paragraph. If appropriate to the nature of the waste management operation to take place in the unit, an exception to the structural strength requirement may be made for light-weight doors and windows that meet these criteria:
 - (‘a’) they provide an effective barrier against fugitive dust emissions under clause (3)(i)(‘d’) of this subdivision; and
 - (‘b’) the unit is designed and operated in a fashion that assures that wastes will not actually come into contact with these openings.

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- (iii) Incompatible hazardous wastes or treatment reagents must not be placed in the unit or its secondary containment system if they could cause the unit or secondary containment system to leak, corrode, or otherwise fail.
 - (iv) A containment building must have a primary barrier designed to withstand the movement of personnel, waste, and handling equipment in the unit during the operating life of the unit and appropriate for the physical and chemical characteristics of the waste to be managed.
- (2) For a containment building used to manage hazardous wastes containing free liquids or treated with free liquids (the presence of which is determined by the paint filter test, a visual examination, or other appropriate means), the owner or operator must include:
- (i) a primary barrier designed and constructed of materials to prevent the migration of hazardous constituents into the barrier (e.g., a geomembrane covered by a concrete wear surface);
 - (ii) a liquid collection and removal system to prevent the accumulation of liquid on the primary barrier of the containment building:
 - ('a') the primary barrier must be sloped to drain liquids to the associated collection system; and
 - ('b') liquids and waste must be collected and removed to minimize hydraulic head on the containment system at the earliest practicable time that protects human health and the environment;
 - (iii) a secondary containment system including a secondary barrier designed and constructed to prevent migration of hazardous constituents into the barrier, and a leak detection system that is capable of detecting failure of the primary barrier and collecting accumulated hazardous wastes and liquids at the earliest practicable time;
 - ('a') the requirements of the leak detection component of the secondary containment system are satisfied by installation of a system that is, at a minimum:
 - ('1') constructed with a bottom slope of one percent or more; and
 - ('2') constructed of a granular drainage material with a hydraulic conductivity of 1×10^{-2} cm/sec or more and a thickness of 12 inches (30.5 cm) or more, or constructed of synthetic or geonet drainage materials with a transmissivity of 3×10^{-5} m²/sec or more;
 - ('b') if treatment is to be conducted in the building, an area in which such treatment will be conducted must be designed to prevent the release of liquids, wet materials, or liquid aerosols to other portions of the building;
 - ('c') the secondary containment system must be constructed of materials that are chemically resistant to the waste and liquids managed in the containment building and of sufficient strength and thickness to prevent collapse under the pressure exerted by overlaying materials and by any equipment used in the containment building. (Containment

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buildings can serve as secondary containment systems for tanks placed within the building under certain conditions. A containment building can serve as an external liner system for a tank, provided it meets the requirements of section 373-3.10(d)(5)(i) of this Subpart. In addition, the containment building must meet the requirements of section 373-3.10(d)(2) and (3) of this Subpart to be considered an acceptable secondary containment system for a tank.)

- (iv) For existing units other than 90-day generator units, the commissioner may accept a determination by the EPA regional administrator to delay the secondary containment requirement for up to two years, based on a demonstration by the owner or operator that the unit substantially meets the standards of this section. In making this demonstration, the owner or operator must:
 - ('a') have provided written notice to the EPA regional administrator of their request by February 18, 1993. This notification must describe the unit and its operating practices with specific reference to the performance of existing containment systems, and specific plans for retrofitting the unit with secondary containment;
 - ('b') respond to any comments from the EPA regional administrator on these plans within 30 days; and
 - ('c') fulfill the terms of the revised plans, if such plans are approved by the EPA regional administrator.
- (3) Owners or operators of all containment buildings must:
 - (i) use controls and practices to ensure containment of the hazardous waste within the unit; and, at a minimum:
 - ('a') maintain the primary barrier to be free of significant cracks, gaps, corrosion, or other deterioration that could cause hazardous waste to be released from the primary barrier;
 - ('b') maintain the level of the stored/treated hazardous waste within the containment walls of the unit so that the height of any containment wall is not exceeded;
 - ('c') take measures to prevent the tracking of hazardous waste out of the unit by personnel or by equipment used in handling the waste. An area must be designated to decontaminate equipment and any rinsate must be collected and properly managed; and
 - ('d') take measures to control fugitive dust emissions such that any openings (doors, windows, vents, cracks, etc.) exhibit no visible emissions. In addition, all associated particulate collection devices (e.g., fabric filter, electrostatic precipitator) must be operated and maintained with sound air pollution control practices. This state of no visible emissions must be maintained effectively at all times during normal operating conditions, including when vehicles and personnel are entering and exiting the unit;

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- (ii) obtain, and keep on-site, certification by an independent, qualified professional engineer registered in New York State that the containment building design meets the requirements of paragraphs (1) through (3) of this subdivision;
 - (iii) throughout the active life of the containment building, if the owner or operator detects a condition that could lead to or has caused a release of hazardous waste, the owner or operator must repair the condition promptly, in accordance with the following procedures:
 - ('a') upon detection of a condition that has led to a release of hazardous waste (e.g., upon detection of leakage from the primary barrier) the owner or operator must:
 - ('1') enter a record of the discovery in the facility operating record;
 - ('2') immediately remove the portion of the containment building affected by the condition from service;
 - ('3') determine what steps must be taken to repair the containment building, remove any leakage from the secondary collection system, and establish a schedule for accomplishing the cleanup and repairs; and
 - ('4') within seven days after the discovery of the condition, notify the commissioner of the condition, and within 14 working days, provide a written notice to the commissioner with a description of the steps taken to repair the containment building, and the schedule for accomplishing the work.
 - ('b') The commissioner will review the information submitted, make a determination whether the containment building must be removed from service completely or partially until repairs and cleanup are complete, and notify the owner or operator of the determination and the underlying rationale in writing.
 - ('c') Upon completing all repairs and cleanup, the owner or operator must notify the commissioner in writing and provide a verification, signed by a qualified, professional engineer registered in New York State, that the repairs and cleanup have been completed according to the written plan submitted in accordance with subclause ('a')('4') of this subparagraph.
 - (iv) Inspect and record in the facility's operating record, at least once every seven days, data gathered from monitoring equipment and leak detection equipment as well as the containment building and the area immediately surrounding the containment building to detect signs of releases of hazardous waste.
- (4) For a containment building that contains both areas with and without secondary containment, the owner or operator must:
- (i) design and operate each area in accordance with the requirements enumerated in paragraphs (1) through (3) of this subdivision;

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- (ii) take measures to prevent the release of liquids or wet materials into areas without secondary containment; and
 - (iii) maintain in the facility's operating log a written description of the operating procedures used to maintain the integrity of areas without secondary containment.
- (5) Notwithstanding any other provision of this section, the commissioner may waive requirements for secondary containment for a permitted containment building where the owner or operator demonstrates that the only free liquids in the unit are limited amounts of dust suppression liquids required to meet occupational health and safety requirements, and where containment of managed wastes and liquids can be assured without a secondary containment system.

(c) Closure and post-closure care.

- (1) At closure of a containment building, 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 371.1(d)(4) of this Title applies. The closure plan, closure activities, cost estimates for closure, and financial responsibility for containment buildings must meet all of the requirements specified in sections 373-3.7 and 373-3.8 of this Subpart.
- (2) If, after removing or decontaminating all residues and making all reasonable efforts to effect removal or decontamination of contaminated components, subsoils, structures, and equipment as required in paragraph (1) of this subdivision, the owner or operator finds that not all contaminated subsoils can be practicably removed or decontaminated, the owner or operator must close the facility and perform post-closure care in accordance with the closure and post-closure requirements that apply to landfills (see section 373-2.14(g) of this Title). In addition, for the purposes of closure, post-closure, and financial responsibility, such a containment building is then considered to be a landfill, and the owner or operator must meet all of the requirements for landfills specified in sections 373-3.7 and 373-3.8 of this Subpart.

Section 373-3.31 Hazardous waste munitions and explosives storage.

(a) Applicability.

The requirements of this section apply to owners or operators who store munitions and explosive hazardous wastes, except as section 373-1.1(a) of this Part provides otherwise.

Note: Depending on explosive hazards, hazardous waste munitions and explosives may also be managed in other types of storage units, including containment buildings (section 373-3.30 of this Subpart), tanks (section 373-3.10 of this Subpart), or containers (section 373-3.9 of this Subpart); see section 374-1.13(f) of this Title for storage of waste military munitions.

(b) Design and operating standards.

- (1) Hazardous waste munitions and explosives storage units must be designed and operated with containment systems, controls, and monitoring, that:

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- (i) minimize the potential for detonation or other means of release of hazardous waste, hazardous constituents, hazardous decomposition products, or contaminated run-off, to the soil, groundwater, surface water, and atmosphere;
 - (ii) provide a primary barrier, which may be a container (including a shell) or tank, designed to contain the hazardous waste;
 - (iii) for wastes stored outdoors, provide that the waste and containers will not be in standing precipitation;
 - (iv) for liquid wastes, provide a secondary containment system that assures that any released liquids are contained and promptly detected and removed from the waste area, or vapor detection system that assures that any released liquids or vapors are promptly detected and an appropriate response taken (e.g., additional containment, such as overpacking, or removal from the waste area); and
 - (v) provide monitoring and inspection procedures that assure the controls and containment systems are working as designed and that releases that may adversely impact human health or the environment are not escaping from the unit.
- (2) Hazardous waste munitions and explosives stored under this Subpart may be stored in one of the following:
- (i) Earth-covered magazines. Earth-covered magazines must be:
 - ('a') constructed of waterproofed, reinforced concrete or structural steel arches, with steel doors that are kept closed when not being accessed;
 - ('b') designed and constructed:
 - ('1') to be of sufficient strength and thickness to support the weight of any explosives or munitions stored and any equipment used in the unit;
 - ('2') to provide working space for personnel and equipment in the unit; and
 - ('3') to withstand movement activities that occur in the unit; and
 - ('c') located and designed, with walls and earthen covers that direct an explosion in the unit in a safe direction, so as to minimize the propagation of an explosion to adjacent units and to minimize other effects of any explosion.
 - (ii) Above-ground magazines. Above-ground magazines must be located and designed so as to minimize the propagation of an explosion to adjacent units and to minimize other effects of any explosion.
 - (iii) Outdoor or open storage areas. Outdoor or open storage areas must be located and designed so as to minimize the propagation of an explosion to adjacent units and to minimize other effects of any explosion.

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- (3) Hazardous waste munitions and explosives must be stored in accordance with a standard operating procedure specifying procedures to ensure safety, security, and environmental protection. If these procedures serve the same purpose as the security and inspection requirements of section 373-3.2(e) of this Subpart, the preparedness and prevention procedures of section 373-3.3 of this Subpart, and the contingency plan and emergency procedures requirements of section 373-3.4 of this Subpart, then these procedures will be used to fulfill those requirements.
- (4) Hazardous waste munitions and explosives must be packaged to ensure safety in handling and storage.
- (5) Hazardous waste munitions and explosives must be inventoried at least annually.
- (6) Hazardous waste munitions and explosives and their storage units must be inspected and monitored as necessary to ensure explosives safety and to ensure that there is no migration of contaminants out of the unit.

(c) Closure and post-closure care.

- (1) At closure of a magazine or unit which stored hazardous waste under this section, the owner or operator must remove or decontaminate all waste residues, contaminated containment system components, contaminated subsoils, and structures and equipment contaminated with waste, and manage them as hazardous waste unless section 371.1(d)(4) of this Title applies. The closure plan, closure activities, cost estimates for closure, and financial responsibility for magazines or units must meet all of the requirements specified in sections 373-3.7 and 373-3.8 of this Subpart, except that the owner or operator may defer closure of the unit as long as it remains in service as a munitions or explosives magazine or storage unit.
- (2) If, after removing or decontaminating all residues and making all reasonable efforts to effect removal or decontamination of contaminated components, subsoils, structures, and equipment as required in paragraph (1) of this subdivision, the owner or operator finds that not all contaminated subsoils can be practicably removed or decontaminated, he or she must close the facility and perform post-closure care in accordance with the closure and post-closure requirements that apply to landfills (section 373-2.14(g) of this Part).

APPENDICES

Appendices to Subpart 373-3

APPENDIX 25 – RECORDKEEPING INSTRUCTIONS

The recordkeeping provisions of sections 373-2.5(c) and 373-3.5(c) specify that an owner or operator must keep a written operating record at the facility. This Appendix provides additional instructions for keeping portions of the operating record.

The following information must be recorded, as it becomes available, and maintained in the operating record until closure of the facility in the following manner:

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

- (i) A description by its common name and the EPA Hazardous Waste Number(s) from 6 NYCRR Part 371 which apply to the waste. The waste description also must include the waste's physical form, i.e., liquid, sludge, solid or contained gas. If the waste is not listed in section 371.4, the description also must include the process that produced it (for example, solid filter cake from production of _____, EPA Hazardous Waste Number W051).

Each hazardous waste listed in section 371.4, and each hazardous waste characteristic defined in section 371.3, has a four-digit EPA Hazardous Waste Number assigned to it. This number must be used for recordkeeping and reporting purposes. Where a hazardous waste contains more than one listed hazardous waste, or where more than one hazardous waste characteristic applies to the waste, the waste description must include all applicable EPA Hazardous Waste Numbers.

- (ii) The estimated or manifest-reported weight, or volume and density, where applicable, in one of the units of measure specified in Table 1.
- (iii) The method(s) (by handling code(s) as specified in Table 2) and date(s) of treatment, storage or disposal.

Table 1

Unit of measure	Code ¹
Gallons.....	G
Gallons per hour.....	E
Gallons per day.....	U
Liters.....	L
Liters per hour.....	H
Liters per day.....	V
Short tons per hour.....	D
Metric tons per hour.....	W
Short tons per day.....	N
Short tons.....	T
Tons.....	M
Metric tons per day.....	S

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Unit of measure	Code ¹
Pounds.....	P
Pounds per hour.....	J
Kilograms.....	K
Kilograms per hour.....	R
Cubic yards.....	Y
Cubic meters.....	C
Tonnes (1000 kg)	M
Acres.....	B
Acre-feet.....	A
Hectares.....	Q
Hectare-meter.....	F
Btu's per hour.....	I

¹Single digit symbols are used here for data processing purposes.

Table 2 – Handling Codes for Treatment, Storage and Disposal Methods

Enter the handling code(s) listed below that most closely represents the technique(s) used at the facility to treat, store or dispose of each quantity of hazardous waste received.

1. Storage.

- S01 Container (barrel, drum, etc.)
- S02 Tank
- S03 Waste pile
- S04 Surface impoundment
- S05 Drip pad
- S06 Containment building (storage)
- S99 Other storage (specify)

2. Treatment.

(a) Thermal treatment.

- T06 Liquid injection incinerator
- T07 Rotary kiln incinerator
- T08 Fluidized bed incinerator
- T09 Multiple hearth incinerator
- T10 Infrared furnace incinerator

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- T11 Molten salt destructor
- T12 Pyrolysis
- T13 Wet air oxidation
- T14 Calcination
- T15 Microwave discharge
- T18 Other (specify)

(b) Chemical treatment.

- T19 Absorption mound
- T20 Absorption field
- T21 Chemical fixation
- T22 Chemical oxidation
- T23 Chemical precipitation
- T24 Chemical reduction
- T25 Chlorination
- T26 Chlorinolysis
- T27 Cyanide destruction
- T28 Degradation
- T29 Detoxification
- T30 Ion exchange
- T31 Neutralization
- T32 Ozonation
- T33 Photolysis
- T34 Other (specify)

(c) Physical treatment.

(1) Separation of components.

- T35 Centrifugation
- T36 Clarification
- T37 Coagulation

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- T38 Decanting
- T39 Encapsulation
- T40 Filtration
- T41 Flocculation
- T42 Flotation
- T43 Foaming
- T44 Sedimentation
- T45 Thickening
- T46 Ultrafiltration
- T47 Other (specify)

(2) Removal of specific components.

- T48 Absorption-molecular sieve
- T49 Activated carbon
- T50 Blending
- T51 Catalysis
- T52 Crystallization
- T53 Dialysis
- T54 Distillation
- T55 Electrodialysis
- T56 Electrolysis
- T57 Evaporation
- T58 High gradient magnetic separation
- T59 Leaching
- T60 Liquid ion exchange
- T61 Liquid-liquid extraction
- T62 Reverse osmosis
- T63 Solvent recovery
- T64 Stripping

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T65 Sand filter

T66 Other (specify)

(d) Biological treatment.

T67 Activated sludge

T68 Aerobic lagoon

T69 Aerobic tank

T70 Anaerobic tank

T71 Composting

T72 Septic tank

T73 Spray irrigation

T74 Thickening filter

T75 Trickling filter

T76 Waste stabilization pond

T77 Other (specify)

T78-79 (Reserved)

(e) Boilers and industrial furnaces.

T80 Boiler

T81 Cement kiln

T82 Line kiln

T83 Aggregate kiln

T84 Phosphate kiln

T85 Coke oven

T86 Blast furnace

T87 Smelting, melting, or refining furnace

T88 Titanium dioxide chloride process oxidation reactor

T89 Methane reforming furnace

T90 Pulping liquor recovery furnace

T91 Combustion device used in the recovery of sulfur values from spent acid

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T92 Halogen acid furnaces

T93 Other industrial furnaces listed in section 370.2 of this Title (specify)

(f) Other treatment.

T94 Containment building (treatment)

3. Disposal.

D79 Underground injection

D80 Landfill

D81 Land treatment

D82 Ocean disposal

D83 Surface impoundment (to be closed as a landfill)

D99 Other disposal (specify)

4. Miscellaneous.

X01 Open burning/open detonation

X02 Mechanical processing

X03 Thermal unit

X04 Geologic repository

X99 Other (specify)

APPENDIX 55 – Compounds With Henry’s Law Constant Less Than 0.1 Y/X

Appendix VI to 40 CFR part 265, as of July 1, 2014, is incorporated by reference as if fully set forth herein (see section 370.1(e) of this Title).