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Part 264 - Standards for Owners & Operators of Hazardous Waste Treatment Storage and Disposal Facilities

Subpart A - General

264.1 Purpose, scope and applicability

(a) The purpose of this part is to establish minimum national standards which define the acceptable management of hazardous waste. (12/93)

(b) The standards in this part apply to owners and operators of all facilities which treat, store, or dispose of hazardous waste, except as specifically provided otherwise in this part or in R.61-79.261.

(c) The requirements of this regulation 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 included under R.61-79.270, in a permit under these regulations. (12/92; 12/93)

[Comment: These R.61-79.264 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.] (12/92; 12/93)

(d) The requirements of this regulation apply to a person disposing of hazardous waste by means of underground injection subject to a permit issued under an Underground Injection Control (UIC) Regulations R.61-87 only to the extent required by R.61-79.270.60(b) and 44-55-10 et. seq. (12/92; 12/93)

[Comment: These R.61-79.264 regulations do apply to the aboveground treatment or storage of hazardous waste before it is injected underground.] (12/92; 12/93)

(e) The requirements of this regulation apply to the owner or operator of a POTW which treats, stores, or disposes of hazardous waste only to the extent they are included in a RCRA permit by rule granted to such a person under part 270.

(f) [Reserved]

(g) The requirements of this regulation do not apply to:

(1) The owner or operator of a facility permitted, licensed, or registered by the Department to manage municipal or industrial solid waste, if the only hazardous waste the facility treats, stores, or disposes of is excluded from regulation under R.61-79.261.5; (12/93)

(2) The owner or operator of a facility managing recyclable materials described in R.61-79.261.6 (a)(2), (3), and (4) (except to the extent that requirements of this subpart are referred to in R.61-79.107.279 or subparts C, F, G, or H of part 266). (12/93, 6/06)

(3) A generator accumulating waste onsite in compliance with R.61-79.262.34;

(4) A farmer disposing of waste pesticides from his own use in compliance with R.61-79.262.70; or

(5) The owner or operator of a totally enclosed treatment facility, as defined in R.61-79.260.10;

(6) The owner or operator of an elementary neutralization unit or a wastewater treatment unit as defined in R.61-79.260.10, provided that if the owner or operator is diluting hazardous ignitable (D001) wastes (other than the D001 High TOC Subcategory defined in 268.40, Table Treatment Standards for Hazardous Wastes), or reactive (D003) waste, to remove the characteristic before land disposal, the owner/operator must comply with the requirements set out in 264.17(b). (12/93; 5/96)

(7) [Reserved]

(8) (i) Except as provided in paragraph (g)(8)(ii) of this section, a person engaged in treatment or containment activities during immediate response to any of the following situations:

(A) A discharge of a hazardous waste;

(B) An imminent and substantial threat of a discharge of hazardous waste;

(C) A discharge of a material which, when discharged, becomes a hazardous waste.

(D) An immediate threat to human health, public safety, property, or the environment, from the known or suspected presence of military munitions, other explosive material, or an explosive device, as determined by an explosive or munitions emergency response specialist as defined in 260.10. (9/98)

(ii) An owner or operator of a facility otherwise regulated by this part must comply with all applicable requirements of subparts C and D.

(iii) Any person who is covered by paragraph (g)(8)(i) of this section and who continues or initiates hazardous waste treatment or containment activities after the immediate response is over is subject to all applicable requirements of this regulation and R.61-79.124 and R.61-79.270 for those activities.

(iv) In the case of an explosives or munitions emergency response, if a Federal, State, Tribal or local official acting within the scope of his or her official responsibilities, or an explosives or munitions emergency response specialist, determines that immediate removal of the material or waste is necessary to protect human health or the environment, that official or specialist may authorize the removal of the material or waste by transporters who do not have

EPA identification numbers and without the preparation of a manifest. In the case of emergencies involving military munitions, the responding military emergency response specialist's organizational unit must retain records for three years identifying the dates of the response, the responsible persons responding, the type and description of material addressed, and its disposition. (9/98)

(9) A transporter storing manifested shipments of hazardous waste in containers meeting the requirements of R.6-79.262.30 at a transfer facility for a period of ten days or less. (12/92)

(10) The addition of absorbent material to waste in a container (as defined in R.61-79.260.10) or the addition of waste to absorbent material in a container, provided that these actions occur at the time waste is first placed in the container; and 264.17(b), 264.171, and 264.172 are complied with.

(11) Universal waste handlers and universal waste transporters (as defined in R.61-79.260.10) handling the wastes listed below. These handlers are subject to regulation under R.61-79.273, when handling the below listed universal wastes. (5/96)

(i) Batteries as described in R.61-79.273.2;

(ii) Pesticides as described in R.61-79.273.3; and

(iii) Thermostats as described in 273.4. and (8/00)

(iv) Lamps as described in 273.5. (8/00)

(h) The requirements of this part apply to owners or operators of all facilities which treat, store, or dispose of hazardous wastes referred to in part 268. (11/90)

(i) Section 266.205 of this chapter identifies when the requirements of this part apply to the storage of military munitions classified as solid waste under 266.202 of this chapter. The treatment and disposal of hazardous waste military munitions are subject to the applicable permitting, procedural, and technical standards in 260 through 270. (9/98)

(j) The requirements of subparts B, C, and D of this part and 264.101 do not apply to remediation waste management sites. (However, some remediation waste management sites may be a part of a facility that is subject to a traditional RCRA permit because the facility is also treating, storing or disposing of hazardous wastes that are not remediation wastes. In these cases, Subparts B, C, and D of this part, and 264.101 do apply to the facility subject to the traditional RCRA permit.) Instead of the requirements of subparts B, C, and D of this part, owners or operators of remediation waste management sites must: (8/00)

(1) Obtain an EPA identification number by applying to the Department using EPA Form 8700-12;

(2) Obtain a detailed chemical and physical analysis of a representative sample of the hazardous remediation wastes to be managed at the site. At a minimum, the analysis must contain all of the information which must be known to treat, store or dispose of the waste according to this part and part 268 of this chapter, and must be kept accurate and up to date;

(3) Prevent people who are unaware of the danger from entering, and minimize the possibility for unauthorized people or livestock to enter onto the active portion of the remediation waste management site, unless the owner or operator can demonstrate to the Department that:

(i) Physical contact with the waste, structures, or equipment within the active portion of the remediation waste management site will not injure people or livestock who may enter the active portion of the remediation waste management site; and

(ii) Disturbance of the waste or equipment by people or livestock who enter onto the active portion of the remediation waste management site, will not cause a violation of the requirements of this part;

(4) Inspect the remediation waste management site for malfunctions, deterioration, operator errors, and discharges that may be causing, or may lead to, a release of hazardous waste constituents to the environment, or a threat to human health. The owner or operator must conduct these inspections often enough to identify problems in time to correct them before they harm human health or the environment, and must remedy the problem before it leads to a human health or environmental hazard. Where a hazard is imminent or has already occurred, the owner/operator must take remedial action immediately;

(5) Provide personnel with classroom or on-the-job training on how to perform their duties in a way that ensures the remediation waste management site complies with the requirements of this part, and on how to respond effectively to emergencies;

(6) Take precautions to prevent accidental ignition or reaction of ignitable or reactive waste, and prevent threats to human health and the environment from ignitable, reactive and incompatible waste;

(7) For remediation waste management sites subject to regulation under subparts I through O and subpart X of this part, the owner/operator must design, construct, operate, and maintain a unit within a 100-year floodplain to prevent washout of any hazardous waste by a 100-year flood, unless the owner/operator can meet the demonstration of 264.18(b);

(8) Not place any non-containerized or bulk liquid hazardous waste in any salt dome formation, salt bed formation, underground mine or cave;

(9) Develop and maintain a construction quality assurance program for all surface impoundments, waste piles and landfill units that are required to comply with 264.221(c) and (d), 264.251(c) and (d), and 264.301(c) and (d) at the remediation waste management site, according to the requirements of 264.19;

(10) Develop and maintain procedures to prevent accidents and a contingency and emergency

plan to control accidents that occur. These procedures must address proper design, construction, maintenance, and operation of remediation waste management units at the site. The goal of the plan must be to minimize the possibility of, and the hazards from a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water that could threaten human health or the environment. The plan must explain specifically how to treat, store and dispose of the hazardous remediation waste in question, and must be implemented immediately whenever a fire, explosion, or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment;

(11) Designate at least one employee, either on the facility premises or on call (that is, available to respond to an emergency by reaching the facility quickly), to coordinate 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;

(12) Develop, maintain and implement a plan to meet the requirements in paragraphs (j)(2) through (j)(6) and (j)(9) through (j)(10) of this section; and

(13) Maintain records documenting compliance with paragraphs (j)(1) through (j)(12) of this section.

264.2 [Reserved]

264.3 Relationship to interim status standards

A facility owner or operator who has fully complied with the requirements for interim status - as defined under R.61-79.270.70 and in section 3005(e) of RCRA - must comply with the regulations specified in R.61-79.265 in lieu of the regulations in this part, until final administrative disposition of his permit application is made, except as provided under R.61-79.264, subpart S. (12/92; 12/93)

[Comment: As stated in 44-56-60 and section 3005(a) of RCRA, after the effective date of regulations under that section, i.e., parts 270 and 124, the treatment, storage, or disposal of hazardous waste is prohibited except in accordance with a permit under these regulations; the statutes. 44-56-60 and Section 3005(e) of RCRA provide for the continued operation of an existing facility which meets certain conditions until final administrative disposition of the owner's or operator's permit application is made.] (12/92; 12/93)

264.4 Imminent hazard action

Notwithstanding any other provisions of these regulations, enforcement actions may be brought pursuant to Section 44-56-50 of the l976 South Carolina Code of Laws, as amended, and pursuant to section 7003 of RCRA. (12/92)

264.5 Notification requirements upon owners and operators of hazardous waste facilities

(a) Any person who owns or operates a facility within the State which treats, store, or disposed of a hazardous waste and has not previously done so shall file a completed Notification Form with the Department within thirty (30) days of the effective date of this regulation.

(b) Any person who plans to construct a new facility to treat, store or dispose of hazardous waste shall file a completed Notification Form with the Department as part of his permit application.

(c) This notification shall be on a form designated by the Department and shall be completed as required by the instructions supplied with such form.

(d) Any person who owns or operates a facility which treats, stores, or disposed of a hazardous waste which is classified or listed for the first time by a revision of R.61-79.261 and has not previously done so shall file a revised or new Notification Form for that waste within ninety (90) days after the effective date of such revision. The information to be furnished on the form shall include but not be limited to the location and general description of such activity, the identified or listed hazardous wastes handled by such person and, if applicable, a description of the production or energy recovery activity carried out at the facility and such other information as the Department deems necessary.

(e) Persons engaged in the following activities are required to make a separate notification:

(1) Producers of fuels from; identified or

(i) Any hazardous wastes listed in R.61-79.261;

(ii) Used oil; and

(iii) Used oil and any other material.

(2) Burners (other than a single or two-family residence) for purposes of energy recovery any fuel produced identified in paragraph 1.

(3) Distributors or marketers of any fuel as identified in paragraph 1.

Subpart B - General Facility Standards

264.10 Applicability

(a) The regulations in this subpart apply to owners and operators of all hazardous waste facilities, except as provided in 264.1 and in paragraph (b) of this section.

(b) Section 264.18(b) applies only to facilities subject to regulation under subparts I through O and subpart X of this part (11/90).

264.11 Identification number

(a) No owner or operator of a hazardous waste facility shall treat, store, or dispose of hazardous waste

or accept for treatment, storage or disposal hazardous waste without having received an EPA identification number.

(b) An owner or operator of a hazardous waste facility who has not previously received an EPA identification number may obtain one by submitting the Notification Form required under 264.5. Every facility owner or operator must apply for an EPA identification number in accordance with the notification procedures under 264.5. (12/92; 12/93)

264.12 Required notices

(a) (1) The owner or operator of a facility that has arranged to receive hazardous waste from a foreign source must notify the Department in writing at least four weeks in advance of the date the waste is expected to arrive at the facility. Notice of subsequent shipments of the same waste from the same foreign source is not required.

(2) The owner or operator of a recovery facility that has arranged to receive hazardous waste subject to part 262, subpart H must provide a copy of the tracking document bearing all required signatures to the notifier, to the Office of Enforcement and Compliance Assurance, Office of Compliance, Enforcement Planning, Targeting and Data Division (2222A), Environmental Protection Agency, 401 M St., SW., Washington, DC 20460; and to the competent authorities of all other concerned countries within three working days of receipt of the shipment. The original of the signed tracking document must be maintained at the facility for at least three years. (9/98)

(b) The owner or operator of a facility that receives hazardous waste from an offsite source (except where the owner or operator is also the generator) must inform the generator in writing that he has the appropriate permit(s) under these regulations for, and will accept, the waste the generator is shipping. The owner or operator must keep a copy of this written notice as part of the operating record. (5/95, 6/97)

(c) Before transferring ownership or operation of a facility during its operating life, or of a disposal facility during the postclosure care period, the owner or operator must notify the new owner or operator in writing of the requirements of this part and R.61-79.270.

[Comment: An owner's or operator's failure to notify the new owner or operator of the requirements of this part in no way relieves the new owner or operator of his obligation to comply with all applicable requirements.] (12/92)

264.13 General waste analysis

(a) (1) Before an owner or operator treats, stores, or disposes of any hazardous wastes, or nonhazardous wastes if applicable under 264.113(d), he must obtain a detailed chemical and physical analysis of a representative sample of the wastes. At a minimum, the analysis must contain all the information which must be known to treat, store, or dispose of the waste in accordance with the requirements of this regulation or with the conditions of a permit issued under R.61-79.268, .270, Subparts A and B, and R.61-79.124. (11/90; 12/93)

(2) The analysis may include data developed under part 261, and existing published or documented data on the hazardous waste or on hazardous waste generated from similar processes.

[Comment: 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 paragraph (a)(1) of this section. The owner or operator of an offsite facility may arrange for the generator of the hazardous waste to supply part or all of the information required by paragraph (a)(1) of this section, except as otherwise specified in 268.7 (b) and (c). If the generator does not supply the information, and the owner or operator chooses to accept a hazardous waste, the owner or operator is responsible for obtaining the information required to comply with this section. (12/92; 12/93)]

(3) 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:

(i) When the owner or operator is notified, or has reason to believe, that the process or operation generating the hazardous wastes, or nonhazardous wastes if applicable under 264.113(d), has changed; (11/90) and

(ii) For offsite facilities, when the results of the inspection required in paragraph (a)(4) of this section indicate that the hazardous waste received at the facility does not match the waste designated on the accompanying manifest or shipping paper.

(4) 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. (12/92)

(b) The owner or operator must develop and follow a written waste analysis plan which describes the procedures which he will carry out to comply with paragraph (a) of this section. He must keep this plan at the facility. At a minimum, the plan must specify:

(1) The parameters for which each hazardous waste, or nonhazardous waste if applicable under 264.113(d), 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 (a) of this section; (11/90)

(2) The test methods which will be used to test for these parameters;

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

(i) One of the sampling methods described in Appendix I of R.61-79.261; or

(ii) An equivalent sampling method.

[Comment: See 260.21 for related discussion.] (12/92)

(4) 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; and (12/92)

(5) For offsite facilities, the waste analyses that hazardous waste generators have agreed to supply.

(6) Where applicable, the methods that will be used to meet the additional waste analysis requirements for specific waste management methods as specified in 264.17, 264.314, 264.341, 264.1034(d), 264.1063(d), 264.1083, and 268.7. (12/92, 9/98)

(7) For surface impoundments exempted from land disposal restrictions under 268.4(a), the procedures and schedules for (11/90):

(i) The sampling of impoundment contents;

(ii) The analysis of test data; and,

(iii) The annual removal of residues which are not delisted under 260.22 or which exhibit a characteristic of hazardous waste and either:

(A) Do not meet applicable treatment standards of part 268, subpart D; or

(B) Where no treatment standards have been established;

(1) Such residues are prohibited from land disposal under 268.32 or RCRA section 3004(d); or

(2) Such residues are prohibited from land disposal under 268.33(f).

(8) For owners and operators seeking an exemption to the air emission standards of subpart CC in accordance with 264.1082: (9/98)

(i) 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.

(ii) 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.

(c) For offsite facilities, the waste analysis plan required in paragraph (b) of this section must also specify the procedures which will be used to inspect and, if necessary, analyze each movement of hazardous waste received at the facility to ensure that it matches the identity of the waste designated on the accompanying manifest or shipping paper. At a minimum, the plan must describe: (12/92)

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

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

(3) The procedures that the owner or operator of an offsite 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. (12/93)

[Comment: R.61-79.270 requires that the waste analysis plan be submitted with Part B of the permit application.] (12/92)

264.14 Security

(a) The owner or operator must prevent the unknowing entry, and minimize the possibility for the unauthorized entry, of persons or livestock onto the active portion of his facility, unless he can demonstrate to the Department that:

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

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

[Comment: R.61-79.270 requires that an owner or operator who wishes to make the demonstration referred to above must do so with Part B of the permit application required under these regulations. (12/92; 12/93)

(b) Unless the owner or operator has made a successful demonstration under paragraphs (a)(1) and (a)(2) of this section, a facility must have:

(1) 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

(2) (i) 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

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

[Comment: The requirements of paragraph (b) of this section are satisfied if the facility or plant within which the active portion is located itself has a surveillance system, or a barrier and a means to control entry, which complies with the requirements of paragraph (b)(1) or (2) of this section. (12/92)

(c) Unless the owner or operator has made a successful demonstration under paragraphs (a)(1) and (a)(2) of this section, a sign with the legend, "Danger -

Unauthorized Personnel Keep Out," must be posted at each entrance to the active portion of a facility, and at other locations, in sufficient numbers to be seen from any approach to this active portion. The legend must be written in English and in any other language predominant in the area surrounding the facility and must be legible from a distance of at least 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. (12/93)

[Comment: See 264.117(b) for discussion of security requirements at disposal facilities during the postclosure care period.]

264.15 General inspection requirements

(a) The owner or operator must inspect his facility for malfunctions and deterioration, operator errors, and discharges which may be causing - or may lead to-

(1) release of hazardous waste constituents to the environment or

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

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

(2) He must keep this schedule at the facility.

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

(4) 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 264.174, 264.193, 264.194, 264.195, 264.226, 264.253, 264.254, 264.278, 264.303, 264.347, 264.602, 264.1033, 264.1052, 264.1053, 264.1058, and 264.1083 through 264.1089. (12/92; 12/93, 9/98, 11/99)

[Comment: Part 270 requires the inspection schedule to be submitted with Part B of the permit application. The Department will evaluate the schedule along with the rest of the application to ensure that it adequately protects human health and the environment. As part of this review, the Department may modify or amend the schedule as may be necessary. (12/92)]

(c) 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.

(d) The owner or operator must record inspections in an inspection log or summary. He 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.

264.16 Personnel training

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

[Comment: Part 270 requires that owners and operators submit with Part B of the RCRA permit application, an outline of the training program used (or to be used) at the facility and a brief description of how the training program is designed to meet actual job tasks.] (12/92)

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

(3) 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:

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

(ii) Key parameters for automatic waste feed cut-off systems;

(iii) Communications or alarm systems;

(iv) Response to fires or explosions;

(v) Response to groundwater contamination incidents; and

(vi) Shutdown of operations.

(b) Facility personnel must successfully complete the program required in paragraph (a) of this section within six months after the effective date of these regulations or six months after the date of their employment or assignment to a facility, or to a new position at a

facility, whichever is later. Employees hired after the effective date of these regulations must not work in unsupervised positions until they have completed the training requirements of paragraph (a) of this section.

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

(d) The owner or operator must maintain the following documents and records at the facility:

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

(2) A written job description for each position listed under paragraph (d)(1) of this section. 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;

(3) A written description of the type and amount of both introductory and continuing training that will be given to each person filling a position listed under paragraph (d)(1) of this section;

(4) Records that document that the training or job experience required under paragraphs (a), (b), and (c) of this section has been given to, and completed by, facility personnel.

(e) 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.

(f) R.61-79.270 Subpart B requires that owners and operator submit, with Part B of the permit application, an outline of the training program used (or to be used) at the facility and a brief description of how the training program is designed to meet actual job tasks.

264.17 General requirements for ignitable, reactive, or incompatible wastes

(a) The owner or operator must take precautions to prevent accidental ignition or reaction of ignitable or reactive waste. This waste must be separated and protected from sources of ignition or reaction including but not limited to: open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks (static, electrical, or mechanical), spontaneous ignition (e.g., from heat-producing chemical reactions), and radiant heat. While ignitable or reactive waste is being handled, the owner or operator must confine smoking and open flame to specially designated locations. "No Smoking" signs must be conspicuously placed wherever there is a hazard from ignitable or reactive waste. (12/92)

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

(1) Generate extreme heat or pressure, fire or explosions, or violent reactions;

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

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

(4) Damage the structural integrity of the device or facility;

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

(c) When required to comply with paragraph (a) or (b) of this section, the owner or operator must document that compliance. This documentation may be based on references to published scientific or engineering literature, data from trial tests (e.g., bench scale or pilot scale tests), waste analyses (as specified in 264.13), or the results of the treatment of similar wastes by similar treatment processes and under similar operating conditions.

264.18 Location standards [See also R.61-104] (12/92)

(a) Seismic considerations.

(1) Portions of new facilities where treatment, storage, or disposal of hazardous waste will be conducted must not be located within 61 meters (200 feet) of a fault which has had displacement in Holocene time.

(2) As used in paragraph (a)(1) of this section:

(i) "Fault" means a fracture along which rocks on one side have been displaced with respect to those on the other side.

(ii) "Displacement" means the relative movement of any two sides of a fault measured in any direction.

(iii) "Holocene" means the most recent epoch of the Quarternary period, extending from the end of the Pleistocene to the present.

[Comment: Procedures for demonstrating compliance with this standard in Part B of the permit application are specified in R61-79.270.14(b)(11). Facilities which are located in political jurisdictions other than those listed in Appendix VI of this part, are assumed to be in compliance with this requirement.] (12/92; 12/93)

(b) Floodplains.

(1) A facility located in a 100-year floodplain must be designed, constructed, operated, and maintained to prevent washout of any hazardous waste by a 100-year flood, unless the owner or operator can demonstrate to the Department satisfaction that:

(i) Procedures are in effect which will cause the waste to be removed safely, before flood waters can

reach the facility, to a location where the wastes will not be vulnerable to flood waters; or

(ii) For existing surface impoundments, waste piles, land treatment units, landfills, and miscellaneous units, no adverse effects on human health or the environment will result if washout occurs, considering: (11/90)

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

(B) The concentration of hazardous constituents that would potentially affect surface waters as a result of washout;

(C) The impact of such concentrations on the current or potential uses of and water quality standards established for the affected surface waters; and

(D) The impact of hazardous constituents on the sediments of affected surface waters or the soils of the 100-year floodplain that could result from washout.

[Comment: The location where wastes are moved must be a facility which is either permitted under part 270 or in interim status under parts 270 and 265.] (12/92)

(2) As used in paragraph (b)(1) of this section:

(i) "100-year floodplain" means any land area which is subject to a one percent or greater chance of flooding in any given year from any source.

(ii) "Washout" means the movement of hazardous waste from the active portion of the facility as a result of flooding.

(iii) "100-year flood" means a flood that has a one percent chance of being equaled or exceeded in any given year.

[Comment: (1) Requirements pertaining to other laws which affect the location and permitting of facilities are found in 270.3 and R.61-104. For details relative to these laws, see also EPA's manual for SEA (special environmental area) requirements for hazardous waste facility permits. Applicants are advised to consider them in planning the location of a facility to help prevent subsequent project delays.] (12/92; 12/93)

(c) Salt dome formations, salt bed formations, underground mines and caves. The placement of any noncontainerized or bulk liquid hazardous waste in any salt dome formation, salt bed formation, underground mine or cave is prohibited.

264.19 Construction quality assurance program

(a) CQA program.

(1) A construction quality assurance (CQA) program is required for all surface impoundment, waste pile, and landfill units that are required to comply with 264.221 (c) and (d), 264.251 (c) and (d), and 264.301 (c) and (d). The program must ensure that the constructed unit 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 registered professional engineer.

(2) The CQA program must address the following physical components, where applicable:

(i) Foundations;

(ii) Dikes;

(iii) Low-permeability soil liners;

(iv) Geomembranes (flexible membrane liners);

(v) Leachate collection and removal systems and leak detection systems; and

(vi) Final cover systems.

(b) Written CQA plan. The owner or operator of units subject to the CQA program under paragraph (a) of this section must develop and implement 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:

(1) Identification of applicable units, and a description of how they will be constructed.

(2) Identification of key personnel in the development and implementation of the CQA plan, and CQA officer qualifications.

(3) A description of inspection and sampling activities for all unit components identified in paragraph (a)(2) of this section, 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 264.73.

(c) Contents of program.

(1) The CQA program must include observations, inspections, tests, and measurements sufficient to ensure:

(i) Structural stability and integrity of all components of the unit identified in paragraph (a)(2) of this section;

(ii) 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;

(iii) Conformity of all materials used with design and other material specifications under 264.221, 264.251, and 264.301.

(2) 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 264.221(c)(1)(i)(B),

264.251(c)(1)(i)(B), and 264.301(c)(1)(i)(B) in the field. Compliance with the hydraulic conductivity requirements must be verified by using in-situ testing on the constructed test fill. The Department may accept an alternative demonstration, in lieu of a test fill, where data are sufficient to show that a constructed soil liner will meet the hydraulic conductivity requirements of 264.221(c)(1)(i)(B), 264.251(c)(1)(i)(B), and 264.301(c)(1)(i)(B) in the field.

(d) Certification. Waste shall not be received in a unit subject to 264.19 until the owner or operator has submitted to the Department by certified mail or hand delivery a certification signed by the CQA officer that the approved CQA plan has been successfully carried out and that the unit meets the requirements of 264.221 (c) or (d), 264.251 (c) or (d), or 264.301 (c) or (d); and the procedure in 270.30(l)(2)(ii) has been completed. Documentation supporting the CQA officer's certification must be furnished to the Department upon request.

Subpart C - Preparedness And Prevention

264.30 Applicability

The regulations in this subpart apply to owners and operators of all hazardous waste facilities, except as 264.1 provides otherwise.

264.31 Design and operation of facility

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

264.32 Required equipment

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

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

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

(c) 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

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

[Comment: Part 270 requires that an owner or operator who wishes to make the demonstration referred to above must do so with Part B of the permit application.] (12/92)

264.33 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.

264.34 Access to communications or alarm system

(a) 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 the Department has ruled that such a device is not required under 264.32.

(b) If there is ever just one employee on the premises while the facility is operating, he 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 the Department has ruled that such a device is not required under 264.32.

264.35 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 it can be demonstrated to the Department that aisle space is not needed for any of these purposes.

[Comment: Part 270 requires that an owner or operator who wishes to make the demonstration referred to above must do so with Part B of the permit application.] (12/92)

264.36 [Reserved]

264.37 Arrangements with local authorities

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

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

(2) Where more than one police and fire department might respond to an emergency, agreements designating primary emergency authority to a specific

police and a specific fire department, and agreements with any others to provide support to the primary emergency authority;

(3) Agreements with State emergency response teams, emergency response contractors, and equipment suppliers; and

(4) 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.

(b) Where State or local authorities decline to enter into such arrangements, the owner or operator must document the refusal in the operating record.

Subpart D - Contingency Plans And Emergency Procedures

264.50 Applicability

The regulations in this subpart apply to owners and operators of all hazardous waste facilities, except as 264.1 provides otherwise.

264.51 Purpose and implementation of contingency plan

(a) Each owner or operator must have a contingency plan for his 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.

(b) 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.

264.52 Content of contingency plan

(a) The contingency plan must describe the actions facility personnel must take to comply with 264.51 and 264.56 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.

(b) If the owner or operator has already prepared a Spill Prevention, Control, and Countermeasures (SPCC) Plan in accordance with 40 CFR part 112, or part 1510 of Chapter V, or some other emergency or contingency plan, he need only amend that plan to incorporate hazardous waste management provisions that are sufficient to comply with the requirements of this part. (12/92)

(c) 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 264.37.

(d) The plan must list names, addresses, and phone numbers (office and home) of all persons qualified to act as emergency coordinator (see 264.55), and this list must be kept up to date. Where more than one person is listed, one must be named as primary emergency coordinator and others must be listed in the order in which they will assume responsibility as alternates. For new facilities, this information must be supplied to the Department at the time of certification, rather than at the time of permit application.

(e) 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.

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

264.53 Copies of contingency plan

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

(a) Maintained at the facility; and

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

[Comment: The contingency plan must be submitted to the Department with Part B of the permit application under part 270 and, after modification or approval, will become a condition of any permit issued.] (12/92; 12/93)

264.54 Amendment of contingency plan

The contingency plan must be reviewed, and immediately amended, if necessary, whenever: (moved 11/90)

(a) The facility permit is revised;

(b) The plan fails in an emergency;

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

(d) The list of emergency coordinators changes; or

(e) The list of emergency equipment changes.

264.55 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.

[Comment: The emergency coordinator's responsibilities are more fully spelled out in 264.56. Applicable responsibilities for the emergency coordinator vary, depending on factors such as type and variety of waste(s) handled by the facility, and type and complexity of the facility.] (12/92)

264.56 Emergency procedures

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

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

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

(b) 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. He may do this by observation or review of facility records or manifests, and, if necessary, by chemical analysis.

(c) 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).

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

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

(2) He must immediately notify the Department (using its 24-hour number 803-253-6488) and the government official designated as the on-scene coordinator for that geographical area, (in the applicable regional contingency plan under part 1510 of this title) and the National Response Center (using their 24-hour toll free number 800/424-8802). The report must include: (12/92)

(i) Name and telephone number of reporter;

(ii) Name and address of facility;

(iii) Time and type of incident (e.g., release, fire);

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

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

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

(e) 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 release waste, and removing or isolating containers.

(f) 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.

(g) 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.

[Comment: Unless the owner or operator can demonstrate, in accordance with R.61-79.261.3(c) or (d), 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 R.61-79.262 Standards Applicable to Generators of Hazardous Waste, R.61-79.263 Standards Applicable to Transporters of Hazardous Waste and R.61-79.264. (11/90, 12/92)]

(h) The emergency coordinator must ensure that, in the affected area(s) of the facility:

(1) No waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup procedures are completed; and

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

(i) The owner or operator must notify the Department, and appropriate State and local authorities, that the facility is in compliance with paragraph (h) of this section before operations are resumed in the affected area(s) of the facility.

(j) 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, he must submit a written report on the incident to the Department. The report must include:

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

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

(3) Date, time, and type of incident (e.g., fire, explosion);

(4) Name and quantity of material(s) involved;

(5) The extent of injuries, if any;

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

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

Subpart E - Manifest System, Recordkeeping, and Reporting

264.70 Applicability

The regulations in this subpart apply to owners and operators of both on-site and off-site facilities, except as R.61-79.264.1 provides otherwise. Sections 264.71, 264.72, and 264.76 do not apply to owners and operators of on-site facilities that do not receive any hazardous waste from off-site sources, and to owners and operators of off-site facilities with respect to waste military munitions exempted from manifest requirements under 266.203(a). Section 264.73(b) only applies to permittees who treat, store, or dispose of hazardous wastes on-site where such wastes were generated. (11/90, 9/98)

264.71 Use of manifest system

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

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

(2) Note any significant discrepancies in the manifest (as defined in 264.72(a)) on each copy of the manifest;

[Comment: The Department does not intend that the owner or operator of a facility whose procedures under 264.13(c) include waste analysis must perform that analysis before signing the manifest and giving it to the transporter. Section 264.72(b), however, requires reporting an unreconciled discrepancy discovered during later analysis.] (12/92)

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

(4) Within 30 days after the delivery, send a copy of the completed manifest to the generator; and (6/97)

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

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

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

(2) Note any significant discrepancies (as defined in 264.72(a)) in the manifest or shipping paper (if the manifest has not been received) on each copy of the manifest or shipping paper.

[Comment: The Department does not intend that the owner or operator of a facility whose procedures under 264.13(c) include waste analysis must perform that analysis before signing the shipping paper and giving it to the transporter. Section 264.72(b), however, requires reporting an unreconciled discrepancy discovered during later analysis.] (12/92)

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

(4) Within 30 days after the delivery, send a copy of the completed manifest to the generator; however, if the manifest has not been received within 30 days after delivery, the owner or operator, or his agent, must send a copy of the shipping paper signed and dated to the generator; and (6/97)

[Comment: Section 262.23(c) requires the generator to send three copies of the manifest to the facility when hazardous waste is sent by rail or water (bulk shipment).] (12/92)

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

(c) Whenever a shipment of hazardous waste is initiated from a facility, the owner or operator of that facility must comply with the requirements of R.61-79.262.

[Comment: The provisions of R.61-79.262.34 are applicable to the onsite accumulation of hazardous wastes by generators. Therefore, the provisions of 262.34 only apply to owners or operators who are shipping hazardous waste which they generated at that facility.] (12/92)

(d) Within three working days of the receipt of a shipment subject to 262, subpart H, the owner or operator of the facility must provide a copy of the tracking document bearing all required signatures to the notifier, to the Office of Enforcement and Compliance Assurance, Office of Compliance, Enforcement Planning, Targeting and Data Division (2222A), Environmental Protection Agency, 401 M St., SW., Washington, DC 20460, and to competent authorities of all other concerned countries. The original copy of the tracking document must be maintained at the facility for at least three years from the date of signature. (9/98)

264.72 Manifest discrepancies

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

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

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

264.73 Operating record

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

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

(1) A description and the quantity of each hazardous waste received, and the method(s) and date(s) of its treatment, storage, or disposal at the facility as required by Appendix I; (11/90)

(2) 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;

[Comment: See 264.119 for related requirements.] (11/90, 12/92)

(3) Records and results of waste analyses and waste determinations performed as specified in 264.13, 264.17, 264.314, 264.341, 264.1034, 264.1063, 264.1083, 268.4(a), and 268.7; (6/89, 12/92; 12/93, 9/98)

(4) Summary reports and details of all incidents that require implementing the contingency plan as specified in 264.56(j);

(5) Records and results of inspections as required by 264.15(d) (except these data need be kept only three years);

(6) Monitoring, testing or analytical data, and corrective action where required by subpart F of this part and 264.19, 264.191, 264.193, 264.195, 264.222, 264.223, 264.226, 264.252 through 264.254, 264.276, 264.278, 264.280, 264.302 through 264.304, 264.309, 264.347, 264.602, 264.1034(c) through 264.1034(f), 264.1035, 264.1063(c) through 264.1063(i), 264.1064, 264.1088, and 264.1082 through 264.1090. (11/90; 12/92; 12/93, 9/98, 11/99)

(7) For offsite facilities, notices to generators as specified in section 264.12(b); and

(8) All closure cost estimates under 264.142, and, for disposal facilities, all postclosure cost estimates under 264.144 (11/90).

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

(10) 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 268.5, a petition pursuant to 268.6, or a certification under 268.8, and the applicable notice required by a generator under 268.7(a); (11/90)

(11) For an offsite treatment facility, a copy of the notice, and the certification and demonstration, if applicable, required by the generator or the owner or operator under 268.7 or 268.8; (11/90)

(12) For an onsite 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 268.7 or 268.8; (11/90)

(13) For an offsite 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 268.7 and 268.8, whichever is applicable; and (11/90)

(14) For an onsite land disposal facility, the information contained in the notice required by the generator or owner or operator of a treatment facility under 268.7, except for the manifest number, and the certification and demonstration if applicable, required under 268.8, whichever is applicable. (11/90)

(15) For an offsite storage facility, a copy of the notice, and the certification and demonstration if applicable, required by the generator or the owner or operator under 268.7 or 268.8; and (11/90)

(16) For an onsite 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 under 268.7 or 268.8. (11/90)

(17) Any records required under 264.1(j)(13). (8/00)

264.74 Availability, retention, and disposition of records

(a) All records, including plans, required under this part must be furnished upon request, and made available at all reasonable times for inspection, by any officer, employee, or representative of the Department.

(b) 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 Department.

(c) A copy of records of waste disposal locations and quantities under 264.73(b)(2) must be submitted to the Department and local land authority upon closure of the facility.

264.75 Quarterly report

(a) Each owner or operator of a hazardous waste facility shall, no later than thirty (30) days after the end of each calendar quarter, submit a written report to the Department including (12/92; 12/93)

(1) The types and quantities of hazardous waste generated giving the EPA hazardous waste number (from R.61-79.261 Subparts C or D) and the DOT hazardous class;

(2) The types and quantities of hazardous waste received at the facility during the reporting period;

(3) The types and quantities of hazardous wastes treated, stored, disposed of, and otherwise handled during the reporting period; (11/90)

(4) The EPA identification number, name, and address of the facility; and

(5) The calendar quarter covered by the report;

(6) 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;

(7) 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; and

(8) The most recent closure cost estimate under 264.142, and, for disposal facilities, the most recent postclosure cost estimate under 264.144; and

(9) Certification from any out-of-state generator who shipped waste to the facility during the reporting period that he has a program in place to reduce the volume or quantity and toxicity of such waste to the degree determined to be economically practicable and that the proposed method of handling the waste is that practicable method currently available which minimizes the present and future threat to human health and the environment;

(10) The method of treatment, storage, or disposal for each hazardous waste; and (moved 12/93)

(11) certification of information signed by the owner or operator of the facility or his authorized representative. (moved 11/90; 12/93)

(b) Each owner or operator shall submit the information required by paragraph (a) on a form designated by the Department and according to the instructions included with such form.

(c) Each owner or operator shall retain a copy of the report required in paragraphs (a) and (b) for a period of three (3) years.

264.76 Unmanifested waste report

If a facility accepts for treatment, storage, or disposal any hazardous waste from an offsite source without an accompanying manifest, or without an accompanying shipping paper as described in R.61-79.263.20(e)(2) and if the waste is not excluded from the manifest requirement by R.61-79.261.5, then the owner or operator must prepare and submit a single copy of a report to the Department within fifteen days after receiving the waste. The unmanifested waste report must be submitted to the Department on form 8700-13B. Such report must be designated 'Unmanifested Waste Report' and include the following information: (12/93)

(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 the transporter, if available;

(d) A description and the quantity of each unmanifested hazardous waste and facility received; (12/93)

(e) The method of treatment, storage, or disposal for each hazardous waste;

(f) The certification signed by the owner or operator of the facility or his authorized representative; and

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

[Comment: Small quantities of hazardous waste are excluded from this regulation and do not require a manifest. Where a facility receives unmanifested hazardous wastes, the Department requires that the owner or operator obtain from each generator a certification that the waste qualifies for exclusion. Otherwise, the Department requires that the owner or operator file an unmanifested waste report for the hazardous waste movement. (12/92)]

264.77 Additional reports

In addition to submitting the reports described in 264.75 and 264.76, each owner or operator of an applicable hazardous waste facility must submit the groundwater reports required under 264.97(i) and furnish additional reports concerning their hazardous waste activities including the following: (11/90)

(a) Releases, fires, and explosions as specified in 264.56(j);

(b) Facility closures specified in 264.115; and

(c) As otherwise required by subparts F, K through N, AA, BB, and CC of R.61-79.264 (12/92, 9/98).

(d) With the fourth quarter report, 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. (moved 12/93)

(e) With the fourth quarter report, 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. (moved 12/93)

264.78 Hazardous waste contingency fund fees [see also 44-56-170 & -510]

A check payable to the Department for the amount of the following fees:

(a) A fee of thirty-four dollars a ton of hazardous wastes generated and disposed of in this State by landfilling or other means of land disposal.

(b) A fee of thirteen dollars and seventy cents a ton of wastes generated and disposed of in this State by landfilling or other means of land disposal.

(c) A fee of one dollar per ton of hazardous wastes in excess of fifty tons remaining in storage at the end of the reporting period.

(d) For all hazardous wastes generated outside of the State and received at a facility during the quarter each owner/operator of a hazardous waste land disposal facility shall remit to the department an amount equal to the per ton fee imposed on out-of-state waste by the state from which the hazardous waste originated but in any event no less than thirty-four dollars a ton.

(e) A fee of ten dollars a ton on the incineration of hazardous waste in this State whether the waste was generated within or outside of this State.

(f) Fees imposed by this subsection must be collected by the facility at which it is incinerated and remitted to the State Treasurer to be credited to the general fund of the State. For purposes of this subsection, "incineration" includes hazardous waste incinerators, boilers, and industrial furnaces.

Subpart F - Groundwater Protection - Releases From Solid Waste Management Units

264.90 Applicability

(a) (1) Except as provided in paragraph (b) of this section, the regulations in this subpart apply to owners or operators of facilities that treat, store or dispose of hazardous waste. The owner or operator must satisfy the requirements identified in paragraph (a)(2) of this section for all wastes (or constituents thereof) contained in solid waste management units at the facility, regardless of the time at which waste was placed in such units. (12/93)

(2) All solid waste management units must comply with the requirements in 264.101. A surface impoundment, waste pile, and land treatment unit or landfill that receives hazardous waste after July 26, 1982 (hereinafter referred to as a "regulated unit") must comply with the requirements of 264.91 through 264.100 in lieu of 264.101 for purposes of detecting, characterizing and responding to releases to the uppermost aquifer. The financial responsibility requirements of 264.101 apply to regulated units.

(b) The owner or operator's regulated unit or units are not subject to regulation for releases into the uppermost aquifer under this subpart if:

(1) The owner or operator is exempted under 264.1; or

(2) He operates a unit which the Department finds:

(i) Is an engineered structure,

(ii) Does not receive or contain liquid waste or waste containing free liquids,

(iii) Is designed and operated to exclude liquid, precipitation, and other runon and runoff,

(iv) Has both inner and outer layers of containment enclosing the waste,

(v) Has a leak detection system built into each containment layer,

(vi) The owner or operator will provide continuing operation and maintenance of these leak detection systems during the active life of the unit and the closure and postclosure care periods, and

(vii) To a reasonable degree of certainty, will not allow hazardous constituents to migrate beyond the outer containment layer prior to the end of the postclosure care period.

(3) The Department finds, pursuant to 264.280(d), that the treatment zone of a land treatment unit that qualifies as a regulated unit does not contain levels of hazardous constituents that are above background levels of those constituents by an amount that is statistically significant, and if an unsaturated zone monitoring program meeting the requirements of 264.278 has not shown a statistically significant increase in hazardous constituents below the treatment zone during the operating life of the unit. An exemption under this paragraph can only relieve an owner or operator of responsibility to meet the requirements of this subpart during the postclosure care period (12/92); or

(4) The Department finds that there is no potential for migration of liquid from a regulated unit to the uppermost aquifer during the active life of the regulated unit (including the closure period) and the postclosure care period specified under 264.117. This demonstration must be certified by a qualified geologist or geotechnical engineer. In order to provide an adequate margin of safety in the prediction of potential

migration of liquid, the owner or operator must base any predictions made under this paragraph on assumptions that maximize the rate of liquid migration.

(5) He designs and operates a pile in compliance with 264.250(c).

(c) The regulations under this subpart apply during the active life of the regulated unit (including the closure period). After closure of the regulated unit, the regulations in this subpart:

(1) Do not apply if all waste, waste residues, contaminated containment system components, and contaminated subsoils are removed or decontaminated at closure;

(2) Apply during the postclosure care period under 264.117 if the owner or operator is conducting a detection monitoring program under 264.98; or

(3) Apply during the compliance period under 264.96 if the owner or operator is conducting a compliance monitoring program under 264.99 or a corrective action program under 264.100.

(d) Regulations in this subpart may apply to miscellaneous units when necessary to comply with 264.601 through 264.603. (11/90)

(e) [Reserved] (8/00)

(f) The Department may replace all or part of the requirements of 264.91 through 264.100 applying to a regulated unit with alternative requirements for groundwater monitoring and corrective action for releases to groundwater set out in the permit (as defined in 270.1(c)(7)) where the Department determines that: (8/00, 7/02))

(1) The 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

(2) It is not necessary to apply the groundwater monitoring and corrective action requirements of 264.91 through 264.100 because alternative requirements will protect human health and the environment.

264.91 Required programs

(a) Owners and operators subject to this subpart must conduct a monitoring and response program as follows:

(1) Whenever hazardous constituents under 264.93 from a regulated unit are detected at a compliance point under 264.95, the owner or operator must institute a compliance monitoring program under 264.99. Detected is defined as statistically significant evidence of contamination as described in 264.98(f); (11/90; 12/93)

(2) Whenever the groundwater protection standard under 264.92 is exceeded, the owner or operator must institute a corrective action program under 264.100. Exceeded is defined as statistically significant evidence of increased contamination as described in 264.99(d); (11/90; 12/93)

(3) Whenever hazardous constituents under 264.93 from a regulated unit exceed concentration limits under 264.94 in groundwater between the compliance point under 264.95 and the downgradient facility property boundary, the owner or operator must institute a corrective action program under 264.100; or

(4) In all other cases, the owner or operator must institute a detection monitoring program under 264.98.

(b) The owner or operator shall specify in the permit application the specific elements of the monitoring and response program. The owner or operator shall include one or more of the programs identified in paragraph (a) of this section in the permit application as may be necessary to protect human health and the environment and will specify the circumstances under which each of the programs will be required. In deciding whether to institute a particular program, the owner or operator shall consider the potential adverse effects on human health and the environment that might occur before final administrative action on a permit modification application to incorporate such a program could be taken. (12/93)

264.92 Groundwater protection standard

The owner or operator must comply with conditions specified in the facility permit that are designed to ensure that hazardous constituents under 264.93 detected in the groundwater from a regulated unit do not exceed the concentration limits under 264.94 in the uppermost aquifer underlying the waste management area beyond the point of compliance under 264.95 during the compliance period under 264.96. The Department will establish this groundwater protection standard in the facility permit when hazardous constituents have been detected in the groundwater. (11/90, 12/92)

264.93 Hazardous constituents

(a) The owner or operator will specify in the permit application the hazardous constituents to which the groundwater protection standard of 264.92 applies. Hazardous constituents are constituents identified in Appendix VIII of R.61-79.261 that have been detected in groundwater in the uppermost aquifer underlying a regulated unit and that are reasonably expected to be in or derived from waste contained in a regulated unit, unless the Department has granted exclusion of a constituent or constituents under paragraph (b) of this section. (12/93)

(b) The Department will consider exclusion of an Appendix VIII constituent from the list of hazardous constituents specified in the permit application if the owner or operator can demonstrate to the Department that the constituent is not capable of posing a substantial present or potential hazard to human health or the

environment. In making such demonstration, the owner or operator will consider the following: (12/93)

(1) Potential adverse effects on groundwater quality, considering:

(i) The physical and chemical characteristics of the waste in the regulated unit, including its potential for migration;

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

(iii) The quantity of groundwater and the direction of groundwater flow;

(iv) The proximity and withdrawal rates of groundwater users;

(v) The current and future uses of groundwater in the area;

(vi) The existing quality of groundwater, including other sources of contamination and their cumulative impact on the groundwater quality;

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

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

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

(2) Potential adverse effects on hydraulically connected surface water quality, considering:

(i) The volume and physical and chemical characteristics of the waste in the regulated unit;

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

(iii) The quantity and quality of groundwater, and the direction of groundwater flow;

(iv) The patterns of rainfall in the region;

(v) The proximity of the regulated unit to surface waters;

(vi) The current and future uses of surface waters in the area and any water quality standards established for those surface waters;

(vii) The existing quality of surface water, including other sources of contamination and the cumulative impact on surface water quality;

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

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

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

(c) In making any determination under paragraph (b) of this section about the use of groundwater in the area around the facility, the Department will consider any identification of underground sources of drinking water and exempted aquifers made under Section 48-1-50 of the Code of Laws.

264.94 Concentration limits

(a) The owner or operator will specify in his permit application concentration limits in the groundwater for hazardous constituents established under 264.93. The concentration of a hazardous constituent: (12/93)

(1) Must not exceed the background level of that constituent in the groundwater at the time that limit is specified in the permit; or

(2) For any of the constituents listed in Table 1, must not exceed the respective value given in that table if the background level of the constituent is below the value given in Table 1; or

264.94 Table 1 Maximum Concentration of Constituents for Groundwater Protection

Constituent (12/92)	Maximum Concentration[1]
Arsenic	0.05
Barium	1.0
Cadmium	0.01
Chromium	0.05
Lead	0.05
Mercury	0.002
Selenium	0.01
Silver	0.05
Endrin (1,2,3,4,10,10-hexachloro-1,7-epoxy-1,4,4a,5,6,7,8,9a-octahydro-1, 4-endo, endo-5, 8-dimethano naphthalene)	0.0002
Lindane (1,2,3,4,5,6-hexachlorocyclohexane, gamma isomer)	0.004
Methoxychlor (1,1,1-Trichloro-2,2 bis p-methoxyphenylethane)	0.1
Toxaphene ($C_{10}H_{10}Cl_6$, Technical chlorinated camphene, 67 to 69 percent chlorine)	0.005
2,4-D (2,4-Dichlorophenoxyacetic acid)	0.1
2,4,5-TP Silvex (2,4,5-Trichlorophenoxy-propionic acid)	0.01

1 Milligram per liter.

(3) Must not exceed an alternate limit established by the Department under paragraph (b) of this section.

(b) The Department will consider establishing an alternate concentration limit for a hazardous constituent if the owner or operator can demonstrate to the Department that the constituent will not pose a substantial present or potential hazard to human health or the environment as long as the alternate concentration limit is not exceeded. In making such demonstration the owner or operator will consider the following factors: (12/93)

(1) Potential adverse effects on groundwater quality, considering:

(i) The physical and chemical characteristics of the waste in the regulated unit, including its potential for migration;

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

(iii) The quantity of groundwater and the direction of groundwater flow;

(iv) The proximity and withdrawal rates of groundwater users;

(v) The current and future uses of groundwater in the area;

(vi) The existing quality of groundwater, including other sources of contamination and their cumulative impact on the groundwater quality;

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

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

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

(2) Potential adverse effects on hydraulically connected surfacewater quality, considering:

(i) The volume and physical and chemical characteristics of the waste in the regulated unit;

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

(iii) The quantity and quality of groundwater, and the direction of groundwater flow;

(iv) The patterns of rainfall in the region;

(v) The proximity of the regulated unit to surface waters;

(vi) The current and future uses of surface waters in the area and any water quality standards established for those surface waters;

(vii) The existing quality of surface water, including other sources of contamination and the cumulative impact on surfacewater quality;

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

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

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

(c) In making any determination under paragraph (b) of this section about the use of groundwater in the area around the facility the Department will consider any identification of underground sources of drinking water and exempted aquifers made under Section 48-1-50 of the Code of Laws.

264.95 Point of compliance

(a) The owner or operator will specify in the facility permit application the point of compliance at which the groundwater protection standard of 264.92 applies and at which monitoring must be conducted. The point of compliance is a vertical surface located at the hydraulically downgradient limit of the waste management area that extends down into the uppermost aquifer underlying the regulated units. (12/93)

(b) The waste management area is the limit projected in the horizontal plane of the area on which waste will be placed during the active life of a regulated unit.

(1) The waste management area includes horizontal space taken up by any liner, dike, or other barrier designed to contain waste in a regulated unit.

(2) If the facility contains more than one regulated unit, the waste management area is described by an imaginary line circumscribing the several regulated units.

264.96 Compliance period

(a) The owner or operator will specify in his the facility permit application the compliance period during which the groundwater protection standard of 264.92 applies. The compliance period is the number of years equal to the active life of the waste management area (including any waste management activity prior to permitting, and the closure period.) (12/93)

(b) The compliance period begins when the owner or operator initiates a compliance monitoring program meeting the requirements of 264.99.

(c) If the owner or operator is engaged in a corrective action program at the end of the compliance period specified in paragraph (a) of this section, the compliance period is extended until the owner or operator can demonstrate that the groundwater protection standard of 264.92 has not been exceeded for a period of three consecutive years.

264.97 General groundwater monitoring requirements

The owner or operator must comply with the following requirements for any groundwater monitoring program developed to satisfy 264.98, 264.99, or 264.100: (12/93)

(a) The groundwater monitoring system must consist of a sufficient number of wells, installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer that:

(1) Represent the quality of background water that has not been affected by leakage from a regulated unit; (11/90)

(i) A determination of background quality may include sampling of wells that are not hydraulically upgradient of the waste management area where:

(A) Hydrogeologic conditions do not allow the owner or operator to determine what wells are hydraulically upgradient; and

(B) Sampling at other wells will provide an indication of background groundwater quality that is representative or more representative than that provided by the upgradient wells; and

(2) Represent the quality of groundwater passing the point of compliance.

(3) Allow for the detection of contamination when hazardous waste or hazardous constituents have migrated from the waste management area to the uppermost aquifer.

(b) If a facility contains more than one regulated unit, separate groundwater monitoring systems are not required for each regulated unit provided that provisions for sampling the groundwater in the uppermost aquifer will enable detection and measurement at the compliance point of hazardous constituents from the

regulated units that have entered the groundwater in the uppermost aquifer.

(c) 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 collection of groundwater samples. The annular space (i.e., the space between the bore hole and well casing) above the sampling depth must be sealed to prevent contamination of samples and the groundwater. All monitoring wells will have a locking cap or other security devices to prevent damage and/or vandalism. Each well will be labeled with an identification plate constructed of durable material affixed to the casing or surface pad where it is readily visible. The plate will provide monitoring well identification number, date of construction, total well depth, static water level, and driller certification number. More sophisticated monitoring well construction may be required if deemed necessary by the Department (11/90; 12/92; 6/95).

(d) The groundwater monitoring program must include consistent sampling and analysis procedures that are designed to ensure monitoring results that provide a reliable indication of groundwater quality below the waste management area. At a minimum the program must include procedures and techniques for:

(1) Sample collection;

(2) Sample preservation and shipment;

(3) Analytical procedures; and

(4) Chain of custody control.

(e) The groundwater monitoring program must include sampling and analytical methods that are appropriate for groundwater sampling and that accurately measure hazardous constituents in groundwater samples.

(f) The groundwater monitoring program must include a determination of the groundwater surface elevation each time groundwater is sampled.

(g) In detection monitoring or where appropriate in compliance monitoring, data on each hazardous constituent specified in the permit application will be collected from background wells and wells at the compliance point(s). The number and kinds of samples collected to establish background shall be appropriate for the form of statistical test employed, following generally accepted statistical principles. The sample size shall be as large as necessary to ensure with reasonable confidence that a contaminant release to groundwater from a facility will be detected. The owner or operator will determine an appropriate sampling procedure and interval for each hazardous constituent listed in the facility permit which shall be specified in the unit permit upon approval by the Department. This sampling procedure shall be: (11/90)

(1) A sequence of at least four samples, taken at an interval that assures, to the greatest extent technically feasible, that an independent sample is obtained, by reference to the uppermost aquifer's effective porosity, hydraulic conductivity, and hydraulic gradient, and the fate and transport characteristics of the potential contaminants, or

(2) an alternate sampling procedure proposed by the owner or operator and approved by the Department.

(h) The owner or operator will specify one of the following statistical methods to be used in evaluating groundwater monitoring data for each hazardous constituent which, upon approval by the Department, will be specified in the unit permit. The statistical test chosen shall be conducted separately for each hazardous constituent in each well. Where practical quantification limits (pql's) are used in any of the following statistical procedures to comply with 264.97(i)(5), the pql must be proposed by the owner or operator and approved by the Department. Use of any of the following statistical methods must be protective of human health and the environment and must comply with the performance standards outlined in paragraph (i) of this section. (11/90)

(1) A parametric analysis of variance (ANOVA) followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's mean and the background mean levels for each constituent.

(2) An analysis of variance (ANOVA) based on ranks followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's median and the background median levels for each constituent.

(3) A tolerance or prediction interval procedure in which an interval for each constituent is established from the distribution of the background data, and the level of each constituent in each compliance well is compared to the upper tolerance or prediction limit.

(4) A control chart approach that gives control limits for each constituent.

(5) Another statistical test method submitted by the owner or operator and approved by the Department.

(i) Any statistical method chosen under 264.97(h) for specification in the unit permit shall comply with the following performance standards, as appropriate: (11/90)

(1) The statistical method used to evaluate groundwater monitoring data shall be appropriate for the distribution of chemical parameters or hazardous constituents. If the distribution of the chemical parameters or hazardous constituents is shown by the owner or operator to be inappropriate for a normal theory test, then the data should be transformed or a distribution-free theory test should be used. If the distributions for the constituents differ, more than one statistical method may be needed.

(2) If an individual well comparison procedure is used to compare an individual compliance well constituent concentration with background constituent concentrations or a groundwater protection standard, the test shall be done at a Type I error level no less than 0.01 for each testing period. If a multiple comparisons procedure is used, the Type I experimentwise error rate for each testing period shall be no less than 0.05; however, the Type I error of no less than 0.01 for individual well comparisons must be maintained. This performance standard does not apply to tolerance intervals, prediction intervals or control charts.

(3) If a control chart approach is used to evaluate groundwater monitoring data, the specific type of control chart and its associated parameter values shall be proposed by the owner or operator and approved by the Department if he or she finds it to be protective of human health and the environment.

(4) If a tolerance interval or a prediction interval is used to evaluate groundwater monitoring data, the levels of confidence and, for tolerance intervals, the percentage of the population that the interval must contain, shall be proposed by the owner or operator and approved by the Department if it finds these parameters to be protective of human health and the environment. These parameters will be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

(5) The statistical method shall account for data below the limit of detection with one or more statistical procedures that are protective of human health and the environment. Any practical quantification limit (pql) approved by the Department under 264.97(h) that is used in the statistical method shall be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility.

(6) If necessary, the statistical method shall include procedures to control or correct for seasonal and spatial variability as well as temporal correlation in the data.

(j) Groundwater monitoring data collected in accordance with paragraph (g) of this section including actual levels of constituents must be maintained in the facility operating record. The owner or operator will specify in the permit application the frequency (quarterly, semiannually, or annually) by which groundwater monitoring data will be collected at each monitoring well. (11/90; 12/93)

[Note: 264.98(d) requires specification of statistical evaluation frequency); 270.30(l)(4) states the Department will specify the intervals monitoring data is reported] (12/93)

(k) Report to the Department no later than thirty (30) days after the end of the quarter, semiannual or annual period specified, the groundwater data and determinations made pursuant to the following paragraphs: (11/90)

(1) Paragraphs (e) and (f) of 264.98, Detection Monitoring Program; and

(2) Paragraphs (d), (e) and (g) of 264.99, Compliance Monitoring Program; and

(3) Paragraph (d) of 264.100, Correction Action Program.

264.98 Detection monitoring program

An owner or operator required to establish a detection monitoring program under this subpart must, at a minimum, discharge the following responsibilities:

(a) The owner or operator must monitor for indicator parameters (e.g., specific conductance, total organic carbon, or total organic halogen), waste constituents, or reaction products that provide a reliable indication of the presence of hazardous constituents in groundwater. The owner or operator will specify the parameters or constituents to be monitored in the facility permit application, after considering the following factors: (12/93)

(1) The types, quantities, and concentrations of constituents in wastes managed at the regulated unit;

(2) The mobility, stability, and persistence of waste constituents or their reaction products in the unsaturated zone beneath the waste management area;

(3) The detectability of indicator parameters, waste constituents, and reaction products in groundwater; and

(4) The concentrations or values and coefficients of variation of proposed monitoring parameters or constituents in the groundwater background.

(b) The owner or operator must install a groundwater monitoring system at the compliance point as specified under 264.95. The groundwater monitoring system must comply with 264.97(a)(2), (b), and (c).

(c) The owner or operator must conduct a groundwater monitoring program for each chemical parameter and hazardous constituent specified in the permit pursuant to paragraph (a) of this section in accordance with 264.97(g). The owner or operator must maintain a record of groundwater analytical data as measured and in a form necessary for the determination of statistical significance under 264.97(h).

(d) The permit application will specify the frequencies for collecting samples and conducting statistical tests to determine whether there is statistically significant evidence of contamination for any parameter or hazardous constituent specified in the permit under paragraph (a) of this section in accordance with 264.97(g). A sequence of at least four samples from each well (background and compliance wells) must be collected at least semiannually during detection monitoring.

(e) The owner or operator must determine the groundwater flow rate and direction in the uppermost aquifer at least annually.

(f) The owner or operator must determine whether there is statistically significant evidence of contamination for any chemical parameter of hazardous constituent specified in the permit pursuant to paragraph (a) of this section at a frequency specified under paragraph (d) of this section. (11/90)

(1) In determining whether statistically significant evidence of contamination exists, the owner or operator must use the method(s) specified in the permit under 264.97(h). These method(s) must compare data collected at the compliance point(s) to the background groundwater quality data.

(2) The owner or operator must determine whether there is statistically significant evidence of contamination at each monitoring well as the compliance point within a reasonable period of time after completion of sampling. The permit application will specify what period of time is reasonable, after considering the complexity of the statistical test and the availability of laboratory facilities to perform the analysis of groundwater samples.

(g) If the owner or operator determines pursuant to paragraph (f) of this section that there is statistically significant evidence of contamination for chemical parameters or hazardous constituents specified pursuant to paragraph (a) of this section at any monitoring well at the compliance point, he or she must:

(1) Notify the Department of this finding in writing within seven days. The notification must indicate what chemical parameters or hazardous constituents have shown statistically significant evidence of contamination;

(2) Immediately sample the groundwater in all monitoring wells and determine whether constituents in the list of Appendix IX of part 264 are present, and if so, in what concentration.

(3) For any Appendix IX compounds found in the analysis pursuant to paragraph (g)(2) of this section, the owner or operator may resample within one month and repeat the analysis for those compounds detected. If the results of the second analysis confirm the initial results, then these constituents will form the basis for compliance monitoring. If the owner or operator does not resample for the compounds found pursuant to paragraph (g)(2) of this section, the hazardous constituents found during this initial Appendix IX analysis will form the basis for compliance monitoring.

(4) Within 90 days, submit to the Department an application for a permit modification to establish a compliance monitoring program meeting the requirements of 264.99. The application must include the following information: (12/93)

(i) An identification of the concentration or any Appendix IX constituent detected in the groundwater at each monitoring well at the compliance point;

(ii) Any proposed changes to the groundwater monitoring system at the facility necessary to meet the requirements of 264.99;

(iii) Any proposed additions or changes to the monitoring frequency, sampling and analysis procedures or methods, or statistical methods used at the facility necessary to meet the requirements of 264.99;

(iv) For each hazardous constituent detected at the compliance point, a proposed concentration limit under 264.94(a) (1) or (2), or a notice of intent to seek an alternate concentration limit under 264.94(b); and

(5) Within 180 days, submit to the Department: (11/90)

(i) All data necessary to justify an alternate concentration limit sought under 264.94(b); and

(ii) An engineering feasibility plan for a corrective action program necessary to meet the requirement of 264.100, unless:

(A) All hazardous constituents identified under paragraph (g)(2) of this section are listed in Table 1 of 264.94 and their concentrations do not exceed the respective values given in that Table; or

(B) The owner or operator has sought an alternate concentration limit under 264.94(b) for every hazardous constituent identified under paragraph (g)(2) of this section.

(6) If the owner or operator determines, pursuant to paragraph (f) of this section, that there is a statistically significant difference for chemical parameters or hazardous constituents specified pursuant to paragraph (a) of this section at any monitoring well at the compliance point, he or she may demonstrate that a source other than a regulated unit caused the contamination or that the detection is an artifact caused by an error in sampling, analysis, or statistical evaluation or natural variation in the groundwater. The owner operator may make a demonstration under this paragraph in addition to, or in lieu of, submitting a permit modification application under paragraph (g)(4) of this section; however, the owner or operator is not relieved of the requirement to submit a permit modification application within the time specified in paragraph (g)(4) of this section unless the demonstration made under this paragraph successfully shows that a source other than a regulated unit caused the increase, or that the increase resulted from error in sampling, analysis, or evaluation. In making a demonstration under this paragraph, the owner or operator must: (11/90, 12/92)

(i) Notify the Department in writing within seven days of determining statistically significant evidence of contamination at the compliance point that he intends to make a demonstration under this paragraph;

(ii) Within 90 days, submit a report to the Department which demonstrates that a source other than a regulated unit caused the contamination or that the contamination resulted from error in sampling, analysis, or evaluation;

(iii) Within 90 days, submit to the Department an application for a permit modification to make any appropriate changes to the detection monitoring program facility; and

(iv) Continue to monitor in accordance with the detection monitoring program established under this section.

(h) If the owner or operator determines that the detection monitoring program no longer satisfies the requirements of this section, he or she must, within 90 days, submit an application for a permit modification to make any appropriate changes to the program. (moved 11/90)

264.99 Compliance Monitoring Program

An owner or operator required to establish a compliance monitoring program under this subpart must, at a minimum, discharge the following responsibilities:

(a) The owner or operator must monitor the groundwater to determine whether regulated units are in compliance with the groundwater protection standard under 264.92. The Department will specify the groundwater protection standard in the facility permit, including: (11/90; 12/93)

(1) A list of the hazardous constituents identified under 264.93;

(2) Concentration limits under 264.94 for each of those hazardous constituents;

(3) The compliance point under 264.95; and

(4) The compliance period under 264.96.

(b) The owner or operator must install a groundwater monitoring system at the compliance point as specified under 264.95. The groundwater monitoring system must comply with 264.97(a)(2), (b), and (c). (11/90)

(c) The Department will specify the sampling procedures and statistical methods appropriate for the constituents and the facility, consistent with 264.97 (g) and (h). (11/90; 12/93)

(1) The owner or operator must conduct a sampling program for each chemical parameter or hazardous constituent in accordance with 264.97(g).

(2) The owner or operator must record groundwater analytical data as measured and in form necessary for the determination of statistical significance under 264.97(h) for the compliance period of the facility.

(d) The owner or operator must determine whether there is statistically significant evidence of increased contamination for any chemical parameter or hazardous constituent specified in the permit, pursuant to paragraph (a) of this section, at a frequency specified under paragraph (f) under this section. (11/90)

(1) In determining whether statistically significant evidence of increased contamination exists, the owner or operator must use the method(s) specified in the permit under 264.97(h). The method(s) must compare data collected at the compliance point(s) to a concentration limit developed in accordance with 264.94.

(2) The owner or operator must determine whether there is statistically significant evidence of increased contamination at each monitoring well at the compliance point within a reasonable time period after completion of sampling. The permit application will specify that time period in the facility permit, after considering the complexity of the statistical test and the availability of laboratory facilities to perform the analysis of groundwater samples.

(e) The owner or operator must determine the groundwater flow rate and direction in the uppermost aquifer at least annually.

(f) The permit application will specify the frequencies for collecting samples and conducting statistical tests to determine statistically significant evidence of increased contamination in accordance with 264.97(g). A sequence of at least four samples from each well (background and compliance wells) must be collected at least semiannually during the compliance period of the facility. (11/90)

(g) The owner or operator must analyze samples from all monitoring wells at the compliance point for all constituents contained in Appendix IX of part 264 at least annually to determine whether additional hazardous constituents are present in the uppermost aquifer and, if so, at what concentration, pursuant to procedures in 264.98(f). If the owner or operator finds Appendix IX constituents in the groundwater that are not already identified in the permit as monitoring constituents, the owner or operator may resample within one month and repeat the Appendix IX analysis. If the second analysis confirms the presence of new constituents, the owner or operator must report the concentration of these additional constituents to the Department within seven days after the completion of the second analysis and add them to the monitoring list. If the owner or operator chooses not to resample, then he or she must report the concentrations of these additional constituents to the Department within seven days after completion of the initial analysis and add them to the monitoring list. (11/90)

(h) If the owner or operator determines pursuant to paragraph (d) of this section that any concentration limits under 264.94 are being exceeded at any monitoring well at the point of compliance he or she must: (11/90)

(1) Notify the Department of this finding in writing within seven days. The notification must indicate what concentration limits have been exceeded.

(2) Submit to the Department an application for a permit modification to establish a corrective action

program meeting the requirements of 264.100 within 180 days, or within 90 days if an engineering feasibility study has been previously submitted to the Department under 264.98(g)(5). The application must at a minimum include the following information:

(i) A detailed description of corrective actions that will achieve compliance with the groundwater protection standard specified in the permit under paragraph (a) of this section; and

(ii) A plan for a groundwater monitoring program that will demonstrate the effectiveness of the corrective action. Such a groundwater monitoring program may be based on a compliance monitoring program developed to meet the requirements of this section.

(i) If the owner or operator determines, pursuant to paragraph (d) of this section, that the groundwater concentration limits under this section are being exceeded at any monitoring well at the point of compliance, he or she may demonstrate that a source other than a regulated unit caused the contamination or that the detection is an artifact caused by an error in sampling, analysis, or statistical evaluation or natural variation in the groundwater. In making a demonstration under this paragraph, the owner or operator must: (11/90)

(1) Notify the Department in writing within seven days that he intends to make a demonstration under this paragraph;

(2) Within 90 days, submit a report to the Department which demonstrates that a source other than a regulated unit caused the standard to be exceeded or that the apparent noncompliance with the standards resulted from error in sampling, analysis, or evaluation;

(3) Within 90 days, submit to the Department an application for a permit modification to make any appropriate changes to the compliance monitoring program at the facility; and

(4) Continue to monitor in accord with the compliance monitoring program established under this section.

(j) If the owner or operator determines that the compliance monitoring program no longer satisfies the requirements of this section, he must, within 90 days, submit an application for a permit modification to make any appropriate changes to the program. (moved 11/90)

264.100 Corrective action program (11/90)

An owner or operator required to establish a corrective action program under this subpart must, at a minimum, discharge the following responsibilities:

(a) The owner or operator must take corrective action to ensure that regulated units are in compliance with the groundwater protection standard under 264.92. The permit application under these regulations will specify the groundwater protection standard, including (12/92; 12/93):

(1) A list of the hazardous constituents identified under 264.93;

(2) Concentration limits under 264.94 for each of those hazardous constituents;

(3) The compliance point under 264.95; and

(4) The compliance period under 264.96 (12/92).

(b) The owner or operator must implement a corrective action program that prevents hazardous constituents from exceeding their respective concentration limits at the compliance point by removing the hazardous waste constituents or treating them in place. The owner or operator will specify the specific measures that will be taken in the permit application. (12/93)

(c) The owner or operator must begin corrective action within a reasonable time period after the groundwater protection standard is exceeded. The Department will specify that time period in the facility permit. If a facility permit includes a corrective action program in addition to a compliance monitoring program, the permit will specify when the corrective action will begin and such a requirement will operate in lieu of 264.99(i)(2). (12/93)

(d) In conjunction with a corrective action program, the owner or operator must establish and implement a groundwater monitoring program to demonstrate the effectiveness of the corrective action program. Such a monitoring program may be based on the requirements for a compliance monitoring program under 264.99 and must be as effective as that program in determining compliance with the groundwater protection standard under 264.92 and in determining the success of a corrective action program under paragraph (e) of this section, where appropriate.

(e) In addition to the other requirements of this section, the owner or operator must conduct a corrective action program to remove or treat in place any hazardous constituents under 264.93 that exceed concentration limits under 264.94 in groundwater:

(1) Between the compliance point under 264.95 and the downgradient property boundary; and

(2) Beyond the facility boundary, where necessary to protect human health and the environment, unless the owner or operator demonstrates to the satisfaction of the Department that, despite the owner's or operator's best efforts, the owner or operator was unable to obtain the necessary permission to undertake such action. The owner/operator is not relieved of all responsibility to clean up a release that has migrated beyond the facility boundary where offsite access is denied. Onsite measures to address such releases will be determined on a case-by-case basis.

(3) Corrective action measures under this paragraph must be initiated and completed within a reasonable period of time considering the extent of contamination.

(4) Corrective action measures under this paragraph may be terminated once the concentration of

hazardous constituents under 264.93 is reduced to levels below their respective concentration limits under 264.94.

(f) The owner or operator must continue corrective action measures during the compliance period to the extent necessary to ensure that the groundwater protection standard is not exceeded. If the owner or operator is conducting corrective action at the end of the compliance period, he must continue that corrective action for as long as necessary to achieve compliance with the groundwater protection standard. The owner or operator may terminate corrective action measures taken beyond the period equal to the active life of the waste management area (including the closure period) if he can demonstrate, based on data from the groundwater monitoring program under paragraph (d) of this section, that the groundwater protection standard of 264.92 has not been exceeded for a period of three consecutive years.

(g) The owner or operator must report in writing to the Department on the effectiveness of the corrective action program. The owner or operator must submit these reports semi-annually (12/92).

(h) If the owner or operator determines that the corrective action program no longer satisfies the requirements of this section, he must, within 90 days, submit an application for a permit modification to make any appropriate changes to the program.

264.101 Corrective action for solid waste management units (11/90)

(a) The owner or operator of a facility seeking a permit for the treatment, storage or disposal of hazardous waste must institute corrective action as necessary to protect human health and the environment for all releases of hazardous waste or constituents from any solid waste management unit at the facility, regardless of the time at which waste was placed in such unit. (11/90)

(b) Corrective action will be specified in the permit application in accordance with this section and subpart S of this part. The permit application will contain schedules of compliance for such corrective action (where such corrective action cannot be completed prior to issuance of the permit) and assurances of financial responsibility for completing such corrective action. (11/90; 12/93)

(c) The owner or operator must implement corrective actions beyond the facility property boundary, where necessary to protect human health and the environment, unless the owner or operator demonstrates to the satisfaction of the Department that, despite the owner's or operator's best efforts, the owner or operator was unable to obtain the necessary permission to undertake such actions. The owner/operator is not relieved of all responsibility to clean up a release that has migrated beyond the facility boundary where offsite access is denied. Onsite measures to address such releases will be determined on a case-by-case basis. Assurances of financial responsibility for such corrective action must be provided. (11/90)

(d) This does not apply to remediation waste management sites unless they are part of a facility subject to a permit for treating, storing or disposing of hazardous wastes that are not remediation wastes. (8/00)

(e) All monitoring wells to be installed pursuant to 264.101 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 collection of groundwater samples. The annular space (i.e., the space between the bore hole and well casing) above the sampling depth must be sealed to prevent contamination of samples and the groundwater. More sophisticated monitoring well construction may be required if deemed necessary by the Department. All monitoring wells will have a locking cap or other security devices to prevent damage and/or vandalism. Each well will be labeled with an identification plate constructed of a durable material affixed to the casing or surface pad where it is readily visible. The plate will provide monitoring well identification number, date of construction, total well depth, static water level, and driller certification number. [Note: See for guidance EPA's RCRA Ground-Water Monitoring Technical Enforcement Guidance Document, TEGD]. (6/95; 8/00)

(f) If not otherwise proposed as part of a plan submitted for approval by the Department, the general design, construction, and location of monitoring wells installed for the purpose of investigating groundwater contamination from solid waste management units will be submitted to the Department for approval prior to installation. (6/95; 8/00)

Subpart G - Closure and Postclosure

264.110 Applicability

Except as 264.1 provides otherwise:

(a) Sections 264.111 through 264.115 (which concern closure) apply to the owners and operators of all hazardous waste management facilities; and

(b) Sections 264.116 through 264.120 (which concern postclosure care) apply to the owners and operators of:

(1) All hazardous waste disposal facilities;

(2) 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 264.228 and 264.258;

(3) Tank systems that are required under 264.197 to meet the requirements for landfills; and

(4) Containment buildings that are required under 264.1102 to meet the requirement for landfills. (12/93)

(c) The Department may replace all or part of the requirements of this subpart (and the unit-specific standards referenced in 264.111(c) applying to a regulated unit), where the Department determines that: (8/00)

(1) The 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

(2) It is not necessary to apply the closure requirements of this subpart (and those referenced herein) because the alternative requirements will protect human health and the environment and will satisfy the closure performance standard of 264.111(a) and (b).

264.111 Closure performance standard

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

(a) Minimizes the need for further maintenance; and

(b) Controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, postclosure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products to the ground or surface waters or to the atmosphere (12/92); and

(c) Complies with the closure requirements of this subpart, including, but not limited to, the requirements of 264.178, 264.197, 264.228, 264.258, 264.280, 264.310, 264.351, and 264.601 through 264.603, and 264.1102. (12/92; 12/93)

264.112 Closure plan; amendment of plan

(a) Written plan.

(1) The owner or operator of a hazardous waste management facility must have a written closure plan. In addition, certain surface impoundments and waste piles from which the owner or operator intends to remove or decontaminate the hazardous waste at partial or final closure are required by 264.228(c)(1)(i) and 264.258(c)(1)(i) to have contingent closure plans. The plan must be submitted with the permit application, in accordance with R.61-79.270.14(b)(13), and approved by the Department as part of the permit issuance procedures under R.61-79.124. In accordance with R.61-79.270.32, the approved closure plan will become a condition of any permit under these regulations. (11/90, 12/92)

(2) The Department's approval of the plan must ensure that the approved closure plan is consistent with Sections 264.111 through 264.115 and the applicable requirements of subpart F of this part, 264.178, 264.197, 264.228, 264.258, 264.280, 264.310, 264.351, and 264.601, and 264.1102. Until final closure is completed and certified in accordance with 264.115, a copy of the approved plan and all approved revisions must be furnished to the Department upon request, including requests by mail. (11/90; 12/93)

(b) 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:

(1) A description of how each hazardous waste management unit at the facility will be closed in accordance with 264.111;

(2) A description of how final closure of the facility will be conducted in accordance with 264.111. The description must identify the maximum extent of the operations which will be unclosed during the active life of the facility; and

(3) 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 the type(s) of the offsite hazardous waste management units to be used, if applicable; and

(4) A detailed description of the steps needed to remove or decontaminate all hazardous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard; and

(5) A detailed description of other activities necessary during the closure period to ensure that all partial closures and final closure satisfy the closure performance standards, including, but not limited to, groundwater monitoring, leachate collection, and runon and runoff control; and

(6) A schedule for closure of each hazardous waste management unit and for final closure of the facility. The schedule must include, at a minimum, the total time required to close each hazardous waste management unit and the time required for intervening closure activities which will allow tracking of the progress of partial and final closure. (For example, in the case of a landfill unit, estimates of the time required to treat or dispose of all hazardous waste inventory and of the time required to place a final cover must be included.)

(7) For facilities that use trust funds to establish financial assurance under 264.143 or 264.145 and that are expected to close prior to the expiration of the permit, an estimate of the expected year of final closure.

(8) For facilities where the Department has applied alternative requirements at a regulated unit under 264.90(f), and/or 264.110(c), the alternative requirements applying to the regulated unit. (8/00)

(c) Amendment of plan. The owner or operator must submit a written request for a permit modification to authorize a change in operating plans, facility design, or the approved closure plan in accordance with the applicable procedures in R.61-79.124 and R.61-79.270. The written request must include a copy of the closure plan for review or approval by the Department. (11/90; 12/92; 12/93)

(1) The owner or operator may submit a written request to the Department for a permit modification to amend the closure plan at any time prior to the notification of partial or final closure of the facility.

(2) The owner or operator must submit a written request for a permit modification to authorize a change in the approved closure plan whenever:

(i) Changes in operating plans or facility design affect the closure plan, or

(ii) There is a change in the expected year of closure, if applicable, or

(iii) In conducting partial or final closure activities, unexpected events require a modification of the approved closure plan.

(iv) The owner or operator requests the Department to apply alternative requirements to a regulated unit under 264.90(f), and/or 264.110(c). (8/00)

(3) The owner or operator must submit a written request for a permit modification including a copy of the amended closure plan for approval at least 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 request a permit modification no later than 30 days after the unexpected event. An owner or operator of a surface impoundment or waste pile that intends to remove all hazardous waste at closure and is not otherwise required to prepare a contingent closure plan under 264.228(c)(1)(i) or 264.258(c)(1)(i), must submit an amended closure plan to the Department no later than 60 days from the date that the owner or operator or Department determines that the hazardous waste management unit must be closed as a landfill, subject to the requirements of 264.310, or no later than 30 days from that date if the determination is made during partial or final closure. The Department will approve, disapprove, or modify this amended plan in accordance with the procedures in R.61-79.124 and R.61-79.270. In accordance with R.61-79.270.32, the approved closure plan will become a condition of permit issued under these regulations. (10/01)

(4) The Department may request modifications to the plan under the conditions described in 264.112(c)(2). The owner or operator must submit the modified plan within 60 days of the Department's request, or within 30 days if the change in facility conditions occurs during partial or final closure. Any modifications requested by the Department will be approved in accordance with the procedures in R.61-79.124 and R.61-79.270.

(d) Notification of partial closure and final closure.

(1) The owner or operator must notify the Department in writing at least 60 days prior to the date on which he expects to begin closure of a surface impoundment, waste pile, land treatment or landfill unit, or final closure of a facility with such a unit. The owner or operator must notify the Department in writing at least 45 days prior to the date on which he expects to begin final closure of a facility with only treatment or storage tanks, container storage, or incinerator units to be closed. The owner or operator must notify the Department in writing at least 45 days prior to the date on which he expects to begin partial or final closure of a boiler or industrial furnace, whichever is earlier.

(2) The date when he "expects to begin closure" must be either: (11/90)

(i) No later than 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 wastes. If the owner or operator of a hazardous waste management unit can demonstrate to the Department that the hazardous waste management unit or facility has the capacity to receive additional hazardous wastes and he has taken all steps to prevent threats to human health and the environment, including compliance with all applicable permit requirements, the Department may approve an extension to this one-year limit; or

(ii) For units meeting the requirements of 264.113(d), 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 Department that the hazardous waste management unit has the capacity to receive additional nonhazardous wastes and he has taken, and will continue to take, all steps to prevent threats to human health and the environment, including compliance with all applicable permit requirements, the Department may approve an extension to this one-year limit.

(3) If the facility's permit is terminated, or if the facility is otherwise ordered, by judicial decree or final order S.C. 44-56-130 and 140 or under section 3008 of RCRA, to cease receiving hazardous wastes or to close, then the requirements of this paragraph do not apply. However, the owner or operator must close the facility

in accordance with the deadlines established in 264.113 (12/92).

(e) Removal of wastes and decontamination or dismantling of equipment. Nothing in this section 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.

264.113 Closure; time allowed for closure

(a) 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 (d) and (e) of this section, at a hazardous waste management unit or facility, 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 Department may approve a longer period if the owner or operator complies with all applicable requirements for requesting a modification to the permit and demonstrates that: (11/90, 12/92)

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

(ii) (A) 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 owner or operator complies with paragraphs (d) and (e) of this section (12/92); and

(B) There is a reasonable likelihood that he or another person will recommence operation of the hazardous waste management unit or the facility within one year; and

(C) Closure of the hazardous waste management unit or facility would be incompatible with continued operation of the site; and

(2) He has taken and will continue to take all steps to prevent threats to human health and the environment, including compliance with all applicable permit requirements.

(b) 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 (d) and (e) of this section, at the hazardous waste management unit or facility. The Department may approve an extension to the closure period if the owner or operator complies with all applicable requirements for requesting a modification to the permit and demonstrates that: (11/90, 12/92)

(1) (i) The partial or final closure activities will, of necessity, take longer than 180 days to complete; or

(ii) (A) 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 owner or operator complies with paragraphs (d) and (e) of this section (12/92); and

(B) There is reasonable likelihood that he or another person will recommence operation of the hazardous waste management unit or the facility within one year (12/92); and

(C) Closure of the hazardous waste management unit or facility would be incompatible with continued operation of the site; and

(2) He has taken and will continue to take all steps to prevent threats to human health and the environment from the unclosed but not operating hazardous waste management unit or facility, including compliance with all applicable permit requirements.

(c) The demonstrations referred to in paragraphs (a)(1) and (b)(1) of this section must be made as follows: (11/90)

(1) The demonstrations in paragraph (a)(1) of this section must be made at least 30 days prior to the expiration of the 90 day period in paragraph (a) of this section; and

(2) The demonstration in paragraph (b)(1) of this section must be made at least 30 days prior to the expiration of the 180-day period in paragraph (b) of this section, unless the owner or operator is otherwise subject to the deadlines in paragraph (d) of this section.

(d) The Department may allow an owner or operator to receive only nonhazardous wastes in a landfill, land treatment, or surface impoundment unit after the final receipt of hazardous wastes at that unit if: (11/90)

(1) The owner or operator requests a permit modification in compliance with all applicable requirements in parts 270 and 124 of this title and in the permit modification request demonstrates that:

(i) The unit has the existing design capacity as indicated on the part A application to receive nonhazardous wastes; and

(ii) 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

(iii) 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

(iv) Closure of the hazardous waste management unit would be incompatible with continued operation of the unit or facility; and

(v) The owner or operator is operating and will continue to operate in compliance with all applicable permit requirements; and

(2) The request to modify the permit includes an amended waste analysis plan, groundwater monitoring and response program, human exposure assessment required under RCRA section 3019 and the SC Pollution Control Act 48-1-50, and closure and postclosure plans, and updated cost estimates and

demonstrations of financial assurance for closure and postclosure care as necessary and appropriate, to reflect any changes due to the presence of hazardous constituents in the nonhazardous wastes, and changes in closure activities, including the expected year of closure if applicable under 264.112(b)(7), as a result of the receipt of nonhazardous wastes following the final receipt of hazardous wastes (12/92); and

(3) The request to modify the permit includes revisions, as necessary and appropriate, to affected conditions of the permit to account for the receipt of nonhazardous wastes following receipt of the final volume of hazardous wastes; and

(4) The request to modify the permit and the demonstrations referred to in paragraphs (d)(1) and (d)(2) of this section are submitted to the Department no later than 120 days prior to the date on which the owner or operator of the facility receives the known final volume of hazardous wastes at the unit, or no later than 90 days after the effective date of this rule in the state in which the unit is located, whichever is later.

(e) In addition to the requirements in paragraph (d) of this section, an owner or operator of a hazardous waste surface impoundment that is not in compliance with the liner and leachate collection system requirements in 42 U.S.C. 3004(o)(1) (2) or (3) or and 3005(j)(1) or 42 U.S.C. 3004(o)(2) or (3) or 3005(j)(2), (3), (4) or (13) and the SC Pollution Control Act 48-1-50 must: (11/90; 12/92; 12/93, 9/01)

(1) Submit with the request to modify the permit:

(i) A contingent corrective measures plan, unless a corrective action plan has already been submitted under 264.99; and

(ii) A plan for removing hazardous wastes in compliance with paragraph (e)(2) of this section; and

(2) 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.

(3) Removal of hazardous wastes must be completed no later than 90 days after the final receipt of hazardous wastes. The Department 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.

(4) If a release that is a statistically significant increase (or decrease in the case of pH) over background values for detection monitoring parameters or constituents specified in the permit or that exceeds the facility's groundwater protection standard at the point of compliance, if applicable, is detected in accordance with the requirements in subpart F of this part, the owner or operator of the unit:

(i) Must implement corrective measures in accordance with the approved contingent corrective measures plan required by paragraph (e)(1) of this section no later than one year after detection of the release, or approval of the contingent corrective measures plan, whichever is later;

(ii) May continue to 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

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

(5) During the period of corrective action, the owner or operator shall provide semiannual reports to the Department that describe 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.

(6) The Department 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 paragraph (e)(4) of this section, or fails to make substantial progress in implementing corrective action and achieving the facility's groundwater protection standard or background levels if the facility has not yet established a groundwater protection standard.

(7) If the owner or operator fails to implement corrective measures as required in paragraph (e)(4) of this section, or if the Department determines that substantial progress has not been made pursuant to paragraph (e)(6) of this section he shall:

(i) Notify the owner or operator in writing that the owner or operator must begin closure in accordance with the deadlines in paragraphs (a) and (b) of this section and provide a detailed statement of reasons for this determination, and

(ii) Provide the owner or operator and the public, through a newspaper notice, the opportunity to submit written comments on the decision no later than 20 days after the date of the notice.

(iii) If the Department receives no written comments, the decision will become final five days after the close of the comment period. The Department will notify the owner or operator that the decision is final, and that a revised closure plan, if necessary, must be submitted within 15 days of the final notice and that closure must begin in accordance with the deadlines in paragraphs (a) and (b) of this section.

(iv) If the Department receives written comments on the decision, he shall make a final decision within 30 days after the end of the comment period, and provide the owner or operator in writing and the public through a newspaper notice, a detailed statement of reasons for the final decision. If the

Department determines that substantial progress has not been made, closure must be initiated in accordance with the deadlines in paragraphs (a) and (b) of this section.

(v) The final determinations made by the Department under paragraphs (e)(7) (iii) and (iv) of this section are not subject to administrative appeal.

264.114 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 264.197, 264.228, 264.258, 264.280 or 264.310. 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 R.61-79.262 (11/90).

264.115 Certification of closure

Within 60 days of completion of closure of each hazardous waste surface impoundment, waste pile, land treatment, and landfill unit, and within 60 days of the completion of final closure, the owner or operator must submit to the Department 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 registered professional engineer. Documentation supporting the independent registered professional engineer's certification must be furnished to the Department upon request until he releases the owner or operator from the financial assurance requirements for closure under 264.143(i).

264.116 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 Department, a survey plat indicating the location and dimensions of landfills cells or other hazardous waste disposal units with respect to permanently surveyed benchmarks. This plat must be prepared and certified by a professional land surveyor. The plat filed with the local zoning authority, or the authority with jurisdiction over local land use, must contain a 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 subpart G regulations.

264.117 Postclosure care and use of property

(a) (1) Postclosure care for each hazardous waste management unit subject to the requirements of 264.117 through 264.120 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: (11/90)

(i) Monitoring and reporting in accordance with the requirements of subparts F, K, L, M, N, and X of this part; and (12/93)

(ii) Maintenance and monitoring of waste containment systems in accordance with the requirements of subparts F, K, L, M, N, and X of this part.

(2) Any time preceding partial closure of a hazardous waste management unit subject to postclosure care requirements or final closure, or any time during the postclosure period for a particular unit, the Department may, in accordance with the permit modification procedures in R.61-79.124 and R.61-79.270:

(i) Shorten the postclosure care period applicable to the hazardous waste management unit, or facility, if all disposal units have been closed, if it 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

(ii) Extend the postclosure care period applicable to the hazardous waste management unit or facility if it 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) (12/92).

(b) The Department may require, at partial and final closure, continuation of any of the security requirements of 264.14 during part or all of the postclosure period when:

(1) Hazardous wastes may remain exposed after completion of partial or final closure; or

(2) Access by the public or domestic livestock may pose a hazard to human health.

(c) Postclosure 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, liner(s), or any other components of the containment system, or the function of the facility's monitoring systems, unless the Department finds that the disturbance: (12/93)

(1) Is necessary to the proposed use of the property, and will not increase the potential hazard to human health or the environment; or

(2) Is necessary to reduce a threat to human health or the environment.

(d) All postclosure care activities must be in accordance with the provisions of the approved postclosure plan as specified in 264.118.

264.118 Postclosure plan; amendment of plan

(a) Written Plan. The owner or operator of a hazardous waste disposal unit must have a written postclosure plan. In addition, certain surface impoundments and waste piles from which the owner or operator intends to remove or decontaminate the hazardous wastes at partial or final closure are required by 264.228(c)(1)(ii) and 264.258(c)(1)(ii) to have contingent postclosure plans. Owners or operators of surface impoundments and waste piles not otherwise required to prepare contingent postclosure plans under 264.228(c)(1)(ii) and 264.258(c)(1)(ii) must submit a postclosure plan to the Department within 90 days from the date that the owner or operator or the Department determines that the hazardous waste management unit must be closed as a landfill, subject to the requirements of 264.117 through 264.120. The plan must be submitted with the permit application, in accordance with R.61-79.270.14(b)(13) and approved by the Department as part of the permit issuance procedures under R.61-79.124. In accordance with R.61-79.270.32, the approved postclosure plan will become a condition of any RCRA permit issued (12/92).

(b) For each hazardous waste management unit subject to the requirements of this section, the postclosure 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:

(1) A description of the planned monitoring activities and frequencies at which they will be performed to comply with subparts F, K, L, M, N, and X of this part during the postclosure care period; and (11/90; 12/93)

(2) A description of the planned maintenance activities, and frequencies at which they will be performed, to ensure: (11/90)

(i) The integrity of the cap and final cover or other containment systems in accordance with the requirements of subparts F, K, L, M, N and X of this part; and (11/90; 12/93)

(ii) The function of the monitoring equipment in accordance with the requirements of subparts F, K, L, M, N, and X of this part; and (12/93)

(3) The name, address, and phone number of the person or office to contact about the hazardous waste disposal unit or facility during the postclosure care period.

(4) For facilities where the Department has applied alternative requirements at a regulated unit under 264.90(f), and/or 264.110(c), the alternative requirements that apply to the regulated unit. (8/00)

(c) Until final closure of the facility, a copy of the approved postclosure plan must be furnished to the Department upon request, including request by mail. After final closure has been certified, the person or office specified in 264.118(b)(3) must keep the approved postclosure plan during the remainder of the postclosure period.

(d) Amendment of plan. The owner or operator must submit a written request for a permit modification to authorize a change in the approved postclosure plan in accordance with the applicable requirements in parts 124 and 270. The written request must include a copy of the amended postclosure plan for review or approval by the Department. (11/90)

(1) The owner or operator may submit a written notification or request to the Department for a permit modification to amend the postclosure plan at any time during the active life of the facility or during the postclosure care period.

(2) The owner or operator must submit a written notification of or request for a permit modification to authorize a change in the approved postclosure plan whenever:

(i) Changes in operating plans or facility design affect the approved postclosure plan, or

(ii) There is a change in the expected year of final closure, if applicable, or

(iii) Events which occur during the active life of the facility, including partial and final closures, affect the approved postclosure plan.

(iv) The owner or operator requests the Department to apply alternative requirements to a regulated unit under 264.90(f), and/or 264.110(c). (8/00)

(3) The owner or operator must submit a written request for a permit modification 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 postclosure plan. An owner or operator of a surface impoundment or waste pile that intends to remove all hazardous waste at closure and is not otherwise required to submit a contingent postclosure plan under 264.228(c)(1)(ii) and 264.258(c)(1)(ii) must submit a postclosure plan to the Department no later than 90 days after the date that the owner or operator or the Department determines that the hazardous waste management unit must be closed as a landfill, subject to the requirements of 264.310. The Department will approve, disapprove or modify this plan in accordance with the procedures in R.61-79.124 and R.61-79.270. In accordance with R.61-79.270.32, the approved postclosure plan will become a permit condition.

(4) The Department may request modifications to the plan under the conditions described in R.61-79.264.118(d)(2). The owner or operator must submit the modified plan no later than 60 days after the Departments request, or no later than 90 days if the unit is a surface impoundment or waste pile not previously required to prepare a contingent postclosure plan. Any modifications requested by the Department will be approved, disapproved, or modified in accordance with the procedures in R.61-79.124 and R.61-79.270.

264.119 Postclosure notices

(a) 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 Department 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 knowledge and in accordance with any records he has kept. (12/92)

(b) 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:

(1) Record, in accordance with State law, a notation on the deed to the facility property - or on some other instrument which is normally examined during title search - that will in perpetuity notify any potential purchaser of the property that:

(i) The land has been used to manage hazardous wastes; and

(ii) Its use is restricted under R.61-79.264 and 265 subpart G; and

(iii) 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 264.116 and 264.119(a) have been filed with the local zoning authority or the authority with jurisdiction over local land use and with the Department; and

(2) Submit a certification, signed by the owner or operator, that he has recorded the notation specified in paragraph (b)(1) of this section, including a copy of the document in which the notation has been placed, to the Department.

(c) If the owner or operator or any subsequent owner or operator of the land upon which a hazardous waste disposal unit is located wishes to remove hazardous wastes and hazardous waste residues, the liner, if any, or contaminated soils, he must request a modification to the postclosure permit in accordance with the applicable requirements in R.61-79.124 and R.61-79.270. The owner or operator must demonstrate that the removal of hazardous wastes will satisfy the criteria of 264.117(c). 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 these Regulations. If he is granted a permit modification or otherwise granted approval to conduct such removal activities, the owner or operator may request that the Department approve either:

(1) The removal of the notation on the deed to the facility property or other instrument normally examined during title search; or

(2) The addition of a notation to the deed or instrument indicating the removal of the hazardous waste.

264.120 Certification of completion of postclosure care

No later than 60 days after completion of the established postclosure care period for each hazardous waste disposal unit, the owner or operator must submit to the Department, by registered mail, a certification that the postclosure care period for the hazardous waste disposal unit was performed in accordance with the specifications in the approved postclosure plan. The certification must be signed by the owner or operator and an independent registered professional engineer. Documentation supporting the independent registered professional engineer's certification must be furnished to the Department upon request until it releases the owner or operator from the financial assurance requirements for postclosure care under 264.145(i).

Subpart H - Financial Requirements

264.140 Applicability

(a) The requirements of 264.142, 264.143, and 264.147 through 264.151 apply to owners and operators of all hazardous waste facilities, except as provided otherwise in this section or in 264.1.

(b) The requirements of 264.144 and 264.145 apply only to owners and operators of:

(1) Disposal facilities;

(2) Piles, and surface impoundments from which the owner or operator intends to remove the waste.s at closure, to the extent that these sections are made applicable to such facilities in 264.228 and 264.258;

(3) Tank systems that are required under 264.197 to meet the requirements for landfills; and (12/92)

(4) Containment buildings that are required under 264.1102 to meet the requirements for landfills. (12/93)

(c) State and Federal governments are exempt from the requirements of this subpart. (moved from (d) 6/95)

(d) [Reserved 6/03]

264.141 Definitions of terms as used in this subpart

(a) "Closure plan" means the plan for closure prepared in accordance with the requirements of 264.112.

(b) "Current closure cost estimate" means the most recent of the estimates prepared in accordance with 264.142 (a), (b), and (c).

(c) "Current postclosure cost estimate" means the most recent of the estimates prepared in accordance with 264.144 (a), (b) and (c).

(d) "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.

(e) "Postclosure plan" means the plan for postclosure care prepared in accordance with the requirements of 264.117 through 264.120.

(f) The following terms are used in the specifications for the financial tests for closure, postclosure 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.

"Assets" means all existing and all probable future economic benefits obtained or controlled by a particular entity.

"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.

"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.

"Current plugging and abandonment cost estimate" means the most recent of the estimates prepared in accordance with SC Safe Drinking Water Act 44-55-10 et seq. and Federal 40 CFR 144.62(a), (b) and (c). (6/89, 12/92)

"Independently audited" refers to an audit performed by an independent certified public accountant in accordance with generally accepted auditing standards.

"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.

"Net working capital" means current assets minus current liabilities.

"Net worth" means total assets minus total liabilities and is equivalent to owner's equity.

"Tangible net worth" means the tangible assets that remain after deducting liabilities; such assets would not include intangibles such as goodwill and rights to patents or royalties.

(g) 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 Agency 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.

"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.

"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.

"Nonsudden accidental occurrence" means an occurrence which takes place over time and involves continuous or repeated exposure.

"Sudden accidental occurrence" means an occurrence which is not continuous or repeated in nature.

(h) "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 relationship between the guarantor and the owner or operator is demonstrated to the satisfaction of the Department. (11/90)

264.142 Cost estimate for closure (12/92)

(a) 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 264.111 through 264.115 and applicable closure requirements in 264.178, 264.197, 264.228, 264.258, 264.280, 264.310, 264.351, 264.601 through 264.603, and 264.1102. (11/90; 12/92; 12/93)

(1) 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 264.112(b)]. (12/92)

(2) 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 264.141(d)). The owner or operator may use costs for onsite disposal if he can demonstrate that onsite disposal capacity will exist at all times over the life of the facility. (12/92)

(3) 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 264.113(d), facility structures or equipment, land, or other assets associated with the facility at the time of partial or final closure. (11/90)

(4) The owner or operator may not incorporate a zero cost for hazardous wastes, or nonhazardous wastes if applicable under 264.113(d), that might have economic value. (11/90)

(b) 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 instrument(s) used to comply with 264.143. For owners and operators using the financial test or corporate 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 Department as specified in 264.143(f)(3). 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 paragraphs (b)(1) and (2) of this section. The inflation factor is the result of dividing the latest published annual Deflator by the Deflator for the previous year.

(1) The first adjustment is made by multiplying the closure cost estimate by the inflation factor. The result is the adjusted closure cost estimate.

(2) Subsequent adjustments are made by multiplying the latest adjusted closure cost estimate by the latest inflation factor.

(c) During the active life of the facility, the owner or operator must revise the closure cost estimate no later than 30 days after the Department has approved the request to modify the closure plan, if the change in the closure plan increases the cost of closure. The closure cost estimate must be adjusted for inflation as specified in 264.142(b).

(d) 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 264.142 (a) and (c) and, when this estimate has been adjusted in accordance with 264.142(b), the latest adjusted closure cost estimate.

264.143 Financial assurance for closure

An owner or operator of each facility must establish financial assurance for closure of the facility. He must choose from the options as specified in paragraphs (a) through (f) of this section.

(a) Standby trust fund. [5/93]

(1) An owner or operator may satisfy the requirements of this section by establishing a standby trust fund which conforms to the requirements of this paragraph and submitting an originally signed duplicate of the trust agreement to the Department. An owner or operator of a new facility must submit the originally signed duplicate of the trust agreement to the Department at least 60 days before the date on which hazardous waste is first received for treatment, storage, or disposal. 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.

(2) The wording of the trust agreement must be identical to the wording specified in 264.151(a)(1), and the trust agreement must be accompanied by a formal certification of acknowledgement [for example, see 264.151 (a)(2)]. 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. (12/93)

(3) [Reserved]

(4) [Reserved]

(5) [Reserved]

(6) 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 section to cover the difference.

(7) 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 Department for release of the amount in excess of the current closure cost estimate.

(8) If an owner or operator substitutes other financial assurance as specified in this section for all or part of the trust fund, he may submit a written request to the Department for release of the amount in excess of the current closure cost estimate covered by the trust fund.

(9) Within 60 days after receiving a request from the owner or operator for release of funds as specified in paragraphs (a) (7) or (8) of this section, the Department will instruct the trustee to release to the owner or operator such funds as the Department specifies in writing.

(10) 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 expenditures by submitting itemized bills to the Department. 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 Department will instruct the trustee to make reimbursements in those amounts as the Department specifies in writing, if the Department determines that the partial or final closure expenditures are in accordance with the approved closure plan, or otherwise justified. If the Department 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 Department may

withhold reimbursements of such amounts as it deems prudent until it determines, in accordance with 264.143(i) that the owner or operator is no longer required to maintain financial assurance for final closure of the facility. If the Department does not instruct the trustee to make such reimbursements, it will provide the owner or operator with a detailed written statement of reasons.

(11) The Department will agree to termination of the trust when:

(i) An owner or operator substitutes alternate financial assurance as specified in this section; or,

(ii) The Department releases the owner or operator from the requirements of this section in accordance with 264.143(i).

(b) Surety bond guaranteeing payment into a closure trust fund.

(1) An owner or operator may satisfy the requirements of this section by obtaining a surety bond which conforms to the requirements of this paragraph and submitting the bond to the Department. An owner or operator of a new facility must submit the bond to the Department at least 60 days before the date on which hazardous waste is first received for treatment, storage, or disposal. The bond must be effective before this initial receipt of hazardous waste. 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.

(2) The wording of the surety bond must be identical to the wording specified in 264.151(b). (12/93)

(3) The owner or operator who uses a surety bond to satisfy the requirements of this section 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 Department. This standby trust fund must meet the requirements specified in 264.143(a), except that:

(i) An originally signed duplicate of the trust agreement must be submitted to the Department with the surety bond; and

(ii) Until the standby trust fund is funded pursuant to the requirements of this section, the following are not required by these regulations:

(A) Payments into the trust fund as specified in 264.143(a);

(B) Updating of Schedule A of the trust agreement (see 264.151(a)) to show current closure cost estimates;

(C) Annual valuations as required by the trust agreement; and

(D) Notices of nonpayment as required by the trust agreement.

(4) The bond must guarantee that the owner or operator will:

(i) 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,

(ii) Fund the standby trust fund in an amount equal to the penal sum within 15 days after an administrative order to begin final closure issued by the Department becomes final, or within 15 days after an order to begin final closure is issued by a U.S. District Court or other court of competent jurisdiction; or (11/90)

(iii) Provide alternate financial assurance as specified in this section, and obtain the Department's written approval of the assurance provided, within 90 days after receipt by both the owner or operator and the Department of a notice of cancellation of the bond from the surety.

(5) 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.

(6) The penal sum of the bond must be in an amount at least equal to the current closure cost estimate, except as provided in 264.143(g).

(7) Whenever the current closure cost estimate increases to an amount greater then 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 Department, or obtain other financial assurance as specified in this section 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 Department.

(8) Under the terms of the bond, the surety may cancel the bond by sending notice of cancellation by certified mail to the owner or operator and to the Department. 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 Department, as evidence by the return receipts.

(9) The owner or operator may cancel the bond if the Department has given prior written consent based on his receipt of evidence of alternate financial assurance as specified in this section.

(c) Surety bond guaranteeing performance of closure.

(1) An owner or operator may satisfy the requirements of this section by obtaining a surety bond which conforms to the requirements of this paragraph and submitting the bond to the Department. An owner or operator of a new facility must submit the bond to the Department at least 60 days before the date on which hazardous waste is first received for treatment, storage, or disposal. The bond must be effective before this initial receipt of hazardous waste. 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.

(2) The wording of the surety bond must be identical to the wording specified in 264.151(c). (12/92; 12/93)

(3) The owner or operator who uses a surety bond to satisfy the requirements of this section 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 Department. This standby trust must meet the requirements specified in 264.143(a), except that:

(i) An originally signed duplicate of the trust agreement must be submitted to the Department with the surety bond; and

(ii) Unless the standby trust fund is funded pursuant to the requirements of this section, the following are not required by these regulations:

(A) Payments into the trust fund as specified in 264.143(a);

(B) Updating of Schedule A of the trust agreement (see 264.151(a)) to show current closure cost estimates;

(C) Annual valuations as required by the trust agreement; and

(D) Notices of nonpayment as required by the trust agreement.

(4) The bond must guarantee that the owner or operator will:

(i) Perform final closure in accordance with the closure plan and other requirements of the permit for the facility whenever required to do so; or

(ii) Provide alternate financial assurance as specified in this section, and obtain the Department's written approval of the assurance provided, within 90 days after receipt by both the owner or operator and the Department of a notice of cancellation of the bond from the surety.

(5) 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. Following a final administrative determination pursuant to RCRA 3008 that the owner or operator has failed to perform final closure in accordance with the approved closure plan and other permit requirements when required to do so, under the terms of the bond the surety will perform final closure as guaranteed by the bond or will deposit the amount of the penal sum into the standby trust fund.

(6) The penal sum of the bond must be in an amount at least equal to the current closure cost estimate.

(7) 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 Department, or obtain other financial assurance as specified in this section. 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 Department.

(8) Under the terms of the bond, the surety may cancel the bond by sending notice of cancellation by certified mail to the owner or operator and to the Department. 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 Department, as evidenced by the return receipts.

(9) The owner or operator may cancel the bond if the Department has given prior written consent. The Department will provide such written consent when:

(i) An owner or operator substitutes alternate financial assurance as specified in this section; or

(ii) The Department releases the owner or operator from the requirements of this section in accordance with 264.143(i).

(10) The surety will not be liable for deficiencies in the performance of closure by the owner or operator after the Department releases the owner or operator from the requirements of this section in accordance with 264.143(i).

(d) Closure letter of credit.

(1) An owner or operator may satisfy the requirements of this section by obtaining an irrevocable standby letter of credit which conforms to the requirements of this paragraph and submitting the letter to the Department. An owner or operator of a new facility must submit the letter of credit to the Department at least 60 days before the date on which hazardous waste is first received for treatment, storage, or disposal. The letter of credit must be effective before this initial receipt of hazardous waste. 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.

(2) The wording of the letter of credit must be identical to the wording specified in 264.151(d) of this regulation. (12/92; 12/93)

(3) An owner or operator who uses a letter of credit to satisfy the requirements of this section must also establish a standby trust fund. Under the terms of the letter of credit, all amounts paid pursuant to a draft by the Department will be deposited by the issuing institution directly into the standby trust fund in accordance with instructions from the Department. This standby trust fund must meet the requirements of the trust fund specified in 264.143(a), except that:

(i) An originally signed duplicate of the trust agreement must be submitted to the Department with the letter of credit; and

(ii) Unless the standby trust fund is funded pursuant to the requirements of this section, the following are not required by these regulations:

(A) Payments into the trust fund as specified in 264.143(a);

(B) Updating of Schedule A of the trust agreement (see 264.151(a)) to show current closure cost estimates;

(C) Annual valuations as required by the trust agreement; and

(D) Notices of nonpayment as required by the trust agreement.

(4) 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.

(5) The letter of credit must be irrevocable and issued for a period of at least 1 year. The letter of credit must provide that the expiration date will be automatically extended for a period of at least 1 year unless, at least 120 days before the current expiration date, the issuing institution notifies both the owner or operator and the Department by certified mail 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 Department have received the notice, as evidenced by the return receipts.

(6) The letter of credit must be issued in an amount at least equal to the current closure cost estimate, except as provided in 264.143(g).

(7) 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 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 Department, or obtain other financial assurance as specified in this section 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 Department.

(8) Following a final administrative determination pursuant to S.C. 44-56-130 and -140 or section 3008 of RCRA that the owner or operator has failed to perform final closure in accordance with the closure plan and other permit requirements when required to do so, the Department may draw on the letter of credit. (12/92)

(9) If the owner or operator does not establish alternate financial assurance as specified in this section and obtain written approval of such alternate assurance from the Department within 90 days after receipt by both the owner or operator and the Department of a notice from issuing institution that it has decided not to extend the letter of credit beyond the current expiration date, the Department will draw on the letter of credit. The Department 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 Department will draw on the letter of credit if the owner or operator has failed to provide alternate financial assurance as specified in this section and obtain written approval of such assurance from the Department.

(10) The Department will return the letter of credit to the issuing institution for termination when:

(i) An owner or operator substitutes alternate financial assurance as specified in this section; or

(ii) The Department releases the owner or operator from the requirements of this section in accordance with 264.143(i).

(e) Closure insurance.

(1) An owner or operator may satisfy the requirements of this section by obtaining closure insurance which conforms to the requirements of this paragraph and submitting a certificate of such insurance to the Department. An owner or operator of a new facility must submit the certificate of insurance to the Department at least 60 days before the date on which hazardous waste is first received for treatment, storage, or disposal. The insurance must be effective before this initial receipt of hazardous waste. At a minimum, the insurer must be licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more States.

(2) The wording of the certificate of insurance must be identical to the wording specified in 264.151(e). (12/92; 12/93)

(3) The closure insurance policy must be issued for a face amount at least equal to the current closure cost estimate, except as provided in 264.143(g). The term "face amount" means the total amount the insurer is obligated to pay under the policy. Actual payments by the insurer will not change the face amount, although the insurer's future liability will be lowered by the amount of the payments.

(4) 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 face amount of the policy, upon the direction of the Department, to such party or parties as the Department specifies.

(5) 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 Department. 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 Department will instruct the insurer to make reimbursements in such amounts as the Department specifies in writing, if the Department determines that the partial or final closure expenditures are in accordance with the approved closure plan or otherwise justified. If the Department 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, it may withhold reimbursements of such amounts as it deems prudent until it determines, in accordance with 264.143(i), that the owner or operator is no longer required to maintain financial assurance for final closure of the facility. If the Department does not instruct the insurer to make such reimbursements, it will provide the owner or operator with a detailed written statement of reasons.

(6) The owner or operator must maintain the policy in full force and effect until the Department consents to termination of the policy by the owner or operator as specified in paragraph (e)(10) of this section. Failure to pay the premium, without substitution of alternate financial assurance as specified in this section, will constitute a significant violation of these regulations, warranting such remedy as the Department deems necessary. Such violation will be deemed to begin upon receipt by the Department of a notice of future cancellation, termination, or failure to renew due to nonpayment of the premium, rather than upon the date of expiration.

(7) 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.

(8) 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 minimum, provide the insured with the option of renewal at the face amount 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 to the owner or operator and the Department. 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 Department 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:

(i) The Department deems the facility abandoned; or

(ii) The permit is terminated or revoked or a new permit is denied; or

(iii) Closure is ordered by the Department or a State court or other court of competent jurisdiction; or

(iv) The owner or operator is named as debtor in a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code; or

(v) The premium due is paid.

(9) Whenever the current closure cost estimate increases to an amount greater than the face amount of the policy, the owner or operator, within 60 days after the increase, must either cause the 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 Department or obtain other financial assurance as specified in this section to cover the increase. Whenever the current closure cost estimate decreases, the face amount may be reduced to the amount of the current closure cost estimate following written approval by the Department.

(10) The Department will give written consent to the owner or operator that he may terminate the insurance policy when:

(i) An owner or operator substitutes alternate financial assurance as specified in this section; or

(ii) The Department releases the owner or operator from the requirements of this section in accordance with 264.143(i).

(f) Financial test and corporate guarantee for closure.

(1) An owner or operator may satisfy the requirements of this section by demonstrating that he passes a financial test as specified in this paragraph. To pass this test the owner or operator must meet the criteria of either paragraph (f)(1)(i) or (ii) of this section:

(i) The owner or operator must have:

(A) 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; and

(B) Net working capital and tangible net worth each at least six times the sum of the current closure and postclosure cost estimate and the current plugging and abandonment cost estimates; and

(C) Tangible net worth of at least $10 million; and

(D) Assets located in the United States amounting to at least 90 percent of his total assets or at least six times the sum of the current closure and postclosure cost estimates and the current plugging and abandonment cost estimates.

(ii) The owner or operator must have:

(A) A current rating for his 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; and

(B) Tangible net worth at least six times the sum of the current closure and postclosure cost estimates and the current plugging and abandonment cost estimates; and

(C) Tangible net worth of at least $10 million; and

(D) Assets located in the United States amounting to at least 90 percent of his total assets or at least six times the sum of the current closure and postclosure cost estimates and the current plugging and abandonment cost estimates.

(2) The phrase "current closure and postclosure cost estimates" as used in paragraph (f)(1) of this section refers to the cost estimates required to be shown in paragraphs 1 through 4 of the letter from the owner's or operator's chief financial officer [264.151(f)]. The phrase "current plugging and abandonment cost estimates" as used in paragraph (f)(1) of this section refers to the cost estimates required to be shown in paragraphs 1 through 4 of the letter from the owner's or operator's chief financial officer.

(3) To demonstrate that he meets this test, the owner or operator must submit the following items to the Department:

(i) A letter signed by the owner's or operator's chief financial officer and worded as specified in 264.151(f); and, (12/92; 12/93)

(ii) 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

(iii) A special report from the owner's or operator's independent certified public accountant to the owner or operator stating that:

(A) He 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 (6/89)

(B) In connection with that procedure, no matters came to his attention which caused him to believe that the specified data should be adjusted.

(4) An owner or operator of a new facility must submit the items specified in paragraph (f)(3) of this section to the Department at least 60 days before the date on which hazardous waste is first received for treatment, storage, or disposal.

(5) After the initial submission of items specified in paragraph (f)(3) of this section, the owner or operator must send updated information to the Department within 90 days after the close of each succeeding fiscal year. This information must consist of all three items specified in paragraph (f)(3) of this section.

(6) If the owner or operator no longer meets the requirements of paragraph (f)(1) of this section, he must send notice to the Department of intent to establish alternate financial assurance as specified in this section. The notice must be sent by certified mail 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.

(7) The Department may, based on a reasonable belief that the owner or operator may no longer meet the requirements of paragraph (f)(1) of this section, require reports of financial condition at any time from the owner or operator in addition to those specified in paragraph (f)(3) of this section. If the Department finds, on the basis of such reports or other information, that the owner or operator no longer meets the requirements of paragraph (f)(1) of this section, the owner or operator must provide alternate financial assurance as specified in this section within 30 days after notification of such a finding.

(8) The Department may disallow use of this test on the basis of qualifications in the opinion expressed by the independent certified public accountant in his report on examination of the owner's or operator's financial statements (see paragraph (f)(3)(ii) of this section). An adverse opinion or a disclaimer of opinion will be cause for disallowance. The Department will evaluate other qualifications on an individual basis. The owner or operator must provide alternate financial assurance as specified in this section within 30 days after notification of the disallowance.

(9) The owner or operator is no longer required to submit the items specified in paragraph (f)(3) of this section when:

(i) An owner or operator substitutes alternate financial assurance as specified in this section; or

(ii) The Department releases the owner or operator from the requirements of this section in accordance with 264.143(i).

(10) An owner or operator may meet the requirements of this section by obtaining a written guarantee. 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 paragraphs (f)(1) through (8) of this section and must comply with the terms of the corporate guarantee. The wording of the corporate guarantee must be identical to the wording specified in 264.151(h). The certified copy of the guarantee must accompany the items sent to the Department as specified in paragraph (f)(3) of this section. 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 corporate guarantee must provide that: (12/93)

(i) If the owner or operator fails to perform final closure of a facility covered by the corporate guarantee in accordance with the closure plan and other permit requirements whenever required to do so, the guarantor will do so or establish a trust fund as specified in 264.143(a) in the name of the owner or operator.

(ii) The corporate guarantee will remain in force unless the guarantor sends notice of cancellation by certified mail to the owner or operator and to the Department. 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 Department, as evidenced by the return receipts.

(iii) If the owner or operator fails to provide alternate financial assurance as specified in this section and obtain the written approval of such alternate assurance from the Department within 90 days after receipt by both the owner or operator and the Department of a notice of cancellation of the corporate guarantee from the guarantor, the guarantor will provide such alternative financial assurance in the name of the owner or operator.

(g) Use of multiple financial mechanisms. An owner or operator may satisfy the requirements of this section by establishing more than one financial mechanism per facility. These mechanisms are limited to surety bonds guaranteeing payment into a trust fund, letters of credit, and insurance. The mechanisms must be as specified in paragraphs (a), (b), (d) and (e), respectively, of this section, 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 closure cost estimate. A single standby trust fund may be established for two or more mechanisms. The Department may use any or all of the mechanisms to provide for closure of the facility. (12/92; 5/93; 12/93)

(h) Use of a financial mechanism for multiple facilities. An owner or operator may use a financial assurance mechanism specified in this section to meet the requirements of this section for more than one facility. Evidence of financial assurance submitted to the Department 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 mechanisms 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 Department 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.

(i) Release of the owner or operator from the requirements of this section. Within 60 days after receiving certifications from the owner or operator and an independent registered professional engineer that final closure has been completed in accordance with the approved closure plan, the Department will notify the owner or operator in writing that he is no longer required by this section to maintain financial assurance for final closure of the facility, unless the Department has reason to believe that final closure has not been in accordance with the approved closure plan. The Department shall provide the owner or operator a detailed written statement of any such reason to believe that closure has not been in accordance with the approved closure plan. (12/93)

264.144 Cost estimate for postclosure care

(a) The owner or operator of a disposal surface impoundment, disposal miscellaneous unit, land treatment unit, or landfill unit, or of a surface impoundment or waste pile required under 264.228 and 264.258 to prepare a contingent closure and postclosure plan, must have a detailed written estimate, in current dollars, of the annual cost of postclosure monitoring and maintenance of the facility in accordance with the applicable postclosure regulations in 264.117 through 264.120, 264.228, 264.258, 264.280, 264.310, and 264.603. (6/89; 11/90; 12/93)

(1) The postclosure cost estimate must be based on the costs to the owner or operator of hiring a third party to conduct postclosure 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 264.141(d).)

(2) The postclosure cost estimate is calculated by multiplying the annual postclosure cost estimate by the number of years of postclosure care required under 264.117.

(b) During the active life of the facility and during the postclosure period of the facility, the owner or operator must adjust the postclosure cost estimate for inflation within 60 days prior to the anniversary date of the establishment of the financial instrument(s) used to comply with 264.145. For owners or operators using the financial test or corporate guarantee, the postclosure cost estimate must be updated for inflation within 30 days after the close of the firm's fiscal year and before the submission of updated information to the Department as specified in 264.145(f)(5). The adjustment may be made by recalculating the postclosure 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 264.145(b)(1) and (2). The inflation factor is the result of dividing the latest

published annual Deflator by the Deflator for the previous year. (5/93)

(1) The first adjustment is made by multiplying the postclosure cost estimate by the inflation factor. The result is the adjusted postclosure cost estimate.

(2) Subsequent adjustments are made by multiplying the latest adjusted postclosure cost estimate by the latest inflation factor.

(c) During the active life of the facility, the owner or operator must revise the postclosure cost estimate within 30 days after the Department has approved the request to modify the postclosure plan, if the change in the postclosure plan increases the cost of postclosure care. The postclosure cost estimate must be adjusted for inflation as specified in 264.144(b).

(d) (5/93)

(1) The owner or operator must keep the following at the facility during the active life of the facility: The latest postclosure cost estimate prepared in accordance with section 264.144 (a) and (c) and, when this estimate has been adjusted in accordance with Section 264.144(b), the latest adjusted postclosure cost estimate. (12/93)

(2) During the postclosure period of the facility, the owner or operator must maintain the information specified in (d)(1) and provide it to the Department upon request.

264.145 Financial assurance for postclosure care

The owner or operator of a hazardous waste management unit subject to the requirements of 264.144 must establish financial assurance for postclosure care in accordance with the approved postclosure plan for the facility 60 days prior to the initial receipt of hazardous waste or the effective date of the regulation, whichever is later. He must choose from the following options:

(a) Standby trust fund (replaced 5/93).

(1) An owner or operator may satisfy the requirements of this section by establishing a standby trust fund which conforms to the requirements of this paragraph and submitting an originally signed duplicate of the trust agreement to the Department. An owner or operator of a new facility must submit the originally signed duplicate of the trust agreement to the Department at least 60 days before the date on which hazardous waste is first received for disposal. 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.

(2) The wording of the trust agreement must be identical to the wording specified in 264.151(a)(1), and the trust agreement must be accompanied by a formal certification of acknowledgement [for example, see 264.151(a)(2)]. Schedule A of the trust agreement must be updated within 60 days after a change in the amount of the current postclosure cost estimate covered by the agreement. (12/93)

(3) [Reserved]

(4) [Reserved]

(5) [Reserved]

(6) Whenever the current postclosure 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 postclosure cost estimate, or obtain other financial assurance as specified in this section to cover the difference.

(7) During the operating life of the facility, if the value of the trust fund is greater than the total amount of the current postclosure cost estimate, the owner or operator may submit a written request to the Department for release of the amount in excess of the current postclosure cost estimate.

(8) If an owner or operator substitutes other financial assurance as specified in this section for all or part of the trust fund, he may submit a written request to the Department for release of the amount in excess of the current postclosure cost estimate covered by the trust fund.

(9) Within 60 days after receiving a request from the owner or operator for release of funds as specified in paragraph (a) (7) or (8) of this section, the Department will instruct the trustee to release to the owner or operator such funds as the Department specifies in writing.

(10) During the period of postclosure care, the Department may approve a release of funds if the owner or operator demonstrates to the Department that the value of the trust fund exceeds the remaining cost of postclosure care.

(11) An owner or operator or any other person authorized to conduct postclosure care may request reimbursements for postclosure care expenditures by submitting itemized bills to the Department. Within 60 days after receiving bills for postclosure care activities, the Department will instruct the trustee to make reimbursements in those amounts as the Department specifies in writing, if the Department determines that the postclosure care expenditures are in accordance with the approved postclosure plan or otherwise justified. If the Department does not instruct the trustee to make such reimbursements, it will provide the owner or operator with a detailed written statement of reasons.

(12) The Department will agree to termination of the trust when:

(i) An owner or operator substitutes alternate financial assurance as specified in this section; or

(ii) The Department releases the owner or operator from the requirements of this section in accordance with 264.145(i).

(b) Surety bond guaranteeing payment into a postclosure trust fund.

(1) An owner or operator may satisfy the requirements of this section by obtaining a surety bond which conforms to the requirements of this paragraph and submitting the bond to the Department. An owner or operator of a new facility must submit the bond to the Department at least 60 days before the date on which hazardous waste is first received for disposal. The bond must be effective before this initial receipt of hazardous waste. 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 and licensed to do business in South Carolina. (6/89)

(2) The wording of the surety bond must be identical to the wording specified in 264.151(b). (12/92; 12/93)

(3) The owner or operator who uses a surety bond to satisfy the requirements of this section 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 Department. This standby trust fund must meet the requirements specified in 264.145(a), except that:

(i) An originally signed duplicate of the trust agreement must be submitted to the Department with the surety bond; and

(ii) Until the standby trust fund is funded pursuant to the requirements of this section, the following are not required by these regulations:

(A) Payments into the trust fund as specified in 264.145(a);

(B) Updating of Schedule A of the trust agreement (see 264.151(a)) to show current postclosure cost estimates;

(C) Annual valuations as required by the trust agreement; and

(D) Notices of nonpayment as required by the trust agreement.

(4) The bond must guarantee that the owner or operator will:

(i) 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

(ii) Fund the standby trust fund in an amount equal to the penal sum within 15 days after an administrative order to begin final closure issued by the Department becomes final, or within 15 days after an order to begin final closure is issued by the State court or other court of competent jurisdiction; or (12/93)

(iii) Provide alternate financial assurance as specified in this section, and obtain the Department's written approval of the assurance provided, within 90 days after receipt by both the owner or operator and the Department of a notice of cancellation of the bond from the surety.

(5) 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.

(6) The penal sum of the bond must be in an amount at least equal to the current postclosure cost estimate, except as provided in 264.145(g).

(7) Whenever the current postclosure 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 postclosure cost estimate and submit evidence of such increase to the Department, or obtain other financial assurance as specified in this section to cover the increase. Whenever the current postclosure cost estimate decreases, the penal sum may be reduced to the amount of the current postclosure cost estimate following written approval by the Department.

(8) Under the terms of the bond, the surety may cancel the bond by sending notice of cancellation by certified mail to the owner or operator and to the Department. 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 Department, as evidenced by the return receipts. (11/90)

(9) The owner or operator may cancel the bond if the Department has given prior written consent based on his receipt of evidence of alternate financial assurance as specified in this section. (11/90)

(c) Surety bond guaranteeing performance of postclosure care. (11/90)

(1) An owner or operator may satisfy the requirements of this section by obtaining a surety bond which conforms to the requirements of this paragraph and submitting the bond to the Department. An owner or operator of a new facility must submit the bond to the Department at least 60 days before the date on which hazardous waste is first received for disposal. The bond must be effective before this initial receipt of hazardous waste. 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. (11/90)

(2) The wording of the surety bond must be identical to the wording specified in 264.151(c). (11/90)

(3) The owner or operator who uses a surety bond to satisfy the requirements of this section 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 Department. This standby trust fund must meet the requirements specified in 264.145(a), except that: (11/90)

(i) An originally signed duplicate of the trust agreement must be submitted to the Department with the surety bond; and

(ii) Unless the standby trust fund is funded pursuant to the requirements of this section, the following are not required by these regulations:

(A) Payments into the trust fund as specified in 264.145(a);

(B) Updating of Schedule A of the trust agreement (see 264.151(a)) to show current postclosure cost estimates;

(C) Annual valuations as required by the trust agreement; and

(D) Notices of nonpayment as required by the trust agreement.

(4) The bond must guarantee that the owner or operator will: (11/90)

(i) Perform postclosure care in accordance with the postclosure plan and other requirements of the permit for the facility; or

(ii) Provide alternate financial assurance as specified in this section, and obtain the Department's written approval of the assurance provided, within 90 days of receipt by both the owner or operator and the Department of a notice of cancellation of the bond from the surety.

(5) 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. Following a final administrative determination pursuant to section 3008 of RCRA that the owner or operator has failed to perform postclosure care in accordance with the approved postclosure plan and other permit requirements, under the terms of the bond the surety will perform postclosure care in accordance with the postclosure plan and other permit requirements or will deposit the amount of the penal sum into the standby trust fund. (11/90)

(6) The penal sum of the bond must be in an amount at least equal to the current postclosure cost estimate. (11/90)

(7) Whenever the current postclosure cost estimate increases to an amount greater than the penal sum during the active life of the facility, 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 postclosure cost estimate and submit evidence of such increase to the Department, or obtain other financial assurance as specified in this section. Whenever the current postclosure cost estimate decreases during the active life of the facility, the penal sum may be reduced to the amount of the current postclosure cost estimate following written approval by the Department. (11/90)

(8) During the period of postclosure care, the Department may approve a decrease in the penal sum if the owner or operator demonstrates to the Department that the amount exceeds the remaining cost of postclosure care.

(9) Under the terms of the bond, the surety may cancel the bond by sending notice of cancellation by certified mail to the owner or operator and to the Department. 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 Department, as evidenced by the return receipts.

(10) The owner or operator may cancel the bond if the Department has given prior written consent. The Department will provide such written consent when:

(i) An owner or operator substitutes alternate financial assurance as specified in this section; or

(ii) The Department releases the owner or operator from the requirements of this section in accordance with 264.145(i).

(11) The surety will not be liable for deficiencies in the performance of postclosure care by the owner or operator after the Department releases the owner or operator from the requirements of this section in accordance with 264.145(i).

(d) Postclosure letter of credit.

(1) An owner or operator may satisfy the requirements of this section by obtaining an irrevocable standby letter of credit which conforms to the requirements of this paragraph and submitting the letter to the Department. An owner or operator of a new facility must submit the letter of credit to the Department at least 60 days before the date on which hazardous waste is first received for disposal. The letter of credit must be effective before this initial receipt of hazardous waste. 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.

(2) The wording of the letter of credit must be identical to the wording specified in 264.151(d). (12/92; 12/93)

(3) An owner or operator who uses a letter of credit to satisfy the requirements of this section must also establish a standby trust fund. Under the terms of the letter of credit, all amounts paid pursuant to a draft by the Department will be deposited by the issuing institution directly into the standby trust fund in accordance with instructions from the Department. This standby trust fund must meet the requirements of the trust fund specified in 264.145(a), except that:

(i) An originally signed duplicate of the trust agreement must be submitted to the Department with the letter of credit; and

(ii) Unless the standby trust fund is funded pursuant to the requirements of this section, the following are not required by these regulations:

(A) Payments into the trust fund as specified in 264.145(a);

(B) Updating of Schedule A of the trust agreement (see 264.151(a)) to show current postclosure cost estimates;

(C) Annual valuations as required by the trust agreement; and

(D) Notices of nonpayment as required by the trust agreement.

(4) 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 postclosure care of the facility by the letter of credit.

(5) The letter of credit must be irrevocable and issued for a period of at least 1 year. The letter of credit must provide that the expiration date will be automatically extended for a period of at least 1 year unless, at least 120 days before the current expiration date, the issuing institution notifies both the owner or operator and the Department by certified mail 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 Department have received the notice, as evidenced by the return receipts.

(6) The letter of credit must be issued in an amount at least equal to the current postclosure cost estimate, except as provided in 264.145(g).

(7) Whenever the current postclosure 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 postclosure cost estimate and submit evidence of such increase to the Department, or obtain other financial assurance as specified in this section to cover the increase. Whenever the current postclosure cost estimate decreases during the operating life of the facility, the amount of the credit may be reduced to the amount of the current postclosure cost estimate following written approval by the Department. (11/90)

(8) During the period of postclosure care, the Department may approve a decrease in the amount of the letter of credit if the owner or operator demonstrates to the Department that the amount exceeds the remaining cost of postclosure care.

(9) Following a final administrative determination pursuant to SCHWMA 44-56-140 and section 3008 of RCRA that the owner or operator has failed to perform postclosure care in accordance with the approved postclosure plan and other permit requirements, the Department may draw on the letter of credit. (12/92)

(10) If the owner or operator does not establish alternate financial assurance as specified in this section and obtain written approval of such alternate assurance from the Department within 90 days after receipt by both the owner or operator and the Department of a notice from the issuing institution that it has decided not to extend the letter of credit beyond the current expiration date, the Department will draw on the letter of credit. The Department 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 Department will draw on the letter of credit if the owner or operator has failed to provide alternate financial assurance as specified in this section and obtain written approval of such assurance from the Department.

(11) The Department will return the letter of credit to the issuing institution for termination when:

(i) An owner or operator substitutes alternate financial assurance as specified in this section; or

(ii) The Department releases the owner or operator from the requirements of this section in accordance with 264.145(i).

(e) Postclosure insurance.

(1) An owner or operator may satisfy the requirements of this section by obtaining postclosure insurance which conforms to the requirements of this paragraph and submitting a certificate of such insurance to the Department. An owner or operator of a new facility must submit the certificate of insurance to the Department at least 60 days before the date on which hazardous waste is first received for disposal. The insurance must be effective before this initial receipt of hazardous waste. At a minimum, the insurer must be licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more States. (11/90)

(2) The wording of the certificate of insurance must be identical to the wording specified in 264.151(e). (12/92; 12/93)

(3) The postclosure insurance policy must be issued for a face amount at least equal to the current postclosure cost estimate, except as provided in 264.145(g). The term "face amount" means the total amount the insurer is obligated to pay under the policy. Actual payments by the insurer will not change the face amount, although the insurer's future liability will be lowered by the amount of the payments.

(4) The postclosure insurance policy must guarantee that funds will be available to provide postclosure care of the facility whenever the postclosure period begins. The policy must also guarantee that once postclosure care begins, the insurer will be responsible for paying out funds, up to an amount equal to the face amount of the policy, upon the direction of the Department, to such party or parties as the Department specifies.

(5) An owner or operator or any other person authorized to conduct postclosure care may request reimbursements for postclosure care expenditures by submitting itemized bills to the Department. Within 60 days after receiving bills for postclosure care activities, the Department will instruct the insurer to make reimbursements in those amounts as the Department specifies in writing, if the Department determines that the postclosure care expenditures are in accordance with

the approved postclosure plan or otherwise justified. If the Department does not instruct the insurer to make such reimbursements, it will provide the owner or operator with a detailed written statement of reasons. (11/90)

(6) The owner or operator must maintain the policy in full force and effect until the Department consents to termination of the policy by the owner or operator as specified in paragraph (e)(11) of this section. Failure to pay the premium, without substitution of alternate financial assurance as specified in this section, will constitute a significant violation of these regulations, warranting such remedy as the Department deems necessary. Such violation will be deemed to begin upon receipt by the Department of a notice of future cancellation, termination, or failure to renew due to nonpayment of the premium, rather than upon the date of expiration.

(7) 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.

(8) 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 minimum, provide the insured with the option of renewal at the face amount 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 to the owner or operator and the Department. 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 Department 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:

(i) The Department deems the facility abandoned; or

(ii) The permit is terminated or revoked or a new permit is denied; or

(iii) Closure is ordered by the Department or a State court or other court of competent jurisdiction; or

(iv) The owner or operator is named as debtor in a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code; or

(v) The premium due is paid.

(9) Whenever the current postclosure cost estimate increases to an amount greater than the face amount of the policy during the operating life of the facility, the owner or operator, within 60 days after the increase, must either cause the face amount to be increased to an amount at least equal to the current postclosure cost estimate and submit evidence of such increase to the Department, or obtain other financial assurance as specified in this section to cover the increase. Whenever the current postclosure cost estimate decreases during the operating life of the facility, the face amount may be reduced to the amount of the current postclosure cost estimate following written approval by the Department.

(10) Commencing on the date that liability to make payments pursuant to the policy accrues, the insurer will thereafter annually increase the face amount of the policy. Such increase must be equivalent to the face amount 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 U.S. Treasury for 26-week Treasury securities.

(11) The Department will give written consent to the owner or operator that he may terminate the insurance policy when:

(i) An owner or operator substitutes alternate financial assurance as specified in this section; or

(ii) The Department releases the owner or operator from the requirements of this section in accordance with 264.145(i).

(f) Financial test and corporate guarantee for postclosure care.

(1) An owner or operator may satisfy the requirements of this section by demonstrating that he passes a financial test as specified in this paragraph. To pass this test the owner or operator must meet the criteria of either paragraph (f)(1)(i) or (ii) of this section:

(i) The owner or operator must have:

(A) 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; and

(B) Net working capital and tangible net worth each at least six times the sum of the current closure and postclosure cost estimates and the current plugging and abandonment cost estimates; and

(C) Tangible net worth of at least $10 million; and

(D) Assets in the United States amounting to at least 90 percent of his total assets or at least six times the sum of the current closure and postclosure cost estimates and the current plugging and abandonment cost estimates.

(ii) The owner or operator must have:

(A) A current rating for his 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; and

(B) Tangible net worth at least six times the sum of the current closure and postclosure cost

estimates and the current plugging and abandonment cost estimates; and

(C) Tangible net worth of at least $10 million; and

(D) Assets located in the United States amounting to at least 90 percent of his total assets or at least six times the sum of the current closure and postclosure cost estimates and the current plugging and abandonment cost estimates.

(2) The phrase "current closure and postclosure cost estimates" as used in paragraph (f)(1) of this section refers to the cost estimates required to be shown in paragraphs 1 through 4 of the letter from the owner's or operator's chief financial officer [264.151(f)]. The phrase "current plugging and abandonment cost estimates" as used in paragraph (f)(1) of this section refers to the cost estimates required to be shown in paragraphs 1 through 4 of the letter from the owner's or operator's chief financial officer.

(3) To demonstrate that he meets this test, the owner or operator must submit the following items to the Department:

(i) A letter signed by the owner's or operator's chief financial officer and worded as specified in 264.151(f); and (12/92; 12/93)

(ii) 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

(iii) A special report from the owner's or operator's independent certified public accountant to the owner or operator stating that:

(A) He 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

(B) In connection with that procedure, no matters came to his attention which caused him to believe that the specified data should be adjusted.

(4) An owner or operator of a new facility must submit the items specified in paragraph (f)(3) of this section to the Department at least 60 days before the date on which hazardous waste is first received for disposal.

(5) After the initial submission of items specified in paragraph (f)(3) of this section, the owner or operator must send updated information to the Department within 90 days after the close of each succeeding fiscal year. This information must consist of all three items specified in paragraph (f)(3) of this section.

(6) If the owner or operator no longer meets the requirements of paragraph (f)(1) of this section, he must send notice to the Department of intent to establish alternate financial assurance as specified in this section. The notice must be sent by certified mail 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.

(7) The Department may, based on a reasonable belief that the owner or operator may no longer meet the requirements of paragraph (f)(1) of this section, require reports of financial condition at any time from the owner or operator in addition to those specified in paragraph (f)(3) of this section. If the Department finds, on the basis of such reports or other information, that the owner or operator no longer meets the requirements of paragraph (f)(1) of this section, the owner or operator must provide alternate financial assurance as specified in this section within 30 days after notification of such a finding.

(8) The Department may disallow use of this test on the basis of qualifications in the opinion expressed by the independent certified public accountant in his report on examination of the owner's or operator's financial statements (see paragraph (f)(3)(ii) of this section). An adverse opinion or a disclaimer of opinion will be cause for disallowance. The Department will evaluate other qualifications on an individual basis. The owner or operator must provide alternate financial assurance as specified in this section within 30 days after notification of the disallowance.

(9) During the period of postclosure care, the Department may approve a decrease in the current postclosure cost estimate for which this test demonstrates financial assurance if the owner or operator demonstrates to the Department that the amount of the cost estimate exceeds the remaining cost of postclosure care.

(10) The owner or operator is no longer required to submit the items specified in paragraph (f)(3) of this section when:

(i) An owner or operator substitutes alternate financial assurance as specified in this section; or

(ii) The Department releases the owner or operator from the requirements for this section in accordance with 264.145(i). (12/93)

(11) An owner or operator may meet the requirements for this section by obtaining a written guarantee. 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 paragraphs (f)(1) through (9) of this section and must comply with the terms of the guarantee. The wording of the guarantee must be identical to the wording specified in 264.151(h). A certified copy of the guarantee must accompany the items sent to the Department as specified in paragraph (f)(3) of this section. One of these items must be the letter from the guarantors chief financial officer. If the guarantors 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: (12/93)

(i) If the owner or operator fails to perform postclosure care of a facility covered by the corporate guarantee in accordance with the postclosure plan and other permit requirements whenever required to do so, the guarantor will do so or establish a trust fund as specified in 264.145(a) in the name of the owner or operator.

(ii) The corporate guarantee will remain in force unless the guarantor sends notice of cancellation by certified mail to the owner or operator and to the Department. 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 Department, as evidenced by the return receipts.

(iii) If the owner or operator fails to provide alternate financial assurance as specified in this section and obtain the written approval of such alternate assurance from the Department within 90 days after receipt by both the owner or operator and the Department of a notice of cancellation of the corporate guarantee from the guarantor, the guarantor will provide such alternate financial assurance in the name of the owner or operator.

(g) Use of multiple financial mechanisms. An owner or operator may satisfy the requirements of this section by establishing more than one financial mechanism per facility. These mechanisms are limited to surety bonds guaranteeing payment into a trust fund, letters of credit, and insurance. The mechanisms must be as specified in paragraphs, (b), (d), and (e), respectively, of this section, 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 postclosure cost estimate. A single standby trust fund may be established for two or more mechanisms. The Department may use any or all of the mechanisms to provide for postclosure care of the facility. (5/93; 12/93)

(h) Use of a financial mechanism for multiple facilities. An owner or operator may use a financial assurance mechanism specified in this section to meet the requirements of this section for more than one facility. Evidence of financial assurance submitted to the Department must include a list showing, for each facility, the EPA Identification Number, name, address, and the amount of funds for postclosure 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 postclosure care of any of the facilities covered by the mechanism, the Department 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. (11/90)

(i) Release of the owner or operator from the requirements of this section. Within 60 days after receiving certifications from the owner or operator and an independent registered professional engineer that the postclosure care period has been completed for a hazardous waste disposal unit in accordance with the approved plan, the Department will notify the owner or operator that he is no longer required to maintain financial assurance for postclosure care of that unit, unless the Department has reason to believe that postclosure care has not been in accordance with the approved postclosure plan. The Department shall provide the owner or operator with a detailed written statement of any such reason to believe that postclosure care has not been in accordance with the approved postclosure plan.

264.146 Use of a mechanism for financial assurance of both closure and postclosure care

An owner or operator may satisfy the requirements for financial assurance for both closure and postclosure care for one or more facilities by using a surety bond, letter of credit, insurance, financial test, or corporate guarantee that meets the specifications for the mechanism in both 264.143 and 264.145. 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 financial assurance of closure and of postclosure care.

264.147 Liability requirements

(a) 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 paragraphs (a) (1), (2), (3), (4), (5), or (6) of this section: (11/90; 12/93)

(1) An owner or operator may demonstrate the required liability coverage by having liability insurance as specified in this paragraph.

(i) 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 264.151(i). The wording of the certificate of insurance must be identical to the wording specified in 264.151(j). The owner or operator must submit a signed duplicate original of the endorsement or the certificate of insurance to the Department. The owner or operator must provide a signed duplicate original of the insurance policy, application, and any agreements which may affect the policy. An owner or operator of a new facility must submit the signed duplicate original of the Hazardous Waste Facility Liability Endorsement or the Certificate of Liability Insurance to the Department at least 60 days before the date on which hazardous waste is first received for treatment, storage, or disposal. The insurance must be effective before this initial receipt of hazardous waste. (6/89; 12/93)

(ii) 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, in one or more States.

(2) An owner or operator may meet the requirements of this section by passing a financial test or using the guarantee for liability coverage as specified in paragraphs (f) and (g) of this section. (11/90, 12/92)

(3) An owner or operator may meet the requirements of this section by obtaining a letter of credit for liability coverage as specified in paragraph (h) of this section. (11/90)

(4) An owner or operator may meet the requirements of this section by obtaining a surety bond for liability coverage as specified in paragraph (i) of this section. (11/90)

(5) An owner or operator may meet the requirements of this section by obtaining a trust fund for liability coverage as specified in paragraph (j) of this section. (11/90)

(6) 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 section. 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 assurance as "excess" coverage. (11/90)

(7) An owner or operator shall notify the Department in writing within 30 days whenever: (12/93)

(i) A claim results in a reduction in the amount of financial assurance for liability coverage provided by a financial instrument authorized in paragraphs (a)(1) through (a)(6) of this section; or

(ii) A Certification of Valid Claim for bodily injury or property damages caused by a sudden or non-sudden 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 paragraphs (a)(1) through (a)(6) of this section; or

(iii) A final court order establishing a judgment for bodily injury or property damage caused by a sudden or non-sudden 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 paragraphs (a)(1) through (a)(6) of this section. (11/90; 12/93)

(b) Coverage for nonsudden accidental occurrences. An owner or operator of a surface impoundment, landfill, land treatment facility, or disposal miscellaneous unit that 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 $3 million per occurrence with an annual aggregate of at least $6 million, exclusive of legal defense costs. An owner or operator who must meet the requirements of this section 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 $4 million per occurrence and $8 million annual aggregate. This liability coverage may be demonstrated as specified in paragraphs (b) (1), (2), (3), (4), (5), or (6), of this section: (11/90, 12/92)

(1) An owner or operator may demonstrate the required liability coverage by having liability insurance as specified in this paragraph.

(i) 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 264.151(i). The wording of the certificate of insurance must be identical to the wording specified in 264.151(j). The owner or operator must submit a signed duplicate original of the endorsement or the certificate of insurance to the Department. If requested by the Department, the owner or operator must provide a signed duplicate original of

the insurance policy. An owner or operator of a new facility must submit the signed duplicate original of the Hazardous Waste Facility Liability Endorsement or the Certificate of Liability Insurance to the Department at least 60 days before the date on which hazardous waste is first received for treatment, storage, or disposal. The insurance must be effective before this initial receipt of hazardous waste.

(ii) 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, in one or more States.

(2) An owner or operator may meet the requirements of this section by passing a financial test or using the guarantee for liability coverage as specified in paragraphs (f) and (g) of this section. (11/90)

(3) An owner or operator may meet the requirements of this section by obtaining a letter of credit for liability coverage as specified in paragraph (h) of this section. (11/90)

(4) An owner or operator may meet the requirements of this section by obtaining a surety bond for liability coverage as specified in paragraph (i) of this section. (11/90)

(5) An owner or operator may meet the requirements of this section by obtaining a trust fund for liability coverage as specified in paragraph (j) of this section. (11/90)

(6) 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 amount required by this section. 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 assurance as "excess" coverage. (11/90)

(7) An owner or operator shall notify the Department in writing within 30 days whenever:

(i) A claim results in the reduction in the amount of financial assurance for liability coverage provided by a financial instrument authorized in paragraphs (b)(1) through (b)(6) of this section; or

(ii) A Certification of Valid Claim for bodily injury or property damages caused by a sudden or non-sudden 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 paragraphs (b)(1) through (b)(6) of this section; or

(iii) A final court order establishing a judgment for bodily injury or property damage caused by a sudden or non-sudden accidental occurrence arising from the operation of 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 paragraphs (b)(1) through (b)(6) of this section. (11/90; 12/93)

(c) Request for variance. If an owner or operator can demonstrate to the satisfaction of the Department that the levels of financial responsibility required by paragraph (a) or (b) of this section 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 Department. The request for a variance must be submitted to the Department as part of the application under R.61-79.270.14 for a facility that does not have a permit, or pursuant to the procedures for permit modification under R.61-79.124.5 for a facility that has a permit. If granted, the variance will take the form of an adjusted level of required liability coverage, such level to be based on the Department's assessment of the degree and duration of risk associated with the ownership or operation of the facility or group of facilities. The Department may require an owner or operator who requests a variance to provide such technical and engineering information as is deemed necessary by the Department to determine a level of financial responsibility other than that required by paragraph (a) or (b) of this section. Any request for a variance for a permitted facility will be treated as a request for a permit modification under R.61-79.270.41(a)(5) and R.61-79.124.5. (12/92)

(d) Adjustments by the Department. If the Department determines that the levels of financial responsibility required by paragraph (a) or (b) of this section are not consistent with the degree and duration of risk associated with treatment, storage, or disposal at the facility or group of facilities, the Department may adjust the level of financial responsibility required under paragraph (a) or (b) of this section as may be necessary to protect human health and the environment. This adjusted level will be based on the Department's assessment of the degree and duration of risk associated with the ownership or operation of the facility or group of facilities. In addition, if the Department 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, he may require that an owner or operator of the facility comply with paragraph (b) of this section. An owner or operator must furnish to the Department, within a reasonable time, any information which the Department requests to determine whether cause exists for such adjustments of level or type of coverage. Any

adjustment of the level or type of coverage for a facility that has a permit will be treated as a permit modification under R.61-79.270.41(a)(5) and R.61-79.124.5.

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

(f) Financial test for liability coverage.

(1) An owner or operator may satisfy the requirements of this section by demonstrating that he passes a financial test as specified in this paragraph. To pass this test the owner or operator must meet the criteria of paragraph (f)(1)(i) or (ii):

(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; and

(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 his 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 his 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; and

(B) Tangible net worth of at least $10 million; and

(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 his total assets; or

(2) At least six times the amount of liability coverage to be demonstrated by this test.

(2) The phrase "amount of liability coverage" as used in paragraph (f)(1) of this section refers to the annual aggregate amounts for which coverage is required under paragraphs (a) and (b) of this section.

(3) To demonstrate that he meets this test, the owner or operator must submit the following three items to the Department:

(i) A letter signed by the owner's or operator's chief financial officer and worded as specified in 264.151(g). If an owner or operator is using the financial test to demonstrate both assurance for closure or postclosure care, as specified by 264.143(f), 264.145(f), 265.143(e), and 265.145(e), and liability coverage, he must submit the letter specified in 264.151(g) to cover both forms of financial responsibility; a separate letter as specified in 264.151(f) is not required.

(ii) 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.

(iii) A special report from the owner's or operator's independent certified public accountant to the owner or operator stating that:

(A) He 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

(B) In connection with that procedure, no matters came to his attention which caused him to believe that the specified data should be adjusted.

(4) An owner or operator of a new facility must submit the items specified in paragraph (f)(3) of this section to the Department at least 60 days before the date on which hazardous waste is first received for treatment, storage, or disposal.

(5) After the initial submission of items specified in paragraph (f)(3) of this section, the owner or operator must send updated information to the Department within 90 days after the close of each succeeding fiscal year. This information must consist of all three items specified in paragraph (f)(3) of this section.

(6) If the owner or operator no longer meets the requirements of paragraph (f)(1) of this section, he 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 this section. Evidence of liability coverage must be submitted to the Department 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. (12/93)

(7) The Department may disallow use of this test on the basis of qualifications in the opinion expressed by the independent certified public accountant in his report on examination of the owner's or operator's financial statements (see paragraph (f)(3)(ii) of this section). An adverse opinion or a disclaimer of opinion will be cause for disallowance. The Department 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 section within 30 days after notification of disallowance.

(g) Guarantee for liability coverage. (11/90)

(1) Subject to paragraph (g)(2) of this section, an owner or operator may meet the requirements of this section by obtaining a written guarantee, hereinafter referred to as "guarantee." 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 paragraphs (f)(1) through (f)(6) of this section. The wording of the guarantee must be identical to the wording specified in 264.151(h)(2) of this part. A certified copy of the guarantee must accompany the items sent to the Department as specified in paragraph (f)(3) of this section. 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 this "substantial business relationship" and the value received in consideration of the guarantee. (11/90)

(i) 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 corporate 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.

(ii) [Reserved] (11/90)

(2) (i) In the case of corporations incorporated in the United States, a guarantee may be used to satisfy the requirements of this section only if the Attorneys General or Insurance Commissioners of (A) the State in which the guarantor is incorporated, and (B) each State in which a facility covered by the guarantee is located have submitted a written statement to the Department that a guarantee executed as described in this section and 264.151(h)(2) is a legally valid and enforceable obligation in that State. (11/90)

(ii) In the case of corporations incorporated outside the United States, a guarantee may be used to satisfy the requirements of this section only if (A) the non-U.S. corporation has identified a registered agent for service of process in each State in which a facility covered by the guarantee is located and in the State in which it has its principal place of business, and (B) the Attorney General or Insurance Commissioner of each State in which a facility covered by the guarantee is located and the State in which the guarantor corporation has its principal place of business, has submitted a written statement to the Department that a guarantee executed as described in this section and 264.151(h)(2) is a legally valid and enforceable obligation in that State. (11/90)

(h) Letter of credit for liability coverage. (11/90)

(1) An owner or operator may satisfy the requirements of this section 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 Department. (11/90; 12/93)

(2) The financial institution issuing the letter of 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. (11/90)

(3) The wording of the letter of credit must be identical to the wording specified in 264.151(k) of this part. (11/90)

(4) An owner or operator who uses a letter of credit to satisfy the requirements of this section must 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. (12/93)

(5) The wording of the standby trust fund must be identical to the wording specified in 264.151(n). (12/93)

(i) Surety bond for liability coverage. (11/90)

(1) An owner or operator may satisfy the requirements of this section by obtaining a surety bond that conforms to the requirements of this paragraph and submitting a copy of the bond to the Department.

(2) 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.

(3) The wording of the surety bond must be identical to the wording specified in 264.151(l) of this part.

(4) A surety bond may be used to satisfy the requirements of this section only if the Attorneys General or Insurance Commissioners of

(i) the State in which the surety is incorporated, and

(ii) each State in which a facility covered by the surety bond is located have submitted a written statement to the Department that a surety bond executed as described in this section and 264.151(l) of this part is a legally valid and enforceable obligation in that State. (12/92)

(j) Trust fund for liability coverage. (11/90)

(1) An owner or operator may satisfy the requirements of this section 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 Department.

(2) 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.

(3) 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 section. If at any time after the trust fund is created the amount of 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 section 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 section, 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. (12/92)

(4) The wording of the trust fund must be identical to the wording specified in 264.151(m).

(k) Notwithstanding any other provision of this part, an owner or operator using liability insurance to satisfy the requirements of this section may use, until October 16, 1982, a Hazardous Waste Facility Liability Endorsement or Certificate of Liability Insurance that does not certify that the insurer is licensed to transact the business of insurance, or eligible as an excess or surplus lines insurer, in one or more States. (11/90)

264.148 Incapacity of owners or operators, guarantors, or financial institutions (6/89, 12/92)

(a) An owner or operator must notify the Department by certified mail of the commencement of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming the owner or operator as debtor, within 10 days after commencement of the proceeding. A guarantor of a corporate guarantee as specified in 264.143(f) and 264.145(f) must make such a notification if he is named as debtor, as required under the terms of the corporate guarantee (264.151(h))

(b) An owner or operator who fulfills the requirements of 264.143, 264.145, or 264.147 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.

264.149 Hazardous waste contingency fund

The payment of fees required under 44-56-160, -170, and -510 et seq. and under section 262.45, and section 264.78 and 265.78 will be deposited in the Hazardous Waste Contingency Fund to ensure the availability of funds for contingencies rising from permitted hazardous waste landfills and to defray the costs of governmental response actions at uncontrolled hazardous waste sites. Of the fees collected pursuant to 44-56-170(C), (D), and (E), credited to the contingency fund pursuant to section 44-56-175, thirteen percent must be held separate and distinct within the fund in a permitted site fund for the purpose of response actions arising from the operation of the permitted land disposal facilities in this State. Of the fees collected pursuant to Section 44-56-510 and credited to the contingency fund pursuant to Section 44-56-175, twenty-six percent must be credited to the fund for permitted sites. (12/93)

264.150 [Reserved 12/93]

264.151 Wording of the instruments

(a) (1) A standby trust fund, as specified in 264.143(a) or 264.145(a) or 265.143(a) or 265.145(a), must be worded as noted in 264.151 Appendix A (1) except that instructions in brackets are to be replaced with the relevant information and the brackets deleted. (11/90, 5/93)

(2) Certification of acknowledgement which must accompany the trust agreement for a trust fund as specified in 264.143(a) and 264.145(a) or 265.143(a). This document must be worded as noted in 264.151 Appendix A(2) except that instructions in brackets are to be replaced with the relevant information and the brackets deleted. (11/90; 12/93)

(b) A surety bond guaranteeing payment into a trust fund, as specified in 264.143(b) or 264.145(b) or 265.143(b) or 265.145(b) must be worded as noted in 264.151 Appendix B follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted. (11/90; 12/93)

(c) A surety bond guaranteeing performance of closure and/or postclosure care, as specified in 264.143(c) or 264.145(c), must be worded as noted in 264.151 Appendix C, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted. (11/90; 12/93)

(d) A letter of credit, as specified in 264.143(d) or 264.145(d) or 265.143(c) or 265.145(c) must be worded as noted in 264.151 Appendix D, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted. (11/90; 12/93)

(e) A certificate of insurance, as specified in 264.143(e) or 264.145(e) or 265.143(d) or 265.145(d) must be worded as noted in 264.151 Appendix E, except that instructions in brackets are to be replaced

with the relevant information and the brackets deleted. (11/90; 12/93)

(f) A letter from the chief financial officer, as specified in 264.143(f) or 264.145(f) or 265.143(e) or 265.145(e) must be worded as noted in 264.151 Appendix F, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted. (11/90; 12/93)

(g) A letter from the chief financial officer, as specified in 264.147(f) or 265.147(f), must be worded as noted in 264.151 Appendix G, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted. (12/93)

(h) (11/90)

(1) A corporate guarantee, as specified in 264.143(f) or 264.145(f) or 265.143(e) or 265.145(e) must be worded as indicated in 264.151 Appendix H 1, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted.

(2) A guarantee, as specified in 264.147(g) or 265.147(g) must be worded as noted in 264.151 Appendix H 2, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted.

(i) A hazardous waste facility liability endorsement as required in 264.147 or 265.147 must be worded as noted in 264.151 Appendix I, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted. (11/90)

(j) A certificate of liability insurance as required in 264.147 or 265.147 must be worded as noted in 264.151 Appendix J, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted. (11/90)

(k) A letter of credit, as specified in 264.147(i) or 265.147(i), must be worded as noted in 264.151 Appendix K, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted. (11/90)

(l) A surety bond, as specified in 264.147(h) or 265.147(h), must be worded as noted in 264.151 Appendix L, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted. (12/93)

(m) (1) A trust agreement, as specified in 264.147(j) or 265.147(j), must be worded as noted in 264.151 Appendix M(1), except that instructions in brackets are to be replaced with the relevant information and the brackets deleted. (12/93)

(2) 264.151 Appendix M(2) contains an example of the certification of acknowledgement which must accompany the trust agreement for a trust fund as specified in 264.147(j) or 265.147(j). (12/93)

(n) (1) A standby trust agreement, as specified in 264.147(h) or 265.147(h), must be worded as noted in 264.151 Appendix N(1), except that instructions in brackets are to be replaced with the relevant information and the brackets deleted. (12/93)

(2) 264.151 Appendix N (2) contains an example of the certification of acknowledgement which must accompany the trust agreement for a standby trust fund as specified in section 264.147(h) or 265.147(h). (12/93)

264.151 Appendix A (1)

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
BUREAU OF LAND AND WASTE MANAGEMENT
(12/93; 5/96; 8/00)

TRUST AGREEMENT, the "Agreement," entered into as of _____ [date] by and between _____ [name of the owner or operator], a _____ [name of State], _____ [insert "corporation," "partnership," "association," or "proprietorship"], the "Grantor," and _____ [name of corporate trustee], [insert "incorporated in the State of _____" or "a national bank"], the "Trustee."

WHEREAS, the South Carolina Department of Health and Environmental Control, hereafter referred to as the "Department", an agency of the state of South Carolina, has established certain regulations applicable to the Grantor, requiring that an owner or operator of a hazardous waste management facility shall provide assurance that funds will be available when needed for closure and/or post-closure care of the facility,

WHEREAS, the Grantor has elected to establish a trust to provide all or part of such financial assurance for the facilities identified herein,

WHEREAS, the Grantor, acting through its duly authorized officers, has selected the Trustee to be the trustee under this agreement, and the Trustee is willing to act as trustee,

NOW, THEREFORE, the Grantor and the Trustee agree as follows:

Section 1. Definitions. As used in this Agreement:

(a) The term "Grantor" means the owner or operator who enters into this Agreement and any successors or assigns of the Grantor.

(b) The term "Trustee" means the Trustee who enters into this Agreement and any successor Trustee.

Section 2. Identification of Facilities and Cost Estimates. This Agreement pertains to the facilities and cost estimates identified on attached Schedule A [on Schedule A, for each facility list the EPA Identification Number, name, address, and the current closure and/or post-closure cost estimates, or portions thereof, for which financial assurance is demonstrated by this Agreement].

Section 3. Establishment of Fund. The Grantor and the Trustee hereby establish a trust fund, the "Fund," for the benefit of the Department. The Grantor and the Trustee intend that no third party have access to the Fund except as herein provided. The Fund is established initially as consisting of the property, which is acceptable to the Trustee, described in Schedule B attached hereto. Such property and any other property subsequently transferred to the Trustee is referred to as the Fund, together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agreement. The Fund shall be held by the Trustee, IN TRUST, as hereinafter provided. The Trustee shall not be responsible nor shall it undertake any responsibility for the amount or adequacy of, nor any duty to collect from the Grantor, any payments necessary to discharge any liabilities of the Grantor established by the Department.

Section 4. Payment for Closure and Post-Closure Care. The Trustee shall make payments from the Fund as the Department shall direct, in writing, to provide for the payment of the costs of closure and/or post-closure care of the facilities covered by this Agreement. The Trustee shall reimburse the Grantor or other persons as specified by the Department from the Fund for closure and post-closure expenditures in such amounts as the Department shall direct in writing. In addition, the Trustee shall refund to the Grantor such amounts as the Department

specifies in writing. Upon refund, such funds shall no longer constitute part of the Fund as defined herein.

Section 5. Payments Comprising the Fund. Payments made to the Trustee for the Fund shall consist of cash or securities acceptable to the Trustee.

Section 6. Trustee Management. The Trustee shall invest and reinvest the principal and income of the Fund and keep the Fund invested as a single fund, without distinction between principal and income, in accordance with general investment policies and guidelines which the Grantor may communicate in writing to the Trustee from time to time, subject, however, to the provisions of this section. In investing, reinvesting, exchanging, selling, and managing the Fund, the Trustee shall discharge his duties with respect to the trust fund solely in the interest of the beneficiary and with the care, skill, prudence, and diligence under the circumstances then prevailing which persons of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims; except that:

(i) Securities or other obligations of the Grantor, or any other owner or operator of the facilities, or any of their affiliates as defined in the Investment Company Act of 1940, as amended, 15 U.S.C. 80a-2.(a), shall not be acquired or held, unless they are securities or other obligations of the Federal or a State government;

(ii) The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the Federal or State government; and

(iii) The Trustee is authorized to hold cash awaiting investment or distribution uninvested for a reasonable time and without liability for the payment of interest thereon.

Section 7.Commingling and Investment. The Trustee is expressly authorized in its discretion:

(a) To transfer from time to time any or all of the assets of the Fund to any common, commingled, or collective trust fund created by the Trustee in which the Fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940, 15 U.S.C. 80a-1 et seq., including one which may be created, managed, underwritten, or to which investment advice is rendered or the shares of which are sold by the Trustee. The Trustee may vote such shares in its discretion.

Section 8. Express Powers of Trustee. Without in any way limiting the powers and discretions conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale. No person dealing with the Trustee shall be bound to see to the application of the purchase money or to inquire into the validity or expediency of any such sale or other disposition;

(b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the Fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, or to deposit or arrange for the deposit of such securities in a qualified central depository even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee of such depository with other securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the United States Government, or any agency or instrumentality thereof, with a Federal Reserve bank, but the books and records of the Trustee shall at all times show that all such securities are part of the Fund;

(d) To deposit any cash in the Fund in interest-bearing accounts maintained or savings certificates issued by the Trustee, in its separate corporate capacity, or in any other banking institution affiliated with the Trustee, to the extent insured by an agency of the Federal or State government; and

(e) To compromise or otherwise adjust all claims in favor of or against the Fund.

Section 9. Taxes and Expenses. All taxes of any kind that may be assessed or levied against or in respect of the Fund and all brokerage commissions incurred by the Fund shall be paid from the Fund. All other expenses incurred by the Trustee in connection with the administration of this Trust, including fees for legal services rendered to the Trustee, the compensation of the Trustee to the extent not paid directly by the Grantor, and all other proper charges and disbursements of the Trustee shall be paid from the Fund.

Section 10. Annual Valuation. The Trustee shall annually, at least 30 days prior to the anniversary date of establishment of the Fund, furnish to the Grantor and to the Department a statement confirming the value of the Trust. Any securities in the Fund shall be valued at market value as of no more than 60 days prior to the anniversary date of establishment of the Fund. The failure of the Grantor to object in writing to the Trustee within 90 days after the statement has been furnished to the Grantor and the Department shall constitute a conclusively binding assent by the Grantor, barring the Grantor from asserting any claim or liability against the Trustee with respect to matters disclosed in the statement.

Section 11. Advice of Counsel. The Trustee may from time to time consult with counsel, who may be counsel to the Grantor, with respect to any question arising as to the construction of this Agreement or any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

Section 12. Trustee Compensation. The Trustee shall be entitled to reasonable compensation for its services as agreed upon in writing from time to time with the Grantor.

Section 13. Successor Trustee. The Trustee may resign or the Grantor may replace the Trustee, but such resignation or replacement shall not be effective until the Grantor has appointed a successor trustee and this successor accepts the appointment. The successor trustee shall have the same powers and duties as those conferred upon the Trustee hereunder. Upon the successor trustee's acceptance of the appointment, the Trustee shall assign, transfer, and pay over to the successor trustee the funds and properties then constituting the Fund. If for any reason the Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor trustee or for instructions. The successor trustee shall specify the date on which it assumes administration of the trust in a writing sent to the Grantor, the Department, and the present Trustee by certified mail 10 days before such change becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by this Section shall be paid as provided in Section 9.

Section 14. Instructions to the Trustee. All orders, requests, and instructions by the Grantor to the Trustee shall be in writing, signed by such persons as are designated in the attached Exhibit A or such other designees as the Grantor may designate by amendment to Exhibit A. The Trustee shall be fully protected in acting without inquiry in accordance with the Grantor's orders, requests, and instructions. All orders, requests, and instructions by the Department to the Trustee shall be in writing, signed by the Department, and the Trustee shall act and shall be fully protected in acting in accordance with such orders, requests, and instructions. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the Grantor or the Department hereunder has occurred. The Trustee shall have no duty to act in the absence of such orders, requests, and instructions from the Grantor and/or the Department, except as provided for herein.

Section 15. Notice of Nonpayment. The Trustee shall notify the Grantor and the Department, by certified mail within 10 days following the expiration of the 30-day period after the anniversary of the establishment of the Trust, if no payment is received from the Grantor during that period. After the pay-in period is completed, the Trustee shall not be required to send a notice of nonpayment.

Section 16. Amendment of Agreement. This Agreement may be amended by an instrument in writing executed by the Grantor, the Trustee, and the Department, or by the Trustee and the Department if the Grantor ceases to exist.

Section 17. Irrevocability and Termination. Subject to the right of the parties to amend this Agreement as provided in Section 16, this Trust shall be irrevocable and shall continue until terminated at the written agreement of the Grantor, the Trustee, and the Department, or by the Trustee and the Department, if the Grantor ceases to exist. Upon

termination of the Trust, all remaining trust property, less final trust administration expenses, shall be delivered to the Grantor.

Section 18. Immunity and Indemnification. The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this Trust, or in carrying out any directions by the Grantor or the Department issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Grantor or from the Trust Fund, or both, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the Grantor fails to provide such defense.

Section 19. Choice of Law. This Agreement shall be administered, construed, and enforced according to the laws of the State of South Carolina.

Section 20. Interpretation. As used in this Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each Section of this Agreement shall not affect the interpretation or the legal efficacy of this Agreement.

IN WITNESS WHEREOF the parties have caused this Agreement to be executed by their respective officers duly authorized and their corporate seals to be hereunto affixed and attested as of the date first above written: The parties below certify that the wording of this Agreement is identical to the wording specified in R.61-79.264.151 (a)(1) as such regulations were constituted on the date first above written.

_____
[Signature of Grantor]
[Title]
Attest:_____
[Title]
[Seal]

_____
[Signature of Trustee]
Attest:_____
[Title]
[Seal]

264.151 Appendix A (2)

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
BUREAU OF LAND AND WASTE MANAGEMENT
(12/93; 5/96; 8/00)

Certificate of Acknowledgement (must accompany the trust agreement):

State of South Carolina

County of _____
On this _____ [date], before me personally came _____ [owner or operator] to me known, who, being by me duly sworn, did depose and say that she/he resides at _____ [address], that she/he is _____ [title] of _____ [corporation], the corporation described in and which executed the above instrument; that she/he knows the seal of said corporation; that the seal affixed to such instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that she/he signed her/his name thereto by like order.

(Signature of Notary Public) _____

264.151 Appendix B

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
BUREAU OF LAND AND WASTE MANAGEMENT
(12/93; 5/96; 8/00)

Surety Bond: Guaranteeing Payment Into a Trust Fund for Closure and/or Postclosure Care

FINANCIAL GUARANTEE BOND

Date bond executed: _____
Effective date: _____
Principal: _____ [Legal name and business address of owner or operator]
Type of organization: _____ [insert "individual", "joint venture", "partnership", or "corporation"]
State of incorporation: _____
Surety(ies): _____ [name(s) and business address(es)] _____
EPA Identification Number, name, address and closure and/or postclosure amount(s) for each facility guaranteed by this bond [indicate closure and postclosure amounts separately]:

_____
Total penal sum of bond: $_____
Surety's bond number: _____

Know All Persons By These Presents, That we, the Principal and Surety(ies) hereto are firmly bound to the South Carolina Department of Health and Environmental Control (hereinafter called the "Department"), in the above penal sum for the payment of which we bind ourselves, our heirs, executors, administrators, successors, and assigns jointly and severally; provided that, where the Surety(ies) are corporations acting as co-sureties, we, the Sureties, bind ourselves in such sum "jointly and severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety, but if no limit of liability is indicated, the limit of liability shall be the full amount of the penal sum.

Whereas said Principal is required, under South Carolina Hazardous Waste Management Regulation to have a permit or interim status in order to own or operate each hazardous waste management facility identified above, and

Whereas said Principal is required to provide financial assurance for closure, or closure and postclosure care, as a condition of the permit or interim status, and

Whereas said Principal shall establish a standby trust fund as is required when a surety bond is used to provide such financial assurance;

Now, Therefore, the conditions of the obligation are such that if the Principal shall faithfully, before the beginning of final closure of each facility identified above, fund the standby trust fund in the amount(s) identified above for the facility,

Or, if the Principal shall fund the standby trust fund in such amount(s) within 15 days after a final order to begin closure is issued by the Department or an EPA Regional Administrator or a U.S. district court or other court of competent jurisdiction,

Or, if the Principal shall provide alternate financial assurance, as specified in Subpart H of R.61-79.264 or R.61-79.265, as applicable, and obtain the Department's written approval of such assurance, within 90 days after the date notice of cancellation is received by both the Principal and the Department from the Surety(ies), then this obligation shall be null and void; otherwise it is to remain in full force and effect.

The Surety(ies) shall become liable on this bond obligation only when the Principal has failed to fulfill the conditions described above. Upon notification by the Department that the Principal has failed to perform as guaranteed by this bond, the Surety(ies) shall place funds in the amount guaranteed for the facility(ies) into the standby trust fund as directed by the Department.

Upon notification by the Department that the Principal has been found in violation of the postclosure requirements of R.61-79.264 for a facility for which this bond guarantees performance of postclosure care, the Surety(ies) shall either perform postclosure care in accordance with the postclosure plan and other permit requirements or place the postclosure amount guaranteed for the facility into the standby trust fund as directed by the Department.

Upon notification by the Department that the Principal has failed to provide alternate financial assurance as specified in Subpart H of R.61-79.264 and obtain written approval of such assurance from the Department during the 90 days following receipt by both the Principal and the Department of a notice of cancellation of the bond, the Surety(ies) shall place funds in the amount guaranteed for the facility(ies) into the standby trust fund as directed by the Department.

The surety(ies) hereby waive(s) notification of amendments to closure plans, permits, applicable laws, statutes, rules, and regulations and agrees that no such amendment shall in any way alleviate its (their) obligation on this bond.

The liability of the Surety(ies) shall not be discharged by any payment or succession of payments hereunder, unless and until such payment or payments shall amount in the aggregate to the penal sum of the bond, but in no event shall the obligation of the Surety(ies) hereunder exceed the amount of said penal sum.

The Surety(ies) may cancel the bond by sending notice of cancellation by certified mail to the Principal and to the Department, provided, however, that cancellation shall not occur during the 120 days beginning on the date of receipt of the notice of cancellation by both the Principal and the Department, as evidenced by the return receipts.

The Principal may terminate this bond by sending written notice to the Surety(ies), provided, however, that no such notice shall become effective until the Surety(ies) receive(s) written authorization for termination of the bond by the Department.

[The following paragraph is an optional rider that may be included but is not required.]

Principal and Surety(ies) hereby agree to adjust the penal sum of the bond yearly so that it guarantees a new closure and/or postclosure amount, provided that the penal sum does not increase by more than 20 percent in any one year, and no decrease in the penal sum takes place without the written permission of the Department.

In Witness Whereof, the Principal and Surety(ies) have executed this Financial Guarantee Bond and have affixed their seals on the date set forth above.

The persons whose signatures appear below hereby certify that they are authorized to execute this surety bond on behalf of the Principal and Surety(ies) and that the wording of this surety bond is identical to the wording specified in R.61-79.264 Section 264.151(b) as such regulations were constituted on the date this bond was executed.

Principal
[Signature(s)] _____
[Name(s)] _____
[Title(s)] _____
[Corporate seal] _____

Corporate Surety(ies)
[Name and address] _____
[State of incorporation:] _____
Liability limit: $_____
[Signature(s)] _____
[Name(s) and title(s)] _____
[Corporate seal] _____

[For every co-surety, provide signature(s), corporate seal, and other information in the same manner as for Surety above.]

Bond premium: $_____

264.151 Appendix C

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
BUREAU OF LAND AND WASTE MANAGEMENT
(12/93; 5/96; 8/00)

Surety Bond: Guaranteeing Performance of Closure and/or Postclosure Care

PERFORMANCE BOND

Date bond executed: _____
Effective date: _____
Principal: _____ [Legal name and business address of owner or operator]
Type of organization: _____ [insert "individual", "joint venture", "partnership", or "corporation"]
State of incorporation: _____
Surety(ies): _____
_____ [name(s) and business address(es)]
EPA Identification Number, name, address, and closure and/or postclosure amount(s) for each facility guaranteed by this bond [indicate closure and postclosure amounts separately]:
_____
Total penal sum of bond: $_____
Surety's bond number: _____

Know All Persons By These Presents, That we, the Principal and Surety(ies) hereto are firmly bound to the South Carolina Department of Health and Environmental Control hereinafter called the "Department" in the above penal sum for the payment of which we bind ourselves, our heirs, executors, administrators, successors, and assigns jointly and severally; provided that, where the Surety(ies) are corporations acting as co-sureties, we, the Sureties, bind ourselves in such sum "jointly and severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety, but if no limit of liability is indicated, the limit of liability shall be the full amount of the penal sum.

Whereas said Principal is required, under the S.C. Hazardous Waste Management Regulations and the Resource Conservation and Recovery Act as amended (RCRA) to have a permit in order to own or operate each hazardous waste management facility identified above, and

Whereas said Principal is required to provide financial assurance for closure, or closure and postclosure care, as a condition of the permit, and

Whereas said Principal shall establish a standby trust fund as is required when a surety bond is used to provide such financial assurance;

Now, Therefore, the conditions of this obligation are such that if the Principal shall faithfully perform closure, whenever required to do so, of each facility for which this bond guarantees closure, in accordance with the closure plan and other requirements of the permit as such plan and permit may be amended, pursuant to all applicable laws, statutes, rules, and regulations, as such laws, statutes, rules, and regulations may be amended,

And, if the Principal shall faithfully perform postclosure care of each facility for which this bond guarantees postclosure care, in accordance with the postclosure plan and other requirements of the permit, as such plan and permit may be amended, pursuant to all applicable laws, statutes, rules, and regulations, as such laws, statutes, rules, and regulations may be amended.

Or, if the Principal shall provide alternate financial assurance as specified in Subpart H of R.61-79.264 and obtain the Department's written approval of such assurance, within 90 days after the date notice of cancellation is received by both the Principal and the Department from the Surety(ies), then this obligation shall be null and void, otherwise it is to remain in full force and effect.

The Surety(ies) shall become liable on this bond obligation only when the Principal has failed to fulfill the conditions described above.

Upon notification by the Department that the Principal has been found in violation of the closure requirements of R.61-79 part 264, for a facility for which this bond guarantees performance of closure, the

Surety(ies) shall either perform closure in accordance with the closure plan and other permit requirements or place the closure amount guaranteed for the facility into the standby trust fund as directed by the Department.

Upon notification by the Department that the Principal has been found in violation of the postclosure requirements of R.61-79 part 264 for a facility for which this bond guarantees performance of postclosure care, the Surety(ies) shall either perform postclosure care in accordance with the postclosure plan and other permit requirements or place the postclosure amount guaranteed for the facility into the standby trust fund as directed by the Department.

Upon notification by the Department that the Principal has failed to provide alternate financial assurance as specified in Subpart H of R.61-79 part 264, and obtain written approval of such assurance from the Department during the 90 days following receipt by both the Principal and the Department of a notice of cancellation of the bond, the Surety(ies) shall place funds in the amount guaranteed for the facility(ies) into the standby trust fund as directed by the Department.

The Surety(ies) hereby waive(s) notification of amendments to closure plans, permits, applicable laws, statutes, rules, and regulations and agrees that no such amendment shall in any way alleviate its (their) obligation on this bond.

The liability of the Surety(ies) shall not be discharged by any payment or succession of payments hereunder, unless and until such payment or payments shall amount in the aggregate to the penal sum of the bond, but in no event shall the obligation of the Surety(ies) hereunder exceed the amount of said penal sum.

The Surety(ies) may cancel the bond by sending notice of cancellation by certified mail to the owner or operator and to the Department provided, however, that cancellation shall not occur during the 120 days beginning on the date of receipt of the notice of cancellation by both the Principal and the Department, as evidenced by the return receipts.

The principal may terminate this bond by sending written notice to the Surety(ies), provided, however, that no such notice shall become effective until the Surety(ies) receive(s) written authorization for termination of the bond by the Department.

[The following paragraph is an optional rider that may be included but is not required.]

Principal and Surety(ies) hereby agree to adjust the penal sum of the bond yearly so that it guarantees a new closure and/or postclosure amount, provided that the penal sum does not increase by more than 20 percent in any one year, and no decrease in the penal sum takes place without the written permission of the Department.

In Witness Whereof, The Principal and Surety(ies) have executed this Performance Bond and have affixed their seals on the date set forth above.

The persons whose signatures appear below hereby certify that they are authorized to execute this surety bond on behalf of the Principal and Surety(ies) and that the wording of this surety bond is identical to the wording specified in R.61-79.264.151(c) as such regulation was constituted on the date this bond was executed.

Principal

[Signatures)] _____
[Name(s)] _____
[Title(s)] _____
[Corporate Seal] _____

Corporate Surety(ies)

[Name and address] _____
State of Incorporation: _____
Liability Limit: _____

[Signature(s)] _____
[Name(s) and title(s)] _____
[Corporate seal:] _____

[For every co-surety, provide signature(s), corporate seal, and other information in the same manner as for Surety above.]
Bond premium: $_____

264.151 Appendix D

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
BUREAU OF LAND AND WASTE MANAGEMENT
(12/93; 12/94; 5/96; 8/00)

Letter of Credit Covering Cost of Closure and/or Postclosure Care

Irrevocable Standby Letter of Credit

Chief
Bureau of Land and Waste Management
2600 Bull Street
Columbia, South Carolina 29201

Dear Sir or Madam: We hereby establish our Irrevocable Standby Letter of Credit No. _____ in your favor, at the request and for the account of _____ [owner's or operator's name and address] up to the aggregate amount of [in words] _____ U. S. dollars $_____, available upon presentation of:

(1) your sight draft, bearing reference to this letter of credit No. _____, and
(2) your signed statement reading as follows: "I certify that the amount of the draft is payable pursuant to regulations issued under authority of the South Carolina Department of Health and Environmental Control."

This letter of credit is effective as of _____ [date] and shall expire on _____ [date at least 1 year later] but such expiration date shall be automatically extended for a period of _____ [at least 1 year] on _____ [date] and on each successive expiration date, unless, at least 120 days before the current expiration date, we notify both you and _____ [owner's or operator's name] by certified mail that we have decided not to extend this letter of credit beyond the current expiration date. In the event you are so notified, any unused portion of the credit shall be available upon presentation of your sight draft for 120 days after the date of receipt by both you and _____ [owner's or operator's name], as shown on the signed return receipts.

Whenever this letter of credit is drawn on under and in compliance with the terms of this credit, we shall duly honor such draft upon presentation to us, and we shall deposit the amount of the draft directly into the standby trust fund of _____ [owner's or operator's name] in accordance with your instructions.

We certify that the wording of this letter of credit is identical to the wording specified in R.61-79.264.151(d) as such regulations were constituted on the date shown immediately below.

[Signature(s) and title(s) of official(s) of issuing institution]
_____
[Date] _____

This credit is subject to [insert "the most recent edition of the Uniform Customs and Practice for Documentary Credits, published and copyrighted by the International Chamber of Commerce," or "the Uniform Commercial Code"].

264.151 Appendix E

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
BUREAU OF LAND AND WASTE MANAGEMENT
(12/93, 5/96, 8/00, 6/04)

Insurance Covering Cost of Closure and/or Postclosure Care

CERTIFICATE OF INSURANCE FOR CLOSURE OR POSTCLOSURE CARE

Name and Address of Insurer (herein called the "Insurer"):
_____
Name and Address of Insured (herein called the "Insured"):
_____
Facilities Covered:
[List for each facility:
EPA ID# _____
NAME _____
ADDRESS _____
AMOUNT OF INSURANCE FOR CLOSURE AND/OR THE AMOUNT FOR POSTCLOSURE CARE _____
(These amounts for all facilities covered must total the face amount below.)]
Face Amount: _____
Policy Number: _____
Effective Date: _____

The Insurer hereby certifies that it has issued to the Insured the policy of insurance identified above to provide financial assurance for _____ [insert "closure" or "closure and postclosure care" or "postclosure care"] for the facilities identified above. The Insurer further warrants that such policy conforms in all respects with the requirements of the Department including R.61-79.264.143(e), 264.145(e), 265.143(d), and 265.145(d), as applicable and as such regulations were constituted on the date shown immediately below. It is agreed that any provision of the policy inconsistent with such regulations is hereby amended to eliminate such inconsistency.

The insurer agrees to furnish to the Department a duplicate original of the policy listed above, including all endorsements thereon. In addition, the Insurer shall provide a copy of the insurance policy, application, and any agreements which may affect the policy.

I hereby certify that the wording of this certificate is identical to the wording specified in R.61-79.264.151(e) as such regulations were constituted on the date shown immediately below.

[Authorized signature for Insurer] _____
[Name of person signing] _____
[Title of person signing] _____
Signature of witness or notary: _____

[Date] _____

264.151 Appendix F

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
BUREAU OF LAND AND WASTE MANAGEMENT
(12/93; 5/96; 8/00)

Financial Test for Closure and/or Postclosure Care

LETTER FROM CHIEF FINANCIAL OFFICER

Chief
Bureau of Land and Waste Management
2600 Bull Street
Columbia, South Carolina 29201

Dear Sir: I am the chief financial officer of _____ [name and address of firm]. This letter is in support of this firm's use of the financial test to demonstrate financial assurance for closure and/or post-closure costs, as specified in Subpart H of R.61-79 Parts 264 and 265 by the South Carolina Department of Health and Environmental Control. (6/89)

[Fill out the following four paragraphs regarding facilities and associated cost estimates. If your firm has no facilities that belong in a particular paragraph, write "None" in the space indicated. For each facility, include its EPA Identification Number, name, address, and current closure and/or postclosure cost estimates. Identify each cost estimate as to whether it is for closure or postclosure care].

1. This firm is the owner or operator of the following facilities which are located in the state of South Carolina and for which financial assurance for closure or postclosure care is demonstrated through the financial test specified in Subpart H of R.61-79.264 or R.61-79.265. The current closure and/or postclosure cost estimates covered by the test are shown for each facility: _____ .(6/89)

2. This firm guarantees, through the guarantee specified in Subpart H of R.61-79.264 or R.61-79.265, the closure or postclosure care of the following facilities which are located in the state of South Carolina and which are owned or operated by the guaranteed party. The current cost estimates for the closure or postclosure care so guaranteed are shown for each facility: _____ (6/89) The firm identified above is _____ [insert one or more: (1) The direct or higher-tier parent corporation of the owner or operator; (2) owned by the same parent corporation as the parent corporation of the owner or operator, and receiving the following value in consideration of this guarantee _____; or (3) engaged in the following substantial business relationship with the owner or operator _____, and receiving the following value in consideration of this guarantee _____]. [Attach a written description of the business relationship or a copy of the contract establishing such relationship to this letter].

3. In states outside of South Carolina, where the United States Environmental Protection Agency (EPA) or some designated authority is administering the financial requirements of subpart H of part 264 or 265, this firm, as owner or operator or guarantor, is demonstrating financial assurance for the closure or postclosure care of the following facilities through the use of a test equivalent or substantially equivalent to the financial test specified in R.61-79 Subpart H Parts 264 and 265. The current closure and/or postclosure cost estimates covered by such a test are shown for each facility: _____. (6/89)

4. This firm is the owner or operator of the following hazardous waste management facilities for which financial assurance for closure or, if a disposal facility, postclosure care, is not demonstrated to the Department through the financial test or any other financial assurance mechanism specified in Subpart H of R.61-79.264 and R.61-79.265 or equivalent or substantially equivalent State mechanisms. The current closure and/or postclosure cost estimates not covered by such financial assurance are shown for each facility: _____.

This firm _____ [insert "is required" or "is not required"] to file a Form 10K with the Securities and Exchange Commission (SEC) for the latest fiscal year.

The fiscal year of this firm ends on _____ [month/day]. The figures for the following items marked with an asterisk are derived from this firm's independently audited, year-end financial statements for the latest completed fiscal year, ended _____ [date].

[Fill in Alternative I if the criteria of paragraph (f)(1)(i) of 264.143 or 264.145, or of paragraph (e)(1)(i) of 265.143 or 265.145 are used. Fill in Alternative II if the criteria of paragraph (f)(1)(ii) of 264.143 or 264.145, or of paragraph (e)(1)(ii) of 265.143 or 265.145 are used.]:

ALTERNATIVE I

	1. Sum of current closure and postclosure cost estimates [total of all cost estimates shown in the four paragraphs above]....	$ _____
*	2. Total liabilities [If any portion of the closure or postclosure cost estimates is included in total liabilities, you may deduct the amount of that portion from this line and add that amount to lines 3 and 4]	$

*	3. Tangible net worth	$
*	4. Net worth	$
*	5. Current assets	$
*	6. Current liabilities	$
	7. Net working capital [line 5 minus line 6]	$
*	8. The sum of net income plus depreciation, depletion, and amortization	$
*	9. Total assets in U.S. (required only if less than 90% of firm's assets are located in the U.S.)	$

	Yes	No
10. Is line 3 at least $10 million?		
11. Is line 3 at least 6 times line 1?		
12. Is line 7 at least 6 times line 1?		
* 13. Are at least 90% of firm's assets located in the U.S.? If not, complete line 14.		
14. Is line 9 at least 6 times line 1?		
15. Is line 2 divided by line 4 less than 2.0?		
16. Is line 8 divided by line 2 greater than 0.1?		
17. Is line 5 divided by line 6 greater than 1.5?		

ALTERNATIVE II

1. Sum of current closure and postclosure cost estimates [total of all cost estimates shown in the four paragraphs above] $
2. Current bond rating of most recent issuance of this firm and name of rating service _____
3. Date of issuance of bond _____
4. Date of maturity of bond _____

*5. Tangible net worth [if any portion of the closure and postclosure cost estimates is included in "total liabilities" on your financial statements, you may add the amount of that portion to this line] $

6. Total assets in U.S. (required only if less than 90% of assets are located in the U.S.) $_____

	Yes	No
7. Is line 5 at least $10 million?		
8. Is line 5 at least 6 times line 1?		
*9. Are at least 90% of firm's assets located in the U.S.? If not, complete line 10.		
10. Is line 6 at least 6 times line 1?		

I hereby certify that the wording of this letter is identical to the wording specified in R.61-79.264.151(f) as such regulations were constituted on the date shown immediately below. (6/89)

_____Signature)
_____(Name)
_____(Title)
_____(Date)

264.151 Appendix G

Financial Test for Liability Coverage -
Letter from Chief Financial Officer
(12/93; 5/96; 8/00)

Chief
Bureau of Land and Waste Management
2600 Bull Street
Columbia, SC 29201

Dear Sir: I am the chief financial officer of [firm's name and address]. This letter is in support of the use of the financial test to demonstrate financial responsibility for liability coverage [insert "and closure and/or postclosure care" if applicable] as specified in Subpart H of Parts 264 and 265.

[Fill out the following paragraphs regarding facilities and liability coverage. If there are no facilities that belong in a particular paragraph, write "None" in the space indicated. For each facility, include its EPA Identification Number, name, and address].

The firm identified above is the owner or operator of the following facilities for which liability coverage for [insert "sudden" or "nonsudden" or "both sudden and nonsudden"] accidental occurrences is being demonstrated through the financial test specified in Subpart H of Parts 264 and 265: _____.

The firm identified above guarantees, through the guarantee specified in Subpart H of Parts 264 and 265, liability coverage for [insert "sudden" or "nonsudden" or "both sudden and nonsudden"] accidental occurrences at the following facilities owned or operated by the following: _____. The firm identified above is [insert one or more: (1) The direct or higher-tier parent corporation of the owner or operator; (2) owned by the same parent corporation as the parent corporation of the owner or operator, and receiving the following value in consideration of this guarantee _____; or (3) engaged in the following substantial business relationship with the owner or operator _____, and receiving the following value in consideration of this guarantee _____.] [Attach a written description of the business relationship or a copy of the contract establishing such relationship to this letter.]

[If you are using the financial test to demonstrate coverage of both liability and closure and postclosure care, fill in the following four paragraphs regarding facilities and associated closure and postclosure cost estimates. If there are no facilities that belong in a particular paragraph, write "None" in the space indicated. For each facility, include its EPA identification number, name, address, and current closure and/or postclosure cost estimates. Identify each cost estimate as to whether it is for closure or postclosure care.]

1. The firm identified above owns or operates the following facilities for which financial assurance for closure or postclosure care or liability coverage is demonstrated through the financial test specified in Subpart H of Parts 264 and 265. The current closure and/or postclosure cost estimate covered by the test are shown for each facility: _____.

2. The firm identified above guarantees, through the guarantee specified in Subpart H of Parts 264 and 265, the closure and postclosure care or liability coverage of the following facilities owned or operated by the guaranteed party. The current cost estimates for closure or postclosure care so guaranteed are shown for each facility: _____.

3. In states outside of South Carolina, where the United States Environmental Protection Agency or some designated authority is not administering the financial responsibility requirements of subpart H of parts 264 and 265, this firm is demonstrating financial assurance for the closure or postclosure care of the following facilities through the use of a test equivalent or substantially equivalent to the financial test specified in R.61-79 Subpart H Parts 264 and 265. The current closure or postclosure estimates covered by such a test or guarantee are shown for each facility: _____. (6/89)

4. The firm identified above owns or operates the following hazardous waste management facilities for which financial assurance for closure or, if a disposal facility, postclosure care, is not demonstrated to the Department through the financial test or any other financial assurance mechanisms specified in Subpart H of Parts 264 and 265 or equivalent or substantially equivalent State mechanisms. The current closure and/or postclosure cost estimates not covered by such financial assurance are shown for each facility: _____.

This firm [insert "is required" or "is not required"] to file a Form 10K with the Securities and Exchange Commission (SEC) for the latest fiscal year.

The fiscal year of this firm ends on [month, day]. The figures for the following items marked with an asterisk are derived from this firm's independently audited, year-end financial statements for the latest completed fiscal year, ended [date].

[Fill in part A if you are using the financial test to demonstrate coverage only for the liability requirements.]

Part A. Liability Coverage for Accidental Occurrences

[Fill in Alternative I if the criteria of paragraph (f)(1)(i) of Section 264.147 or Section 265.147 are used. Fill in Alternative II if the criteria of paragraph (f)(1)(ii) of Section 264.147 or Section 265.147 are used.]

Alternative I

1. Amount of annual aggregate liability coverage to be demonstrated. $ _____
* 2. Current assets. $ _____
* 3. Current liabilities. $ _____
4. Net working capital (line 2 minus line 3). $ _____
* 5. Tangible net worth. $ _____
* 6. If less than 90% of assets are located in the U.S., given total U.S. assets. $ _____

	Yes	No
7. Is line 5 at least $10 million?		
8. Is line 4 at least 6 times line 1?		
9. Is line 5 at least 6 times line 1?		
* 10. Are at least 90% of assets located in the U.S.? If not, complete line 11.		
11. Is line 6 at least 6 times line 1?		

Alternative II

1. Amount of annual aggregate liability coverage to be demonstrated. $ _____
2. Current bond rating of most recent issuance and name of rating service. _____
3. Date of issuance of bond. _____
4. Date of maturity of bond. _____
* 5. Tangible net worth. $ _____
* 6. Total assets in U.S. (required only if less than 90% of assets are located in the U.S.). $ _____

	Yes	No
7 .Is line 5 at least $10 million?		
8. Is line 5 at least 6 times line 1?		
9.Are at least 90% of assets located in the U.S.? If not, complete line 10.		
10. Is line 6 at least 6 times line 1?		

[Fill in part B if you are using the financial test to demonstrate assurance of both liability coverage and closure or postclosure care.]

Part B. Closure or Postclosure Care and Liability Coverage

[Fill in Alternative I if the criteria of paragraphs (f)(1)(i) of Section 264.143 or Section 264.145 and (f)(1)(i) of Section 264.147 are used or if the criteria of paragraphs (e)(1)(i) of Section 265.143 or Section 265.145 and (f)(1)(i) of Section 265.147 are used. Fill in Alternative II if the criteria of paragraphs (f)(1)(ii) of Section 264.143 or Section 264.145 and (f)(1)(ii) of Section 264.147 are used or if the criteria of paragraphs (e)(1)(ii) of Section 265.143 or Section 265.145 and (f)(1)(ii) of Section 265.147 are used.]

Alternative I

1. Sum of current closure and postclosure cost estimates (total of all cost estimates listed above). _____
2. Amount of annual aggregate liability coverage to be demonstrated. $ _____
3. Sum of lines 1 and 2. $ _____
* 4. Total liabilities (if any portion of your closure or postclosure cost estimates is included in your total liabilities, you may deduct that portion from this line and add that amount to lines 5 and 6). $ _____
5. Tangible net worth. $ _____
* 6. Net worth. $ _____
* 7. Current assets. $ _____
* 8. Current liabilities. $ _____
9. Net working capital (line 7 minus line 8). $ _____
* 10. The sum of net income plus depreciation, depletion, and amortization. $ _____
* 11. Total assets in U.S. (required only if less than 90% of assets are located in the U.S.). $ _____

	Yes	No
12. Is line 5 at least $10 million?		
13. Is line 5 at least 6 times line 3?		
14. Is line 9 at least 6 times line 3?		
15. Are at least 90% of assets located in the U.S.? If not, complete line 16.		
16. Is line 11 at least 6 times line 3?		
17. Is line 4 divided by line 6 less than 2.0?		
18. Is line 10 divided by line 4 greater than 0.1?		
19. Is line 7 divided by line 8 greater than 1.5?		

Alternative II

1. Sum of current closure and postclosure cost estimates (total of all cost estimates listed above). $ _____
2. Amount of annual aggregate liability coverage to be demonstrated. $ _____
3. Sum of lines 1 and 2. $ _____
4. Current bond rating of most recent issuance and name of rating service. _____
5. Date of issuance of bond. _____
6. Date of maturity of bond. _____
* 7. Tangible net worth (if any portion of the closure or postclosure cost estimates is included in "total liabilities" on your financial statements you may add that portion to this line). $ _____
* 8. Total assets in U.S. (required only if less than 90% of assets are located in the U.S.). $ _____

	Yes	No
9. Is line 7 at least $10 million?		
10. Is line 7 at least 6 times line 3?		
* 11. Are at least 90% of assets located in the U.S.? If not, complete line 12.		
12. Is line 8 at least 6 times line 3?		

I hereby certify that the wording of this letter is identical to the wording specified in 264.151(g) as such regulations were constituted on the date shown immediately below.

[Signature]_____
[Name] _____
[Title] _____
[Date] _____

264.151 Appendix H (1)

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
BUREAU OF LAND AND WASTE MANAGEMENT
(12/93; 5/96; 8/00)

H - (1): Corporate Guarantee

Corporate Guarantee for Closure or Postclosure Care

Guarantee made this _____ (date) by [name of guaranteeing entity], a business corporation organized under the laws of the State of South Carolina, herein referred to as guarantor. This guarantee is made on behalf of the [owner or operator] of [business address], which is [one of the following: "our subsidiary"; "a subsidiary of [name and address of common parent corporation], of which guarantor is a subsidiary"; or "an entity with which guarantor has a substantial business relationship, as defined in R.61-79 [either 264.141(h) or 265.141(h)]" to the Department

Recitals

1. Guarantor meets or exceeds the financial test criteria and agrees to comply with the reporting requirements for guarantors as specified in R. 61-79.264 Section 264.143(f), 264.145(f), 265.143(e), and 265.145(e).

2. [Owner or operator] owns or operates the following hazardous waste management facility(ies) covered by this guarantee: [List for each facility: EPA Identification Number, name, and address. Indicate for each whether guarantee is for closure, postclosure care, or both.]

3. "Closure plans" and "postclosure plans" as used below refer to the plans maintained as required by Subpart G of R.61-79.264 and R.61-79.265 for the closure and postclosure care of facilities as identified above.

4. For value received from [owner or operator], guarantor guarantees to the Department that in the event that [owner or operator] fails to perform [insert "closure," "postclosure care" or "closure and postclosure care"] of the above facility(ies) in accordance with the closure or postclosure plans and other permit or interim status requirements whenever required to do so, the guarantor shall do so or establish a trust fund as specified in Subpart H of R.61-79.264 and R.61-79.265, as applicable, in the name of [owner or operator] in the amount of the current closure or postclosure cost estimates as specified in Subpart H of R.61-79.264 and R.61-79.265.

5. Guarantor agrees that if, at the end of any fiscal year before termination of this guarantee, the guarantor fails to meet the financial test criteria, guarantor shall send within 90 days, by certified mail, notice to the Department and to EPA Regional Administrator(s) for the Region(s) in which the facility(ies) is (are) located and to [owner or operator] that he intends to provide alternate financial assurance as specified in Subpart H of R.61-79.264 and R.61-79.265, as applicable, in the name of [owner or operator]. Within 120 days after the end of such fiscal year, the guarantor shall establish such financial assurance unless [owner or operator] has done so.

6. The guarantor agrees to notify the Department by certified mail, of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming guarantor as debtor, within 10 days after commencement of the proceeding. (6/89)

7. Guarantor agrees that within 30 days after being notified by the Department of a determination that guarantor no longer meets the financial test criteria or that he is disallowed from continuing as a guarantor of closure or postclosure care, he shall establish alternate financial assurance as specified in Subpart H of R. 61-79.264 or R. 61-79.265, as applicable, in the name of [owner or operator] unless [owner or operator] has done so.

8. Guarantor agrees to remain bound under this guarantee notwithstanding any or all of the following: amendment or modification of the closure or postclosure plan, amendment or modification of the permit, the extension or reduction of the time of performance of closure or postclosure, or any other modification or alteration of an obligation of the owner or operator pursuant to R. 61-79.264 or R. 61-79.265.

9. Guarantor agrees to remain bound under this guarantee for so long as [owner or operator] must comply with the applicable financial assurance requirements of Subpart H of R. 61-79.264 and R. 61-79.265 for the above listed facilities, except as provided in paragraph 10 of this agreement.

10. Guarantor agrees that if [owner or operator] fails to provide alternate financial assurance as specified in Subpart H of R. 61-79.264 or R. 61-79.265, as applicable, and obtain written approval of such assurance from the Department within 90 days after a notice of cancellation by the guarantor is received by the Department from guarantor, guarantor shall provide such alternate financial assurance in the name of [owner or operator].

11. Guarantor expressly waives notice of acceptance of this guarantee by the Department or by [owner or operator]. Guarantor also expressly waives notice of amendments or modifications of the closure and/or postclosure plan and of amendments or modifications of the facility permit(s).

I hereby certify that the wording of this guarantee is identical to the wording specified in R.61-79.264.151(h) as such regulations were constituted on the date first above written.

Effective date: _____
[Name of guarantor] _____
[Authorized signature for guarantor] _____
[Name of person signing] _____
[Title of person signing] _____
[Signature of witness or notary: _____

264.151 Appendix H (2)

Guarantee for Liability Coverage (12/93)

Guarantee made this _____ [date] by _____ [name of guaranteeing entity], a business corporation organized under the laws of the State of South Carolina, herein referred to as guarantor. This guarantee is made on behalf of [owner or operator] of [business address], which is one of the following: "our subsidiary;" "a subsidiary of [name and address of common parent corporation], of which guarantor is a subsidiary;" or "an entity with which guarantor has a substantial business relationship, as defined in R.61-79 [either 264.141(h) or 265.141(h)]", to any and all third parties who have sustained or may sustain bodily injury or property damage caused by [sudden and/or nonsudden] accidental occurrences arising from operation of the facility(ies) covered by this guarantee.

Recitals

1. Guarantor meets or exceeds the financial test criteria and agrees to comply with the reporting requirements for guarantors as specified in R.61-79.264.147(g) and R.61-79.265.147(g).

2. [Owner or operator] _____ owns or operates the following hazardous waste management facility(ies) covered by this guarantee: [List for each facility: EPA Identification Number, name, and address; and if guarantor is incorporated outside the United States list the name and address of the guarantor's registered agent in each State]. This corporate guarantee satisfies RCRA third-party liability requirements for [insert "sudden" or "nonsudden" or "both sudden and nonsudden"] accidental occurrences in above-named owner or operator facilities for coverage in the amount of [insert dollar amount] for each occurrence and [insert dollar amount] annual aggregate.

3. For value received from _____ [owner or operator], guarantor guarantees to any and all third parties who have sustained or may sustain bodily injury or property damage caused by [sudden and/or nonsudden] accidental occurrences arising from operations of the facility(ies) covered by this guarantee that in the event that [owner or operator] fails to satisfy a judgment or award based on a determination of liability for bodily injury or property damage to third parties caused by [sudden and/or nonsudden] accidental occurrences, arising from the operation of the above-named facilities, or fails to pay an amount agreed to in settlement of a claim arising from or alleged to arise from such injury or damage, the guarantor will satisfy such judgment(s), award(s), or settlement agreement(s) up to the limits of coverage identified above.

4. Such obligation does not apply to any of the following:

(a) Bodily injury or property damage for which [insert owner or operator] is obligated to pay damages by reason of the assumption of

liability in a contract or agreement. This exclusion does not apply to liability for damages that [insert owner or operator] would be obligated to pay in the absence of the contract or agreement.

(b) Any obligation of [insert owner or operator] under a workers compensation, disability benefits, or unemployment compensation law or any similar law.

(c) Bodily injury to:

(1) An employee of [insert owner or operator] arising from, and in the course of, employment by [insert owner or operator]; or

(2) The spouse, child, parent, brother, or sister of that employee as a consequence of, or arising from, and in the course of employment by [insert owner or operator]. This exclusion applies:

(A) Whether [insert owner or operator] may be liable as an employer or in any other capacity; and

(B) To any obligation to share damages with or repay another person who must pay damages because of the injury to persons identified in paragraphs (1) and (2).

(d) Bodily injury or property damage arising out of the ownership, maintenance, use, or entrustment to others of any aircraft, motor vehicle or watercraft.

(e) Property damage to:

(1) Any property owned, rented, or occupied by [insert owner or operator];

(2) Premises that are sold, given away or abandoned by [insert owner or operator] if the property damage arises out of any part of those premises;

(3) Property loaned to [insert owner or operator];

(4) Personal property in the care, custody or control of [insert owner or operator];

(5) That particular part of real property on which [insert owner or operator] or any contractors or subcontractors working directly or indirectly on behalf of [insert owner or operator] are performing operations, if the property damage arises out of these operations.

5. Guarantor agrees that if, at the end of any fiscal year before termination of this guarantee, the guarantor fails to meet the financial test criteria, guarantor shall send within 90 days, by certified mail, notice to the Department and to _____ [owner or operator] that he intends to provide alternate liability coverage as specified in R.61-79.264.147 and 265.147 as applicable, in the name of _____ [owner or operator]. Within 120 days after the end of such fiscal year, the guarantor shall establish such liability coverage unless _____ [owner or operator] has done so.

6. The guarantor agrees to notify the Department by certified mail, of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming guarantor as debtor, within 10 days after commencement of the proceeding.

7. Guarantor agrees that within 30 days after being notified by the Department of a determination that guarantor no longer meets the financial test criteria or that he is disallowed from continuing as a guarantor, he shall establish alternate liability coverage as specified in R.61-79.264.147 or 265.147 in the name of _____ [owner or operator], unless _____ [owner or operator] has done so.

8. Guarantor reserves the right to modify this agreement to take into account amendment or modification of the liability requirements set by R.61-79.264.147 and 265.147, provided that such modification shall become effective only if a the Department does not disapprove the modification within 30 days of receipt of notification of the modification.

9. Guarantor agrees to remain bound under this guarantee for so long as _____ [owner or operator] must comply with the applicable requirements of R.61-79.264.147 and R.61-79.265.147 for the above-listed facility(ies), except as provided in paragraph 10 of this agreement.

10. [Insert the following language if the guarantor is (a) a direct or higher-tier corporate parent, or (b) a firm whose parent corporation is also the parent corporation of the owner or operator]:

Guarantor may terminate this guarantee by sending notice by certified mail to the Department and to [owner or operator], provided that this guarantee may not be terminated unless and until [the owner or operator] obtains, and the Department approve alternate liability coverage complying with R.61-79.264.147 and/or R.61-79.265.147.

[Insert the following language if the guarantor is a firm qualifying as a guarantor due to its "substantial business relationship" with the owner or operator]:

Guarantor may terminate this guarantee 120 days following receipt of notification, through certified mail, by the Department and by [the owner or operator].

11. Guarantor hereby expressly waives notice of acceptance of this guarantee by any party.

12. Guarantor agrees that this guarantee is in addition to and does not affect any other responsibility or liability of the guarantor with respect to the covered facilities.

13. The Guarantor shall satisfy a third-party liability claim only on receipt of one of the following documents:

(a) Certification from the Principal and the third-party claimant(s) that the liability claim should be paid. The certification must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

Certification of Valid Claim

The undersigned, as parties [insert Principal] and [insert name and address of third-party claimant(s)], hereby certify that the claim of bodily injury and/or property damage caused by a [sudden or nonsudden] accidental occurrence arising from operating [Principal's] hazardous waste treatment, storage, or disposal facility should be paid in the amount of $[ ].

[Signatures]
Principal _____
(Notary) Date _____
[Signatures]
Claimant(s) _____
(Notary) Date _____

(b) A valid final court order establishing a judgment against the Principal for bodily injury or property damage caused by sudden or nonsudden accidental occurrences arising from the operation of the Principal's facility or group of facilities.

14. In the event of combination of this guarantee with another mechanism to meet liability requirements, this guarantee will be considered [insert primary or excess] coverage.

I hereby certify that the wording of this guarantee is identical to the wording specified in R.61-79.264(h)(2) as such regulations were constituted on the date shown immediately below.

Effective date: _____
[Name of guarantor] _____
[Authorized signature for guarantor] _____
[Name of person signing] _____
[Title of person signing] _____
[Signature of witness or notary:_____

264.151 Appendix I

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
BUREAU OF LAND AND WASTE MANAGEMENT
(12/93; 5/96; 8/00)

Liability Requirements; Endorsements
Hazardous Waste Facility Liability Endorsement

1. This endorsement certifies that the policy to which the endorsement is attached provides liability insurance covering bodily injury and property damage in connection with the insured's obligation to demonstrate financial responsibility under 264.147 or 265.147. The coverage applies at [list EPA Identification Number, name, and address for each facility] for _____ [insert "sudden accidental occurrences," "nonsudden accidental occurrences," or "sudden and nonsudden accidental occurrences;" if coverage is for multiple facilities and the coverage is different for different facilities, indicate which facilities are insured for sudden accidental occurrences, which are insured for nonsudden accidental occurrences, and which are insured for both]. The limits of liability are _____ [insert the dollar amount of the "each occurrence" and "annual aggregate" limits of the Insurer's liability], exclusive of legal defense costs.

2. The insurance afforded with respect to such occurrences is subject to all of the terms and conditions of the policy; provided, however, that any provisions of the policy inconsistent with subsections (a) through (e) of this Paragraph 2 are hereby amended to conform with subsections (a) through (e):

(a) Bankruptcy or insolvency of the insured shall not relieve the Insurer of its obligations under the policy to which this endorsement is attached.

(b) The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement by the insured for any such payment made by the Insurer. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated as specified in 264.147(f) or 265.147(f).

(c) Whenever requested by the department, the Insurer agrees to furnish to the department a signed duplicate original of the policy and all endorsements.

(d) Cancellation of this endorsement, whether by the Insurer, the insured, a parent corporation providing insurance coverage for its subsidiary, or by a firm having an insurable interest in and obtaining liability insurance on behalf of the owner or operator of the hazardous waste management facility, will be effective only upon written notice and only after the expiration of 60 days after a copy of such written notice is received by the department.

(e) Any other termination of this endorsement will be effective only upon written notice and only after the expiration of thirty (30) days after a copy of such written notice is received by the Department.

Attached to and forming part of policy No. _____ issued by [name of Insurer], herein called the Insurer, of [address of Insurer] to [name of insured] of [address] this _____ day of _____, 19___. The effective date of said policy is _____ day of _____, 19___.

I hereby certify that the wording of this endorsement is identical to the wording specified in 264.151(i) as such regulation was constituted on the date first above written, and that the Insurer is licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more States.

[Signature of Authorized Representatives of Insurer]

_____

[Type name] _____

[Title], Authorized Representatives of [name of Insurer]

_____

[Address of Representative] _____

264.151 Appendix J

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
BUREAU OF LAND AND WASTE MANAGEMENT
(12/93; 5/96; 8/00)

Liability Requirements; Certificate

(1) Hazardous Waste Facility Certificate of Liability Insurance

1. _____ [Name of Insurer], _____ (the "Insurer"), of _____ [address of insurer] hereby certifies that it has issued liability insurance covering bodily injury and property damage to _____ [name of insured], (the "insured"), of _____ [address of insured] in connection with insured's obligation to demonstrate financial responsibility under R.61-79.264.147 or 265.147. The coverage applies at [list EPA Identification Number, name, and address for each facility] for _____ [insert "sudden accidental occurrences," "nonsudden accidental occurrences," or "sudden and nonsudden accidental occurrences;" if coverage is for multiple facilities and the coverage is different for different facilities, indicate which facilities are insured for sudden accidental occurrences, which are insured for nonsudden accidental occurrences, and which are insured for both]. The limits of liability are _____ [insert the dollar amount of the "each occurrence" and "annual aggregate" limits of the Insurer's liability], exclusive of legal defense costs. The coverage is provided under policy number _____, issued on _____ [date]. The effective date of said policy is _____ [date].

2. The Insurer further certifies the following with respect to the insurance described in Paragraph 1:

(a) Bankruptcy or insolvency of the insured shall not relieve the Insurer of its obligations under the policy.

(b) The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement by the insured for any such payment made by the Insurer. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated as specified in R.61-79.264.147(f) and 265.147(f).

(c) Whenever requested by the department, the Insurer agrees to furnish to the department a signed duplicate original of the policy and all endorsements.

(d) Cancellation of the insurance, whether by the insurer, the insured, a parent corporation providing insurance coverage for its subsidiary, or by a firm having an insurable interest in and obtaining liability insurance on behalf of the owner or operator of the hazardous waste management facility, will be effective only upon written notice and only after the expiration of 60 days after a copy of such written notice is received by the department.

(e) Any other termination of the insurance will be effective only upon written notice and only after the expiration of thirty (30) days after a copy of such written notice is received by the Department.

I hereby certify that the wording of this instrument is identical to the wording specified in 264.151(j) as such regulation was constituted on the date first above written, and that the Insurer is licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more States.

[Signature of Authorized Representative of Insurer]

_____

[Type name] _____

[Title], Authorized Representative of [name of Insurer]

_____

[Address of Representative] _____

264.151 Appendix K

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
BUREAU OF LAND AND WASTE MANAGEMENT
(12/93; 12/94; 5/96; 8/00)

Irrevocable Standby Letter of Credit

Chief
Bureau of Land and Waste Management
2600 Bull Street
Columbia, SC 29201

Dear Sir or Madam: We hereby establish our Irrevocable Standby Letter of Credit No. _____ in the favor of ["any and all third-party liability claimants" or insert name of trustee of the standby trust fund], at the request and for the account of [owner or operator's name and address] for third-party liability awards or settlements up to [in words] U.S. dollars $_____ per occurrence and the annual aggregate amount of [in words] U.S. dollars $_____, for sudden accidental occurrences and/or for third-party liability awards or settlements up to the amount of [in words] U.S. dollars $ _____ per occurrence, and the annual aggregate amount of [in words] U.S. dollars $ _____, for nonsudden accidental occurrences available upon presentation of a sight draft bearing reference to this letter of credit No. _____, and [insert the following language if the letter of credit is being used without a standby trust fund:]" (1) a signed certificate reading as follows:

CERTIFICATE OF VALID CLAIM

The undersigned, as parties [insert principal] and [insert name and address of third party claimant(s)], hereby certify that the claim of bodily injury and/or property damage caused by a [sudden or nonsudden] accidental occurrence arising from operations of [principal's] hazardous waste treatment, storage, or disposal facility should be paid in the amount of _____. We hereby certify that the claim does not apply to any of the following:

(a) Bodily injury or property damage for which [insert principal] is obligated to pay damages by reason of the assumption of liability in a contract or agreement. This exclusion does not apply to liability for damages that [insert principal] would be obligated to pay in the absence of the contract or agreement.

(b) Any obligation of [insert principal] under a workers' compensation, disability benefits, or unemployment compensation law or any similar law.

(c) Bodily injury to:

(1) An employee of [insert principal] arising from, and in the course of, employment by [insert principal]; or

(2) The spouse, child, parent, brother or sister of that employee as a consequence of, or arising from, and in the course of employment by [insert principal].

This exclusion applies:

(A) Whether [insert principal] may be liable as an employer or in any other capacity; and

(B) To any obligation to share damages with or repay another person who must pay damages because of the injury to persons identified in paragraphs (1) and (2).

(d) Bodily injury or property damage arising out of the ownership, maintenance, use, or entrustment to others of any aircraft, motor vehicle or watercraft.

(e) Property damage to:

(1) Any property owned, rented, or occupied by [insert principal];

(2) Premises that are sold, given away or abandoned by [insert principal] if the property damage arises out of any part of those premises;

(3) Property loaned to [insert principal];

(4) Personal property in the care, custody or control of [insert principal];

(5) That particular part of real property on which [insert principal] or any contractors or subcontractors working directly or indirectly on behalf of [insert principal] are performing operations, if the property damage arises out of these operations.

[Signatures]
Grantor _____
[Signatures]
Claimant(s) _____

or (2) a valid final court order establishing a judgment against the Grantor for bodily injury or property damage caused by sudden or nonsudden accidental occurrences arising from the operation of the Grantor's facility or group of facilities.

This letter of credit is effective as of [date] and shall expire on [date at least one year later], but such expiration date shall be automatically extended for a period of [at least one year] on [date] and on each successive expiration date, unless, at least 120 days before the current expiration date, we notify the you, the Department, and [owner's or operator's name] by certified mail that we have decided not to extend this letter of credit beyond the current expiration date.

Whenever this letter of credit is drawn on under and in compliance with the terms of this credit, we shall duly honor such draft upon presentation to us.

[Insert the following language if a standby trust fund is not being used: "In the event that this letter of credit is used in combination with another mechanism for liability coverage, this letter of credit shall be considered [insert "primary" or "excess" coverage]."

We certify that the wording of this letter of credit is identical to the wording specified in 264.151(k) as such regulations were constituted on the date shown immediately below.

[Signature(s) and title(s) of official(s) of issuing institution]
[Date]

This credit is subject to [insert "the most recent edition of the Uniform Customs and Practice for Documentary Credits, published and copyrighted by the International Chamber of Commerce," or "the Uniform Commercial Code"].

264.151 Appendix L

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
BUREAU OF LAND AND WASTE MANAGEMENT
(12/93; 5/96; 8/00)

Payment Bond

Surety Bond No. [Insert number] _____

Parties [Insert name and address of owner or operator], Principal, incorporated in [Insert State of incorporation] of [Insert city and State of principal place of business] and [Insert name and address of surety company(ies)], Surety Company(ies), of [Insert surety(ies) place of business].

EPA Identification Number, name, and address for each facility guaranteed by this bond:

	Sudden accidental occurrences	Nonsudden accidental occurrences
Penal Sum Per Occurrence.	[insert amount]	[insert amount]
Annual Aggregate	[insert amount]	[insert amount]

Purpose: This is an agreement between the Surety(ies) and the Principal under which the Surety(ies), its(their) successors and assignees, agree to be responsible for the payment of claims against the Principal for bodily injury and/or property damage to third parties caused by ["sudden" and/or "nonsudden"] accidental occurrences arising from operations of the facility or group of facilities in the sums prescribed herein; subject to the governing provisions and the following conditions.

Governing Provisions:

(1) SC Hazardous Waste Management Act 44-56 et seq. and Section 3004 of the Resource Conservation and Recovery Act of 1976, as amended.

(2) Rules and regulations of the Department of Health and Environmental Control, particularly R.61-79.264.147" or "265.147"] (if applicable).

Conditions:

(1) The Principal is subject to the applicable governing provisions that require the Principal to have and maintain liability coverage for bodily injury and property damage to third parties caused by ["sudden" and/or "nonsudden"] accidental occurrences arising from operations of the facility or group of facilities. Such obligation does not apply to any of the following:

(a) Bodily injury or property damage for which [insert principal] is obligated to pay damages by reason of the assumption of liability in a contract or agreement. This exclusion does not apply to liability for damages that [insert principal] would be obligated to pay in the absence of the contract or agreement.

(b) Any obligation of [insert principal] under a workers' compensation, disability benefits, or unemployment compensation law or similar law.

(c) Bodily injury to:

(1) An employee of [insert principal] arising from, and in the course of, employment by [insert principal]; or

(2) The spouse, child, parent, brother or sister of that employee as a consequence of, or arising from, and in the course of employment by [insert principal]. This exclusion applies:

(A) Whether [insert principal] may be liable as an employer or in any other capacity; and

(B) To any obligation to share damages with or repay another person who must pay damages because of the injury to persons identified in paragraphs (1) and (2).

(d) Bodily injury or property damage arising out of the ownership, maintenance, use, or entrustment to others of any aircraft, motor vehicle or watercraft.

(e) Property damage to:

(1) Any property owned, rented, or occupied by [insert principal];

(2) Premises that are sold, given away or abandoned by [insert principal] if the property damage arises out of any part of those premises;

(3) Property loaned to [insert principal];

(4) Personal property in the care, custody or control of [insert principal];

(5) That particular part of real property on which [insert principal] or any contractors or subcontractors working directly or indirectly on behalf of [insert principal] are performing operations, if the property damage arises out of these operations.

(2) This bond assures that the Principal will satisfy valid third party liability claims, as described in condition 1.

(3) If the Principal fails to satisfy a valid third party liability claim, as described above, the Surety(ies) becomes liable on this bond obligation.

(4) The Surety(ies) shall satisfy a third party liability claim only upon the receipt of one of the following documents:

(a) Certification from the Principal and the third party claimant(s) that the liability claim should be paid. The certification must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

Certification of Valid Claim

The undersigned, as parties [insert name of Principal] and [insert name and address of third party claimant(s)], hereby certify that the claim of bodily injury and/or property damage caused by a [sudden or nonsudden] accidental occurrence arising from operating [Principal's] hazardous waste treatment, storage, or disposal facility should be paid in the amount of $[ ].

[Signature]
Principal _____
[Notary] Date _____
[Signature(s)]
Claimant(s) _____
[Notary] Date _____

or *(b)* A valid final court order establishing a judgment against the Principal for bodily injury or property damage caused by sudden or nonsudden accidental occurrences arising from the operation of the Principal's facility or group of facilities.

(5) In the event of combination of this bond with another mechanism for liability coverage, this bond will be considered [insert "primary" or "excess"] coverage.

(6) The liability of the Surety(ies) shall not be discharged by any payment or succession of payments hereunder, unless and until such payment or payments shall amount in the aggregate to the penal sum of the bond. In no event shall the obligation of the Surety(ies) hereunder exceed the amount of said annual aggregate penal sum, provided that the Surety(ies) furnish(es) notice to the Department forthwith of all claims filed and payments made by the Surety(ies) under this bond.

(7) The Surety(ies) may cancel the bond by sending notice of cancellation by certified mail to the Principal and the Department, provided, however, that cancellation shall not occur during the 120 days beginning on the date of receipt of the notice of cancellation by the Principal and the Department, as evidenced by the return receipt.

(8) The Principal may terminate this bond by sending written notice to the Surety(ies) and to the Department.

(9) The Surety(ies) hereby waive(s) notification of amendments to applicable laws, statutes, rules and regulations and agree(s) that no such amendment shall in any way alleviate its (their) obligation on this bond.

(10)This bond is effective from [insert date] (12:01 a.m., standard time, at the address of the Principal as stated herein) and shall continue in force until terminated as described above.

In Witness Whereof, the Principal and Surety(ies) have executed this Bond and have affixed their seals on the date set forth above.

The persons whose signatures appear below hereby certify that they are authorized to execute this surety bond on behalf of the Principal and Surety(ies) and that the wording of this surety bond is identical to the wording specified in 264.151(1), as such regulations were constituted on the date this bond was executed.

PRINCIPAL

[Signature(s)] _____
[Name(s)] _____
[Title(s)] _____
[Corporate Seal] _____

CORPORATE SURETY[IES]

[Name and address] _____
State of incorporation: _____
Liability Limit: $_____
[Signature(s)] _____
[Name(s) and title(s)] _____
[Corporate seal] _____

[For every co-surety, provide signature(s), corporate seal, and other information in the same manner as for Surety above.]

Bond premium: $_____

264.151 Appendix M (1)

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
BUREAU OF LAND AND WASTE MANAGEMENT
(12/93; 5/96; 8/00)

Trust Agreement

Trust Agreement, the Agreement, entered into as of [date] by and between [name of the owner or operator] a [name of State] [insert corporation, partnership, association, or proprietorship], the Grantor, and [name of corporate trustee], [insert, incorporated in the State of _____ or a national bank], the trustee.

Whereas, the Department, an agency of the State of South Carolina Government, has established certain regulations applicable to the Grantor, requiring that an owner or operator of a hazardous waste management facility or group of facilities must demonstrate financial responsibility for bodily injury and property damage to third parties caused by sudden accidental and/or nonsudden accidental occurrences arising from operations of the facility or group of facilities.

Whereas, the Grantor has elected to establish a trust to assure all or part of such financial responsibility for the facilities identified herein.

Whereas, the Grantor, acting through its duly authorized officers, has selected the Trustee to be the trustee under this agreement, and the Trustee is willing to act as trustee.

Now, therefore, the Grantor and the Trustee agree as follows:

Section 1. Definitions. As used in this Agreement:

(a) The term Grantor means the owner or operator who enters into this Agreement and any successors or assigns of the Grantor.

(b) The term Trustee means the Trustee who enters into this Agreement and any successor Trustee.

Section 2. Identification of Facilities. This agreement pertains to the facilities identified on attached schedule A [on schedule A, for each facility list the EPA Identification Number, name, and address of the facility(ies) and the amount of liability coverage, or portions thereof, if more than one instrument affords combined coverage as demonstrated by this Agreement].

Section 3. Establishment of Fund. The Grantor and the Trustee hereby establish a trust fund, hereinafter the Fund, for the benefit of any and all third parties injured or damaged by [sudden and/or nonsudden] accidental occurrences arising from operation of the facility(ies) covered by this guarantee, in the amounts of _____ [up to $1 million] per occurrence and _____ [up to $2 million] annual aggregate for sudden accidental occurrences and _____ [up to $3 million] per occurrence and _____ [up to $6 million] annual aggregate for nonsudden occurrences, except that the Fund is not established for the benefit of third parties for the following:

(a) Bodily injury or property damage for which [insert Grantor] is obligated to pay damages by reason of the assumption of liability in a contract or agreement. This exclusion does not apply to liability for damages that [insert Grantor] would be obligated to pay in the absence of the contract or agreement.

(b) Any obligation of [insert Grantor] under a workers compensation, disability benefits, or unemployment compensation law or any similar law.

(c) Bodily injury to:

(1) An employee of [insert Grantor] arising from, and in the course of, employment by [insert Grantor]; or

(2) The spouse, child, parent, brother or sister of that employee as a consequence of, or arising from, and in the course of employment by [insert Grantor].

This exclusion applies:

(A) Whether [insert Grantor] may be liable as an employer or in any other capacity; and

(B) To any obligation to share damages with or repay another person who must pay damages because of the injury to persons identified in paragraphs (1) and (2).

(d) Bodily injury or property damage arising out of the ownership, maintenance, use, or entrustment to others of any aircraft, motor vehicle or watercraft.

(e) Property damage to:

(1) Any property owned, rented, or occupied by [insert Grantor];

(2) Premises that are sold, given away or abandoned by [insert Grantor] if the property damage arises out of any part of those premises;

(3) Property loaned to [insert Grantor];

(4) Personal property in the care, custody or control of [insert Grantor];

(5) That particular part of real property on which [insert Grantor] or any contractors or subcontractors working directly or indirectly on behalf of [insert Grantor] are performing operations, if the property damage arises out of these operations.

In the event of combination with another mechanism for liability coverage, the fund shall be considered [insert primary or excess] coverage.

The Fund is established initially as consisting of the property, which is acceptable to the Trustee, described in Schedule B attached hereto. Such property and any other property subsequently transferred to the Trustee is referred to as the Fund, together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agreement. The Fund shall be held by the Trustee, IN TRUST, as hereinafter provided. The Trustee shall not be responsible nor shall it undertake any responsibility for the amount or adequacy of, nor any duty to collect from the Grantor, any payments necessary to discharge any liabilities of the Grantor established by the Department.

Section 4. Payment for Bodily Injury or Property Damage. The Trustee shall satisfy a third party liability claim by making payments from the Fund only upon receipt of one of the following documents;

(a) Certification from the Grantor and the third party claimant(s) that the liability claim should be paid. The certification must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

Certification of Valid Claim

The undersigned, as parties [insert Grantor] and [insert name and address of third party claimant(s)], hereby certify that the claim of bodily injury and/or property damage caused by a [sudden or nonsudden] accidental occurrence arising from operating [Grantors] hazardous waste treatment, storage, or disposal facility should be paid in the amount of $[ ].

[Signatures] _____
Grantor
[Signatures] _____
Claimant(s)

(b) A valid final court order establishing a judgment against the Grantor for bodily injury or property damage caused by sudden or nonsudden accidental occurrences arising from the operation of the Grantors facility or group of facilities.

Section 5. Payments Comprising the Fund. Payments made to the Trustee for the Fund shall consist of cash or securities acceptable to the Trustee.

Section 6. Trustee Management. The Trustee shall invest and reinvest the principal and income, in accordance with general investment policies and guidelines which the Grantor may communicate in writing to the Trustee from time to time, subject, however, to the provisions of this section. In investing, reinvesting, exchanging, selling, and managing the Fund, the Trustee shall discharge his duties with respect to the trust fund solely in the interest of the beneficiary and with the care, skill, prudence, and diligence under the circumstance then prevailing which persons of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims; except that:

(i) Securities or other obligations of the Grantor, or any other owner or operator of the facilities, or any of their affiliates as defined in the Investment Company Act of 1940, as amended, 15 U.S.C. 80a-2.(a), shall not be acquired or held unless they are securities or other obligations of the Federal or a State government;

(ii) The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the Federal or State government; and

(iii) The Trustee is authorized to hold cash awaiting investment or distribution uninvested for a reasonable time and without liability for the payment of interest thereon.

Section 7. Commingling and Investment. The Trustee is expressly authorized in its discretion:

(a) To transfer from time to time any or all of the assets of the Fund to any common commingled, or collective trust fund created by the Trustee in which the fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940, 15 U.S.C. 81a-1 et seq., including one which may be created, managed, underwritten, or to which investment advice is rendered or the shares of which are sold by the Trustee. The Trustee may vote such shares in its discretion.

Section 8. Express Powers of Trustee. Without in any way limiting the powers and discretions conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale. No person dealing with the Trustee shall be bound to see to the application of the purchase money or to inquire into the validity or expediency of any such sale or other disposition;

(b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the Fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, or to deposit or arrange for the deposit of such securities in a qualified central depositary even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee of such depositary with other securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the United States Government, or any agency or instrumentality thereof, with a Federal Reserve bank, but the books and records of the Trustee shall at all times show that all such securities are part of the Fund;

(d) To deposit any cash in the Fund in interest-bearing accounts maintained or savings certificates issued by the Trustee, in its separate corporate capacity, or in any other banking institution affiliated with the Trustee, to the extent insured by an agency of the Federal or State government; and

(e) To compromise or otherwise adjust all claims in favor of or against the Fund.

Section 9. Taxes and Expenses. All taxes of any kind that may be assessed or levied against or in respect of the Fund and all brokerage commissions incurred by the Fund shall be paid from the Fund. All other expenses incurred by the Trustee in connection with the administration of this Trust, including fees for legal services rendered to the Trustee,

the compensation of the Trustee to the extent not paid directly by the Grantor, and all other proper charges and disbursements of the Trustee shall be paid from the Fund.

Section 10. Annual Valuations. The Trustee shall annually, at least 30 days prior to the anniversary date of establishment of the Fund, furnish to the Grantor and to the appropriate EPA Regional Administrator a statement confirming the value of the Trust. Any securities in the Fund shall be valued at market value as of no more than 60 days prior to the anniversary date of establishment of the Fund. The failure of the Grantor to object in writing to the Trustee within 90 days after the statement has been furnished to the Grantor and the Department shall constitute a conclusively binding assent by the Grantor barring the Grantor from asserting any claim or liability against the Trustee with respect to matters disclosed in the statement.

Section 11. Advice of Counsel. The Trustee may from time to time consult with counsel, who may be counsel to the Grantor with respect to any question arising as to the construction of this Agreement or any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

Section 12. Trustee Compensation. The Trustee shall be entitled to reasonable compensation for its services as agreed upon in writing from time to time with the Grantor.

Section 13. Successor Trustee. The Trustee may resign or the Grantor may replace the Trustee, but such resignation or replacement shall not be effective until the Grantor has appointed a successor trustee and this successor accepts the appointment. The successor trustee shall have the same powers and duties as those conferred upon the Trustee hereunder. Upon the successor trustees acceptance of the appointment, the Trustee shall assign, transfer, and pay over to the successor trustee the funds and properties then constituting the Fund. If for any reason the Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor trustee or for instructions. The successor trustee shall specify the date on which it assumes administration of the trust in a writing sent to the Grantor, the Department, and the present Trustee by certified mail 10 days before such change becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by this section shall be paid as provided in Section 9.

Section 14. Instructions to the Trustee. All orders, requests, and instructions by the Grantor to the Trustee shall be in writing, signed by such persons as are designated in the attached Exhibit A or such other designees as the Grantor may designate by amendments to Exhibit A. The Trustee shall be fully protected in acting without inquiry in accordance with the Grantors orders, requests, and instructions. All orders, requests, and instructions by the Department to the Trustee shall be in writing, signed by a representative of the Department, and the Trustee shall act and shall be fully protected in acting in accordance with such orders, requests, and instructions. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the Grantor or the Department hereunder has occurred. The Trustee shall have no duty to act in the absence of such orders, requests, and instructions from the Grantor and/or the Department, except as provided for herein.

Section 15. Notice of Nonpayment. If a payment for bodily injury or property damage is made under Section 4 of this trust, the Trustee shall notify the Grantor of such payment and the amount(s) thereof within five (5) working days. The Grantor shall, on or before the anniversary date of the establishment of the Fund following such notice, either make payments to the Trustee in amounts sufficient to cause the trust to return to its value immediately prior to the payment of claims under Section 4, or shall provide written proof to the Trustee that other financial assurance for liability coverage has been obtained equaling the amount necessary to return the trust to its value prior to the payment of claims. If the Grantor does not either make payments to the Trustee or provide the Trustee with such proof, the Trustee shall within 10 working days after the anniversary date of the establishment of the Fund provide a written notice of nonpayment to the Department.

Section 16. Amendment of Agreement. This Agreement may be amended by an instrument in writing executed by the Grantor, the Trustee, and the Department, or by the Trustee and the Department if the Grantor ceases to exist.

Section 17. Irrevocability and Termination. Subject to the right of the parties to amend this Agreement as provided in Section 16, this Trust shall be irrevocable and shall continue until terminated at the written agreement of the Grantor, the Trustee, and the Department, or by the Trustee and the Department, if the Grantor ceases to exist. Upon termination of the Trust, all remaining trust property, less final trust administration expenses, shall be delivered to the Grantor.

The Department will agree to termination of the Trust when the owner or operator substitutes alternate financial assurance as specified in this section.

Section 18. Immunity and Indemnification. The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this Trust, or in carrying out any directions by the Grantor or the Department issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Grantor or from the Trust Fund, or both, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the Grantor fails to provide such defense.

Section 19. Choice of Law. This Agreement shall be administered, construed, and enforced according to the laws of the State of South Carolina.

Section 20. Interpretation. As used in this Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each section of this Agreement shall not affect the interpretation or the legal efficacy of this Agreement.

In Witness Whereof the parties have caused this Agreement to be executed by their respective officers duly authorized and their corporate seals to be hereunto affixed and attested as of the date first above written. The parties below certify that the wording of this Agreement is identical to the wording specified in 264.151(m) as such regulations were constituted on the date first above written.

_____
[Signature of Grantor]
[Title]
Attest:
[Title]
[Seal]

_____
[Signature of Trustee]
Attest:
[Title]
[Seal]

264.151 Appendix M (2)

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
BUREAU OF LAND AND WASTE MANAGEMENT
(12/93; 5/96; 8/00)

Certification of Acknowledgement

State of _____
County of _____

On this [date], before me personally came [owner or operator] to me known, who, being by me duly sworn, did depose and say that she/he resides at [address], that she/he is [title] of [corporation], the corporation described in and which executed the above instrument; that she/he knows the seal of said corporation; that the seal affixed to such instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that she/he signed her/his name thereto by like order.

_____
[Signature of Notary Public]

264.151 Appendix N (1)

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
BUREAU OF LAND AND WASTE MANAGEMENT
(12/93; 5/96; 8/00)

Standby Trust Agreement

Trust Agreement, the "Agreement," entered into as of [date] by and between [name of the owner or operator] a [name of a State] [insert "corporation," "partnership," "association," or "proprietorship"], the "Grantor," and [name of corporate trustee], [insert, "incorporated in the State of _____" or "a national bank"], the "trustee."

Whereas the South Carolina Department of Health and Environmental Control, "the Department", an agency of the State of South Carolina Government, has established certain regulations applicable to the Grantor, requiring that an owner or operator of a hazardous waste management facility or group of facilities must demonstrate financial responsibility for bodily injury and property damage to third parties caused by sudden accidental and/or nonsudden accidental occurrences arising from operations of the facility or group of facilities.

Whereas, the Grantor has elected to establish a standby trust into which the proceeds from a letter of credit may be deposited to assure all or part of such financial responsibility for the facilities identified herein.

Whereas, the Grantor, acting through its duly authorized officers, has selected the Trustee to be the trustee under this agreement, and the Trustee is willing to act as trustee.

Now, therefore, the Grantor and the Trustee agree as follows:

Section 1. Definitions. As used in this Agreement:

(a) The term Grantor means the owner or operator who enters into this Agreement and any successors or assigns of the Grantor.

(b) The term Trustee means the Trustee who enters into this Agreement and any successor Trustee.

Section 2. Identification of Facilities. This agreement pertains to the facilities identified on attached schedule A [on schedule A, for each facility list the EPA Identification Number, name, and address of the facility(ies) and the amount of liability coverage, or portions thereof, if more than one instrument affords combined coverage as demonstrated by this Agreement].

Section 3. Establishment of Fund. The Grantor and the Trustee hereby establish a standby trust fund, hereafter the "Fund," for the benefit of any and all third parties injured or damaged by [sudden and/or nonsudden] accidental occurrences arising from operation of the facility(ies) covered by this guarantee, in the amounts of _____ [up to $1 million] per occurrence and _____ [up to $2 million] annual aggregate for sudden accidental occurrences and _____ [up to $3 million] per occurrence and _____ [up to $6 million] annual aggregate for nonsudden occurrences, except that the Fund is not established for the benefit of third parties for the following:

(a) Bodily injury or property damage for which [insert Grantor] is obligated to pay damages by reason of the assumption of liability in a contract or agreement. This exclusion does not apply to liability for damages that [insert Grantor] would be obligated to pay in the absence of the contract or agreement.

(b) Any obligation of [insert Grantor] under a workers compensation, disability benefits, or unemployment compensation law or any similar law.

(c) Bodily injury to:

(1) An employee or [insert Grantor] arising from, and in the course of, employment by [insert Grantor]; or

(2) The spouse, child, parent, brother or sister of that employee as a consequence of, or arising from, and in the course of employment by [insert Grantor].

This exclusion applies:

(A) Whether [insert Grantor] may be liable as an employer or in any other capacity; and

(B) To any obligation to share damages with or repay another person who must pay damages because of the injury to persons identified in paragraphs (1) and (2).

(d) Bodily injury or property damage arising out of the ownership, maintenance, use, or entrustment to others of any aircraft, motor vehicle or watercraft.

(e) Property damage to:

(1) Any property owned, rented, or occupied by [insert Grantor];

(2) Premises that are sold, given away or abandoned by [insert Grantor] if the property damage arises out of any part of those premises;

(3) Property loaned to [insert Grantor];

(4) Personal property in the care, custody or control of [insert Grantor];

(5) That particular part of real property on which [insert Grantor] or any contractors or subcontractors working directly or indirectly on behalf of [insert Grantor] are performing operations, if the property damage arises out of these operations.

In the event of combination with another mechanism for liability coverage, the fund shall be considered [insert "primary" or "excess"] coverage.

The Fund is established initially as consisting of the proceeds of the letter of credit deposited into the Fund. Such proceeds and any other property subsequently transferred to the Trustee is referred to as the Fund, together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agreement. The Fund shall be held by the Trustee, IN TRUST, as hereinafter provided. The Trustee shall not be responsible nor shall it undertake any responsibility for the amount or adequacy of, nor any duty to collect from the Grantor, any payments necessary to discharge any liabilities of the Grantor established by the Department.

Section 4. Payment for Bodily Injury or Property Damage. The Trustee shall satisfy a third party liability claim by drawing on the letter of credit described in Schedule B and by making payments from the Fund only upon receipt of one of the following documents:

(a) Certification from the Grantor and the third party claimant(s) that the liability claim should be paid. The certification must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

Certification of Valid Claim

The undersigned, as parties [insert Grantor] and [insert name and address of third party claimant(s)], hereby certify that the claim of bodily injury and/or property damage caused by a [sudden or nonsudden] accidental occurrence arising from operating [Grantors] hazardous waste treatment, storage, or disposal facility should be paid in the amount of $[_____].

[Signature] _____
Grantor _____

[Signatures] _____
Claimant(s) _____

(b) A valid final court order establishing a judgment against the Grantor for bodily injury or property damage caused by sudden or nonsudden accidental occurrences arising from the operation of the Grantors facility or group of facilities.

Section 5. Payments Comprising the Fund. Payments made to the Trustee for the Fund shall consist of the proceeds from the letter of credit drawn upon by the Trustee in accordance with the requirements of 264.151(k) and Section 4 of this Agreement.

Section 6. Trustee Management. The Trustee shall invest and reinvest the principal and income, in accordance with general investment policies and guidelines which the Grantor may communicate in writing to the Trustee from time to time, subject, however, to the provisions of this Section. In investing, reinvesting, exchanging, selling, and managing the Fund, the Trustee shall discharge his duties with respect to the trust fund solely in the interest of the beneficiary and with the care, skill, prudence, and diligence under the circumstances then prevailing which persons of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of a like character and with like aims; except that:

(i) Securities or other obligations of the Grantor, or any other owner or operator of the facilities, or any of their affiliates as defined in the Investment Company Act of 1940, as amended, 15 U.S.C. 80a-2(a), shall not be acquired or held, unless they are securities or other obligations of the Federal or a State government;

(ii) The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the Federal or a State government; and

(iii) The Trustee is authorized to hold cash awaiting investment or distribution uninvested for a reasonable time and without liability for the payment of interest thereon.

Section 7. Commingling and Investment. The Trustee is expressly authorized in its discretion:

(a) To transfer from time to time any or all of the assets of the Fund to any common, commingled, or collective trust fund created by the Trustee in which the Fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940, 15 U.S.C. 80a-1 et seq., including one which may be created, managed, underwritten, or to which investment advice is rendered or the shares of which are sold by the Trustee. The Trustee may vote such shares in its discretion.

Section 8. Express Powers of Trustee. Without in any way limiting the powers and discretions conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale. No person dealing with the Trustee shall be bound to see to the application of the purchase money or to inquire into the validity or expediency of any such sale or other disposition;

(b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the Fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, or to deposit or arrange for the deposit of such securities in a qualified central depositary even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee of such depositary with other securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the United States Government, or any agency or instrumentality thereof, with a Federal Reserve Bank, but the books and records of the Trustee shall at all times show that all such securities are part of the Fund;

(d) To deposit any cash in the Fund in interest-bearing accounts maintained or savings certificates issued by the Trustee, in its separate corporate capacity, or in any other banking institution affiliated with the Trustee, to the extent insured by an agency of the Federal or State government; and

(e) To compromise or otherwise adjust all claims in favor of or against the Fund.

Section 9. Taxes and Expenses. All taxes of any kind that may be assessed or levied against or in respect of the Fund and all brokerage commissions incurred by the Fund shall be paid from the Fund. All other expenses incurred by the Trustee in connection with the administration of this Trust, including fees for legal services rendered to the Trustee, the compensation of the Trustee to the extent not paid directly by the Grantor, and all other proper charges and disbursements to the Trustee shall be paid from the Fund.

Section 10. Advice of Counsel. The Trustee may from time to time consult with counsel, who may be counsel to the Grantor, with respect to any question arising as to the construction of this Agreement or any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

Section 11. Trustee Compensation. The Trustee shall be entitled to reasonable compensation for its services as agreed upon in writing from time to time with the Grantor.

Section 12. Successor Trustee. The Trustee may resign or the Grantor may replace the Trustee, but such resignation or replacement shall not be effective until the Grantor has appointed a successor trustee and this successor accepts the appointment. The successor trustee shall have the same powers and duties as those conferred upon the Trustee hereunder. Upon the successor trustees acceptance of the appointment; the Trustee shall assign, transfer, and pay over to the successor trustee the funds and properties then constituting the Fund. If for any reason the Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor trustee or for instructions. The successor trustee shall specify the date on which it assumes administration of the trust in a writing sent to the Grantor, the Department and the present Trustee by certified mail 10 days before such change becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by this Section shall be paid as provided in Section 9.

Section 13. Instructions to the Trustee. All orders, requests, certifications of valid claims, and instructions to the Trustee shall be in writing, signed by such persons as are designated in the attached Exhibit A or such other designees as the Grantor may designate by amendments to Exhibit A. The Trustee shall be fully protected in acting without inquiry in accordance with the Grantors orders, requests, and instructions. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the Grantor or the Department hereunder has occurred. The Trustee shall have no duty to act in the absence of such orders, requests, and instructions from the Grantor and/or the Department, except as provided for herein.

Section 14. Amendment of Agreement. This Agreement may be amended by an instrument in writing executed by the Grantor, the Trustee, and the Department, or by the Trustee and the Department if the Grantor ceases to exist.

Section 15. Irrevocability and Termination. Subject to the right of the parties to amend this Agreement as provided in Section 14, this Trust shall be irrevocable and shall continue until terminated at the written agreement of the Grantor, the Trustee, and the Department, or by the Trustee and the Department, if the Grantor ceases to exist. Upon termination of the Trust, all remaining trust property, less final trust administration expenses, shall be paid to the Grantor.

The Department will agree to termination of the Trust when the owner or operator substitutes alternative financial assurance as specified in this section.

Section 16. Immunity and indemnification. The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of this Trust, or in carrying out any directions by the Grantor and the Department issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Grantor or from the Trust Fund, or both, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonable incurred in its defense in the event the Grantor fails to provide such defense.

Section 17. Choice of Law. This Agreement shall be administered, construed, and enforced according to the laws of the State of South Carolina.

Section 18. Interpretation. As used in this Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each Section of this Agreement shall not affect the interpretation of the legal efficacy of this Agreement.

In Witness Whereof the parties have caused this Agreement to be executed by their respective officers duly authorized and their corporate seals to be hereunto affixed and attested as of the date first above written. The parties below certify that the wording of this Agreement is identical to the wording specified in 264.151(n) as such regulations were constituted on the date first above written.

_____
[Signature of Grantor]
[Title]
Attest:
[Title]
[Seal]

_____
[Signature of Trustee]

Attest:
[Title]
[Seal]

264.151 Appendix N (2)

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
BUREAU OF LAND AND WASTE MANAGEMENT
(12/93; 5/96; 8/00)

Certification of Acknowledgement

State of _____
County of _____

On this [date], before me personally came [owner or operator] to me known, who, being by me duly sworn, did depose and say that she/he resides at [address], that she/he is [title] of [corporation], the corporation described in and which executed the above instrument; that she/he knows the seal of said corporation; that the seal affixed to such instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation, and that she/he signed her/his name thereto by like order.

_____
[Signature of Notary Public]

264.152 - .154 [Removed 6/03]

Subpart I - Use and Management of Containers

264.170 Applicability
The regulations in this subpart apply to owners and operators of all hazardous waste facilities that store containers of hazardous waste, except as 264.1 provides otherwise.

[Comment: Under 261.7 and 261.33(c), if a hazardous waste is emptied from a container the residue remaining in the container is not considered a hazardous waste if the container is empty as defined in 261.7. In that event, management of the container is exempt from the requirements of this subpart.] (12/92)

264.171 Condition of containers
If a container holding hazardous waste is not in good condition (e.g., severe rusting, apparent structural defects) or if it begins to leak, the owner or operator must transfer the hazardous 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 part. (12/92)

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

264.173 Management of containers (5/93)
(a) A container holding hazardous waste must always be closed during storage, except when it is necessary to add or remove waste.

(b) A container holding hazardous waste must not be opened, handled, or stored in a manner which may rupture the container or cause it to leak.

(c) Each container containing hazardous waste shall be permanently and legibly marked with the following or equivalent statement: Hazardous Waste - federal law prohibits improper disposal." (6/97)

(d) Each container shall be appropriately labeled with EPA hazardous waste number.

[Comment: Reuse of containers in transportation is governed by U.S. Department of Transportation regulations including those set forth in 49 CFR 173.28.] (12/92)

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

[Comment: See 264.15(c) and 264.171 for remedial action required if deterioration or leaks are detected.] (12/92)

264.175 Containment
(a) Container storage areas must have a containment system that is designed and operated in accordance with paragraph (b) of this section, except as otherwise provided by paragraph (c) of this section.

(b) A containment system must be designed and operated as follows: (11/90)

(1) A base must underlie the containers which is free of cracks or gaps and is sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed;

(2) The base must be sloped or the containment system must be otherwise designed and operated to drain and remove liquids resulting from leaks, spills, or precipitation, unless the containers are elevated or are otherwise protected from contact with accumulated liquids;

(3) The containment system must have sufficient capacity to contain 10% of the volume of containers or the volume of the largest container, whichever is greater. Containers that do not contain free liquids need not be considered in this determination;

(4) Runon into the containment system must be prevented unless the collection system has sufficient excess capacity in addition to that required in paragraph (b)(3) of this section to contain any runon which might enter the system; and

(5) Spilled or leaked waste and accumulated precipitation must be removed from the sump or collection area in as timely a manner as is necessary to prevent overflow of the collection system. (12/93)

[Comment: If the collected material is a hazardous waste under 261, it must be managed as a hazardous waste in accordance with all applicable requirements of parts 262 through 266. If the collected material is discharged through a point source to waters of the United States, it is subject to the requirements of section 402 of the Clean Water Act, as amended.] (12/92)

(c) Storage areas that store containers holding only wastes that do not contain free liquids need not have a containment system defined by paragraph (b) of this section, except as provided by paragraph (d) of this section or provided that:

(1) The storage area is sloped or is otherwise designed and operated to drain and remove liquid resulting from precipitation, or,

(2) The containers are elevated or are otherwise protected from contact with accumulated liquid.

(d) Storage areas that store containers holding the wastes listed below that do not contain free liquids must have a containment system defined by paragraph (b) of this section:

(1) FO20, FO21, FO22, FO23, FO26, and FO27.

(2) [Reserved]

264.176 Special requirements for ignitable or reactive waste

Containers holding ignitable or reactive waste must be located at least 15 meters (50 feet) from the facility's property line. [Comment: See 264.17(a) for additional requirements.] (12/92)

264.177 Special requirements for incompatible wastes

(a) Incompatible wastes, or incompatible wastes and materials (see Appendix V for examples), must not be placed in the same container, unless 264.17(b) is complied with.

(b) Hazardous waste must not be placed in an unwashed container that previously held an incompatible waste or material. [Comment: As required by 264.13, the waste analysis plan must include analyses needed to comply with 264.177. Also, 264.17(c) requires wastes analyses, trial tests or other documentation to assure compliance with 264.17(b). As required by 264.73, the owner or operator must place the results of each waste analysis and trial test, and any documented information, in the operating record of the facility.] (12/92)

(c) A storage container holding a hazardous waste that is incompatible with any waste or other materials stored nearby in other containers, piles, open tanks, or surface impoundments must be separated from the other materials or protected from them by means of a dike, berm, wall, or other device.

[Comment: The purpose of this section is to prevent fires, explosions, gaseous emission, 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.] (12/92)

264.178 Closure

At closure, all hazardous waste and hazardous waste residues must be removed from the containment system. Remaining containers, liners, bases, and soil containing or contaminated with hazardous waste or hazardous waste residues must be decontaminated or removed.

[Comment: At closure, as throughout the operating period, unless the owner or operator can demonstrate in accordance with 261.3(d) that the solid waste removed from the containment system is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and must manage it in accordance with all applicable requirements of parts 262 through 266]. (12/92)

264.179 Air emission standards

The owner or operator shall manage all hazardous waste placed in a container in accordance with the applicable requirements of subparts AA, BB, and CC of this part. (9/98)

Subpart J - Tank Systems

264.190 Applicability

The requirements of this subpart apply to owners and operators of facilities that use tank systems for storing or treating hazardous waste except as otherwise provided in paragraphs (a), (b), and (c) of this section or in 264.1 (12/92).

(a) Tank systems that are used to store or treat hazardous waste which contains no free liquids and are situated inside a building with an impermeable floor are exempted from the requirements in 264.193. To demonstrate the absence or presence of free liquids in the stored/treated waste, the following test must be used: EPA Method 9095 (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 R.61-79.260.11. (11/90; 12/93)

(b) Tank systems, including sumps, as defined in R.61-79.260.10, that serve as part of a secondary containment system to collect or contain releases of hazardous wastes are exempted from the requirements in 264.193(a). (11/90)

(c) Tanks, sumps, and other such collection devices or systems used in conjunction with drip pads, as defined in 260.10 and regulated under part 264 subpart W, must meet the requirements of this subpart. (12/92)

264.191 Assessment of existing tank system's integrity

(a) For each existing tank system that does not have secondary containment meeting the requirements of 264.193, the owner or operator must determine that the tank system is not leaking or is unfit for use. Except as provided in paragraph (c) of this section, the owner or operator must obtain and keep on file at the facility a written assessment reviewed and certified by an independent, qualified registered professional engineer, in accordance with R.61-79.270.11(d), that attests to the tank system's integrity by January 12, 1988. (12/92)

(b) This assessment must determine that the tank system is adequately designed and has sufficient structural strength and compatibility with the waste(s) to be stored or treated, to ensure that it will not collapse, rupture, or fail. At a minimum, this assessment must consider the following:

(1) Design standard(s), if available, according to which the tank and ancillary equipment were constructed;

(2) Hazardous characteristics of the waste(s) that have been and will be handled;

(3) Existing corrosion protection measures;

(4) Documented age of the tank system, if available (otherwise, an estimate of the age); and

(5) Results of a leak test, internal inspection, or other tank integrity examination such that:

(i) For non-enterable underground tanks, the assessment must include a leak test that is capable of taking into account the effects of temperature variations, tank end deflection, vapor pockets, and high water table effects, and

(ii) For other than non-enterable underground tanks and for ancillary equipment, this assessment must include either a leak test, as described above, or other integrity examination, that is certified by an independent, qualified, registered professional engineer in accordance with R.61-79.270.11(d), that addresses cracks, leaks, corrosion, and erosion.

[Note: The practices described in the American Petroleum Institute (API) Publication, Guide for Inspection of Refinery Equipment, Chapter XIII, Atmospheric and Low Pressure Storage Tanks, 4th edition, 1981, may be used, where applicable, as guidelines in conducting other than a leak test.] (12/92)

(c) Tank systems that store or treat materials that become hazardous wastes subsequent to July 14, 1986, must conduct this assessment within 12 months after the date that the waste becomes a hazardous waste.

(d) If, as a result of the assessment conducted in accordance with paragraph (a), a tank system is found to be leaking or unfit for use, the owner or operator must comply with the requirements of 264.196.

264.192 Design and installation of new tank systems or components

(a) Owners or operators of new tank systems or components must obtain and submit to the Department at time of submittal of Part B information, a written assessment, reviewed and certified by an independent, qualified registered professional engineer, in accordance with R.61-79.270.11(d), attesting that the tank system has sufficient structural integrity and is acceptable for the storing and treating of hazardous waste. The assessment must show that the foundation, structural support, seams, connections, and pressure controls (if applicable) are adequately designed and that the tank system has sufficient structural strength, compatibility with the waste(s) to be stored or treated, and corrosion protection to ensure that it will not collapse, rupture, or fail. This assessment, which will be used by the Department to review and approve or disapprove the acceptability of the tank system design, must include, at a minimum, the following information: (11/90)

(1) Design standard(s) according to which tank(s) and/or the ancillary equipment are constructed;

(2) Hazardous characteristics of the waste(s) to be handled;

(3) For new tank systems or components in which the external shell of a metal tank or any external metal component of the tank system will be in contact with the soil or with water, a determination by a corrosion expert of:

(i) Factors affecting the potential for corrosion, including but not limited to:

(A) Soil moisture content;

(B) Soil pH;

(C) Soil sulfides level;

(D) Soil resistivity;

(E) Structure to soil potential;

(F) Influence of nearby underground metal structures (e.g., piping);

(G) Existence of stray electric current;

(H) Existing corrosion-protection measures (e.g., coating, cathodic protection), and

(ii) 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: (11/90)

(A) Corrosion-resistant materials of construction such as special alloys, fiberglass reinforced plastic, etc.;

(B) Corrosion-resistant coating (such as epoxy, fiberglass, etc.) with cathodic protection (e.g., impressed current or sacrificial anodes); and

(C) Electrical isolation devices such as insulating joints, flanges, etc. (11/90)

[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.] (12/92)

(4) For underground tank system components that are likely to be adversely affected by vehicular traffic, a determination of design or operational measures that will protect the tank system against potential damage; and (11/90)

(5) Design considerations to ensure that:

(i) Tank foundations will maintain the load of a full tank;

(ii) Tank systems will be anchored to prevent flotation or dislodgment where the tank system is placed in a saturated zone, or is located within a seismic fault zone subject to the standards of 264.18(a); and

(iii) Tank systems will withstand the effects of frost heave.

(b) The owner or operator of a new tank system must ensure that proper handling procedures are adhered to in

order to prevent damage to the system during installation. Prior to covering, enclosing, or placing a new tank system or component in use, an independent, qualified installation inspector or an independent, qualified, registered professional engineer, either of whom is trained and experienced in the proper installation of tank systems or components, must inspect the system for the presence of any of the following items:

(1) Weld breaks;

(2) Punctures;

(3) Scrapes of protective coatings;

(4) Cracks;

(5) Corrosion;

(6) Other structural damage or inadequate construction/installation. All discrepancies must be remedied before the tank system is covered, enclosed, or placed in use.

(c) New tank systems or components that are placed underground and that are backfilled must be provided with a backfill material that is a noncorrosive, porous, homogeneous substance and that is installed so that the backfill is placed completely around the tank and compacted to ensure that the tank and piping are fully and uniformly supported.

(d) All new tanks and ancillary equipment must be tested for tightness prior to being covered, enclosed, or placed in use. If a tank system is found not to be tight, all repairs necessary to remedy the leak(s) in the system must be performed prior to the tank system being covered, enclosed, or placed into use.

(e) 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 Piping, and ANSI Standard B31.4 Liquid Petroleum Transportation Piping System, may be used, where applicable, as guidelines for proper installation of piping systems.] (12/92)

(f) The owner or operator must provide the type and degree of corrosion protection recommended by an independent corrosion expert, based on the information provided under paragraph (a)(3) of this section, or other corrosion protection if the Department believes other corrosion protection is necessary to ensure the integrity of the tank system during use of the tank system. The installation of a corrosion protection system that is field fabricated must be supervised by an independent corrosion expert to ensure proper installation.

(g) The owner or operator must obtain and keep on file at the facility written statements by those persons required to certify the design of the tank system and supervise the installation of the tank system in accordance with the requirements of paragraphs (b) through (f) of this section, that attest that the tank system was properly designed and installed and that repairs, pursuant to paragraphs (b) and (d) of this section, were performed. These written statements must also include the certification statement as required in R.61-79.270.11(d).

264.193 Containment and detection of releases

(a) 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 (f) and (g) of this section):

(1) For all new tank systems or components, prior to their being put into service;

(2) For all existing tank systems used to store or treat EPA Hazardous Waste Nos. F020, F021, F022, F023, F026, and F027, within two years after January 12, 1987; (12/92)

(3) For those existing tank systems of known and documented age, within two years after January 12, 1987 or when the tank system has reached 15 years of age, whichever comes later; (12/92)

(4) For those existing tank systems for which the age cannot be documented, within eight years of January 12, 1987; but if the age of the facility is greater than seven years, secondary containment must be provided by the time the facility reaches 15 years of age, or within two years of January 12, 1987, whichever comes later; and (12/92)

(5) For tank systems that store or treat materials that become hazardous wastes subsequent to January 12, 1987, within the time intervals required in paragraphs (a)(1) through (a)(4) of this section, except that the date that a material becomes a hazardous waste must be used in place of January 12, 1987. (12/92)

(b) Secondary containment systems must be:

(1) Designed, installed, and operated to prevent any migration of wastes or accumulated liquid out of the system to the soil, groundwater or surface water at any time during the use of the tank system; and

(2) Capable of detecting and collecting releases and accumulated liquids until the collected material is removed.

(c) To meet the requirements of paragraph (b) of this section, secondary containment systems must be at a minimum:

(1) Constructed of or lined with materials that are compatible with the waste(s) to be placed in the tank system and must have sufficient strength and thickness to prevent failure owing to pressure gradients (including static head and external hydrological forces), physical contact with the waste to which it is exposed, climatic conditions, and the stress of daily operation (including stresses from nearby vehicular traffic).

(2) Placed on a foundation or base capable of providing support to the secondary containment system, resistance to pressure gradients above and below the

system, and capable of preventing failure due to settlement, compression, or uplift;

(3) Provided with a leak-detection system that is designed and operated so that it will detect the failure of either the primary or secondary containment structure or the presence of any release of hazardous waste or accumulated liquid in the secondary containment system within 24 hours, or at the earliest practicable time if the owner or operator can demonstrate to the Department that existing detection technologies or site conditions will not allow detection of a release within 24 hours; and

(4) Sloped or otherwise designed or operated to drain and remove liquids resulting from leaks, spills, or precipitation. Spilled or leaked waste and accumulated precipitation must be removed from the secondary containment system within 24 hours, or in as timely a manner as is possible to prevent harm to human health and the environment, if the owner or operator can demonstrate to the Department that removal of the released waste or accumulated precipitation cannot be accomplished within 24 hours.

[Note: If the collected material is a hazardous waste under R.61-79.261, it is subject to management as a hazardous waste in accordance with all applicable requirements of R.61-79.262 through R.61-79.266. If the collected material is discharged through a point source to waters of the State, it is subject to the requirements of SC Pollution Control Act and sections 301, 304, and 402 of the Clean Water Act, as amended. If discharged to a Publicly Owned Treatment Works (POTW), it is subject to the SC Pollution Control Act and 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 SC Pollution Control Act and the reporting requirements of 40 CFR part 302.] (12/92)

(d) Secondary containment for tanks must include one or more of the following devices:

(1) A liner (external to the tank);

(2) A vault;

(3) A double-walled tank; or

(4) An equivalent device as approved by the Department.

(e) In addition to the requirements of paragraphs (b), (c), and (d) of this section, secondary containment systems must satisfy the following requirements:

(1) External liner systems must be:

(i) Designed or operated to contain 100 percent of the capacity of the largest tank within its boundary;

(ii) Designed or operated to prevent runon or infiltration of precipitation into the secondary containment system unless the collection system has sufficient excess capacity to contain runon or infiltration. Such additional capacity must be sufficient to contain precipitation from a 25-year, 24-hour rainfall event.

(iii) Free of cracks or gaps; and

(iv) Designed and installed to surround the tank completely and to cover all surrounding earth likely to come into contact with the waste if the waste is released from the tank(s) (i.e., capable of preventing lateral as well as vertical migration of the waste).

(2) Vault systems must be:

(i) Designed or operated to contain 100 percent of the capacity of the largest tank within its boundary;

(ii) Designed or operated to prevent runon or infiltration of precipitation into the secondary containment system unless the collection system has sufficient excess capacity to contain runon or infiltration. Such additional capacity must be sufficient to contain precipitation from a 25-year, 24-hour rainfall event:

(iii) Constructed with chemical-resistant water stops in place at all joints (if any):

(iv) 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;

(v) Provided with a means to protect against the formation of and ignition of vapors within the vault, if the waste being stored or treated:

(A) Meets the definition of ignitable waste under R.61-79.261.21; or

(B) Meets the definition of reactive waste under R.61-79.261.23, and may form an ignitable or explosive vapor. (11/90)

(vi) 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.

(3) Double-walled tanks must be:

(i) Designed as an integral structure (i.e., an inner tank completely enveloped within an outer shell) so that any release from the inner tank is contained by the outer shell.

(ii) Protected, if constructed of metal, from both corrosion of the primary tank interior and of the external surface of the outer shell; and

(iii) 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 Department and the Department concludes, that the existing detection technology or site conditions would not allow detection of a release within 24 hours.

[Note: The provisions outlined in the Steel Tank Institutes (STI) Standard for Dual Wall Underground Steel Storage Tanks may be used as guidelines for aspects of the design of underground steel double-walled tanks.] (12/92)

(f) Ancillary equipment must be provided with secondary containment (e.g., trench, jacketing, double-

walled piping) that meets the requirements of paragraphs (b) and (c) of this section except for:

(1) Above-ground piping (exclusive of flanges, joints, valves, and other connections) that are visually inspected for leaks on a daily basis;

(2) Welded flanges, welded joints, and welded connections, that are visually inspected for leaks on a daily basis;

(3) Sealless or magnetic coupling pumps and sealless valves, that are visually inspected for leaks on a daily basis; and (11/90)

(4) 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.

(g) The owner or operator may obtain a variance from the requirements of this section if the Department finds, as a result of a demonstration by the owner or operator that alternative design and operating practices, together with location characteristics, will prevent the migration of any hazardous waste or hazardous constituents into the groundwater; or surface water at least as effectively as secondary containment during the active life of the tank system or that in the event of a release that does migrate to groundwater or surface water, no substantial present or potential hazard will be posed to human health or the environment. New underground tank systems may not, per a demonstration in accordance with paragraph (g)(2) of this section, be exempted from the secondary containment requirements of this section.

(1) In deciding whether to grant a variance based on a demonstration of equivalent protection of groundwater and surface water, the Department will consider:

(i) The nature and quantity of the wastes;

(ii) The proposed alternate design and operation;

(iii) The hydrogeologic setting of the facility, including the thickness of soils present between the tank system and groundwater, and

(iv) All other factors that would influence the quality and mobility of the hazardous constituents and the potential for them to migrate to groundwater or surface water.

(2) In deciding whether to grant a variance based on a demonstration of no substantial present or potential hazard, the Department will consider:

(i) The potential adverse effects on groundwater, surface water, and land quality taking into account:

(A) The physical and chemical characteristics of the waste in the tank system, including its potential for migration.

(B) The hydrogeological characteristics of the facility and surrounding land,

(C) The potential for health risks caused by human exposure to waste constituents,

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

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

(ii) The potential adverse effects of a release on groundwater quality, taking into account:

(A) The quantity and quality of groundwater and the direction of groundwater flow,

(B) The proximity and withdrawal rates of groundwater users,

(C) The current and future uses of groundwater in the area, and

(D) The existing quality of groundwater, including other sources of contamination and their cumulative impact on the groundwater quality;

(iii) The potential adverse effects of a release on surface water quality, taking into account:

(A) The quantity and quality of groundwater and the direction of groundwater flow,

(B) The patterns of rainfall in the region,

(C) The proximity of the tank system to surface waters,

(D) The current and future uses of surface waters in the area and any water quality standards established for those surface waters, and

(E) The existing quality of surface water, including other sources of contamination and the cumulative impact on surface water quality; and

(iv) The potential adverse effects of a release on the land surrounding the tank system, taking into account:

(A) The patterns of rainfall in the region, and

(B) The current and future uses of the surrounding land.

(3) The owner or operator of a tank system, for which a variance from secondary containment had been granted in accordance with the requirements of paragraph (g)(1) of this section, 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:

(i) Comply with the requirements of 264.196, except paragraph (d), and

(ii) Decontaminate or remove contaminated soil to the extent necessary to:

(A) Enable the tank system for which the variance was granted to resume operation with the capability for the detection of releases at least equivalent to the capability it had prior to the release; and

(B) Prevent the migration of hazardous waste or hazardous constituents to groundwater or surface water; and

(iii) If contaminated soil cannot be removed or decontaminated in accordance with paragraph (g)(3)(ii) of this section, comply with the requirement of 264.197(b).

(4) The owner or operator of a tank system, for which a variance from secondary containment had been granted in accordance with the requirements of paragraph (g)(1) of this section, 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:

(i) Comply with the requirements of 264.196 (a), (b), (c), and (d); and

(ii) Prevent the migration of hazardous waste or hazardous constituents to groundwater or surface water, if possible, and decontaminate or remove contaminated soil. If contaminated soil cannot be decontaminated or removed or if groundwater has been contaminated, the owner or operator must comply with the requirements of 264.197(b); and

(iii) If repairing, replacing, or reinstalling the tank system, provide secondary containment in accordance with the requirements of paragraphs (a) through (f) of this section or reapply for a variance from secondary containment and meet the requirements for new tank systems in 264.192 if the tank system is replaced. The owner or operator must comply with these requirements even if contaminated soil can be decontaminated or removed and groundwater or surface water has not been contaminated.

(h) The following procedures must be followed in order to request a variance from secondary containment:

(1) The Department must be notified in writing by the owner or operator that he intends to conduct and submit a demonstration for a variance from secondary containment as allowed in paragraph (g) of this section according to the following schedule: (12/93)

(i) For existing tank systems, at least 24 months prior to the date that secondary containment must be provided in accordance with paragraph (a) of this section.

(ii) For new tank systems, at least 30 days prior to entering into a contract for installation. (11/90)

(2) As part of the notification, the owner or operator must also submit to the Department 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 paragraph (g)(1) or paragraph (g)(2) of this section;

(3) The demonstration for a variance must be completed within 180 days after notifying the Department of an intent to conduct the demonstration; and

(4) If a variance is granted under this paragraph, the Department will require the permittee to construct and operate the tank system in the manner that was demonstrated to meet the requirements for the variance.

(i) All tank systems, until such time as secondary containment that meets the requirements of this section is provided, must comply with the following:

(1) For non-enterable underground tanks, a leak test that meets the requirements of 264.191(b)(5) or other tank integrity method, as approved or required by the Department must be conducted at least annually.

(2) For other than non-enterable underground tanks, the owner or operator must either conduct a leak test as in paragraph (i)(1) of this section or develop a schedule and procedure for an assessment of the overall condition of the tank system by an independent, qualified registered professional engineer. The schedule and procedure must be adequate to detect obvious cracks, leaks, and corrosion or erosion that may lead to cracks and leaks. The owner or operator must remove the stored waste from the tank, if necessary, to allow the condition of all internal tank surfaces to be assessed. The frequency of these assessments must be based on the material of construction of the tank and its ancillary equipment, the age of the system, the type of corrosion or erosion protection used, the rate of corrosion or erosion observed during the previous inspection, and the characteristics of the waste being stored or treated.

(3) For ancillary equipment, a leak test or other integrity assessment as approved by the Department must be conducted at least annually.

[Note: The practices described in the American Petroleum Institute (API) Publication Guide for Inspection of Refinery Equipment, Chapter XIII, Atmospheric and Low Pressure Storage Tanks, 4th edition, 1981, may be used, where applicable, as guidelines for assessing the overall condition of the tank system.] (12/92)

(4) The owner or operator must maintain on file at the facility a record of the results of the assessments conducted in accordance with paragraphs (i)(1) through (i)(3) of this section.

(5) 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 paragraphs (i)(1) through (i)(3) of this section, the owner or operator must comply with the requirements of 264.196.

264.194 General operating requirements

(a) Hazardous wastes or treatment reagents must not be placed in a tank system if they could cause the tank, its ancillary equipment, or the containment system to rupture, leak, corrode, or otherwise fail.

(b) The owner or operator must use appropriate controls and practices to prevent spills and overflows from tank or containment systems. These include at a minimum:

(1) Spill prevention controls (e.g., check valves, dry disconnect couplings);

(2) Overfill prevention controls (e.g., level sensing devices, high level alarms, automatic feed cutoff, or bypass to a standby tank); and

(3) Maintenance of sufficient freeboard in uncovered tanks to prevent overtopping by wave or wind action or by precipitation.

(c) The owner or operator must comply with the requirements of 264.196 if a leak or spill occurs in the tank system.

264.195 Inspections

(a) The owner or operator must develop and follow a schedule and procedure for inspecting overfill controls.

(b) The owner or operator must inspect at least once each operating day:

(1) Above-ground portions of the tank system, if any, to detect corrosion or releases of waste;

(2) Data gathered from monitoring and leak detection equipment (e.g., pressure or temperature gauges, monitoring wells) to ensure that the tank system is being operated according to its design; and

(3) The construction materials and the area immediately surrounding the externally accessible portion of the tank system, including the secondary containment system (e.g., dikes) to detect erosion or signs of releases of hazardous waste (e.g., wet spots, dead vegetation).

[Note: Section 264.15(c) requires the owner or operator to remedy any deterioration or malfunction he finds. Section 264.196 requires the owner or operator to notify the Department within 24 hours of confirming a leak. Also, 40 CFR part 302 may require the owner or operator to notify the National Response Center of a release.] (12/92)

(c) The owner or operator must inspect cathodic protection systems, if present, according to, at a minimum, the following schedule to ensure that they are functioning properly:

(1) The proper operation of the cathodic protection system must be confirmed within six months after initial installation and annually thereafter; and

(2) 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, and the American Petroleum Institute (API) Publication 1632, Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems, may be used, where applicable, as guidelines in maintaining and inspecting cathodic protection systems.] (12/92)

(d) The owner or operator must document in the operating record of the facility an inspection of those items in paragraphs (a) through (c) of this section.

264.196 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:

(a) 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.

(b) Removal of waste from tank system or secondary containment system.

(1) If the release was from the tank system, the owner/operator must, within 24 hours after detection of the leak or, if the owner/operator demonstrates that it is not possible, at the earliest practicable time, remove as much of the waste as is necessary to prevent further release of hazardous waste to the environment and to allow inspection and repair of the tank system to be performed. (12/92)

(2) If the material released 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.

(c) Containment of visible releases to the environment. The owner/operator must immediately conduct a visual inspection of the release and, based upon that inspection:

(1) Prevent further migration of the leak or spill to soils or surface water; and

(2) Remove, and properly dispose of, any visible contamination of the soil or surface water.

(d) Notifications, reports.

(1) Any release to the environment, except as provided in paragraph (d)(2) of this section, must be reported to the Department within 24 hours of its detection. If the release has been reported pursuant to 40 CFR part 302, that report will satisfy this requirement. (12/92)

(2) A leak or spill of hazardous waste is exempted from the requirements of this paragraph if it is:

(i) Less than or equal to a quantity of one (1) pound, and

(ii) Immediately contained and cleaned up.

(3) Within 30 days of detection of a release to the environment, a report containing the following information must be submitted to the Department:

(i) Likely route of migration of the release;

(ii) Characteristics of the surrounding soil (soil composition, geology, hydrogeology, climate);

(iii) 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 Department as soon as they become available.

(iv) Proximity to downgradient drinking water, surface water, and populated areas; and

(v) Description of response actions taken or planned.

(e) Provision of secondary containment, repair, or closure.

(1) Unless the owner/operator satisfies the requirements of paragraphs (e)(2) through (4) of this section, the tank system must be closed in accordance with 264.197.

(2) 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.

(3) If the cause of the release was a leak from the primary tank system into the secondary containment system, the system must be repaired prior to returning the tank system to service.

(4) If the source of the release was a leak to the environment from a component of a tank system without secondary containment, the owner/operator must provide the component of the system from which the leak occurred with secondary containment that satisfies the requirements of 264.193 before it can be returned to service, unless the source of the leak is an above-ground portion of a tank system that can be inspected visually. If the source is an above-ground 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 (f) of this section 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 264.192 and 264.193. 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 264.193 prior to being returned to use.

(f) Certification of major repairs. If the owner/operator has repaired a tank system in accordance with paragraph (e) of this section, 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 by an independent, qualified, registered, professional engineer in accordance with R.61-79.270.11(d) that the repaired system is capable of handling hazardous wastes without release for the intended life of the system. This certification must be submitted to the Department within seven days after returning the tank system to use.

[Note: The Department 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 S.C. 48-1-50, or 44-56-130, or 44-56-140, or 44-56-50, or under RCRA section 3004(v), 3008(h), or 7003(a) requiring corrective action or such other response as deemed necessary to protect human health or the environment. (12/92)]

[Note: See 264.15(c) for the requirements necessary to remedy a failure. Also, 40 CFR part 302 may require the owner or operator to notify the National Response Center of certain releases.] (12/92)

264.197 Closure and postclosure care

(a) 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 R.61-79.261.3(d) applies. The closure plan, closure activities, cost estimates for closure, and financial responsibility for tank systems must meet all of the requirements specified in subparts G and H of this part. (12/93)

(b) If the owner or operator demonstrates that not all contaminated soils can be practicably removed or decontaminated as required in paragraph (a) of this section, then the owner or operator must close the tank system and perform postclosure care in accordance with the closure and postclosure care requirements that apply to landfills (section 264.310). In addition, for the purposes of closure, postclosure, 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 subparts G and H of this part. (12/93)

(c) If an owner or operator has a tank system that does not have secondary containment that meets the requirements of 264.193 (b) through (f) and has not been granted a variance from the secondary containment requirements in accordance with 264.193(g), then:

(1) The closure plan for the tank system must include both a plan for complying with paragraph (a) of this section and a contingent plan for complying with paragraph (b) of this section.

(2) A contingent postclosure plan for complying with paragraph (b) of this section must be prepared and submitted as part of the permit application.

(3) The cost estimates calculated for closure and postclosure care must reflect the costs of complying with the contingent closure plan and the contingent postclosure plan, if those costs are greater than the costs

of complying with the closure plan prepared for the expected closure under paragraph (a) of this section.

(4) Financial assurance must be based on the cost estimates in paragraph (c)(3) of this section.

(5) For the purposes of the contingent closure and postclosure plans, such a tank system is considered to be a landfill, and the contingent plans must meet all of the closure, postclosure, and financial responsibility requirements for landfills under subparts G and H of this part.

264.198 Special requirements for ignitable or reactive wastes

(a) Ignitable or reactive waste must not be placed in tank systems, unless:

(1) The waste is treated, rendered, or mixed before or immediately after placement in the tank system so that:

(i) The resulting waste, mixture, or dissolved material no longer meets the definition of ignitable or reactive waste under R.61-79.261.21 or 261.23, and

(ii) Section 264.17(b) is complied with; or

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

(3) The tank system is used solely for emergencies.

(b) The owner or operator of a facility where ignitable or reactive waste is stored or treated in a tank must comply with the requirements for the maintenance of protective distances between the waste management area and any public ways, streets, alleys, or an adjoining property line that can be built upon as required in Tables 2-1 through 2-6 of the National Fire Protection Association's "Flammable and Combustible Liquids Code," (1977 or 1981), (incorporated by reference, see 260.11).

264.199 Special requirements for incompatible wastes

(a) Incompatible wastes, or incompatible wastes and materials, must not be placed in the same tank system, unless 264.17(b) is complied with.

(b) Hazardous waste must not be placed in a tank system that has not been decontaminated and that previously held an incompatible waste or material, unless 264.17(b) is complied with.

264.200 Air emission standards

The owner or operator shall manage all hazardous waste placed in a tank in accordance with the applicable requirements of subparts AA, BB, and CC of this part. (9/98)

Subpart K - Surface Impoundments

264.220 Applicability

The regulations in this subpart apply to owners and operators of facilities that use surface impoundments to treat, store, or dispose of hazardous waste except as 264.1 provides otherwise.

264.221 Design and operating requirements

(a) Any surface impoundment that is not covered by paragraph (c) of this section or R.61-79.265.221 must have a liner for all portions of the impoundment (except for existing portions of such impoundments). The liner must be designed, constructed, and installed to prevent any migration of wastes out of the impoundment to the adjacent subsurface soil or groundwater or surface water at any time during the active life (including the closure period) of the impoundment. The liner may be constructed of materials that may allow wastes to migrate into the liner (but not into the adjacent subsurface soil or groundwater or surface water) during the active life of the facility, provided that the impoundment is closed in accordance with 264.228(a)(1). For impoundments that will be closed in accordance with 264.228(a)(2), the liner must be constructed of materials that can prevent wastes from migrating into the liner during the active life of the facility. The liner must be:

(1) Constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the waste or leachate to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation;

(2) 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

(3) Installed to cover all surrounding earth likely to be in contact with the waste or leachate.

(b) The owner or operator will be exempted from the requirements of paragraph (a) of this section if the Department finds, based on a demonstration by the owner or operator, that alternate design and operating practices, together with location characteristics, will prevent the migration of any hazardous constituents (see section 264.93) into the groundwater or surface water at any future time. In making such demonstration, the owner or operator shall consider: (12/93)

(1) The nature and quantity of the wastes;

(2) The proposed alternate design and operation;

(3) The hydrogeologic setting of the facility, including the attenuative capacity and thickness of the liners and soils present between the impoundment and groundwater or surface water; and (11/90)

(4) All other factors which would influence the quality and mobility of the leachate produced and the

potential for it to migrate to groundwater or surface water.

(c) The owner or operator of each new surface impoundment unit on which construction commences after January 29, 1992, each lateral expansion of a surface impoundment unit on which construction commences after July 29, 1992 and each replacement of an existing surface impoundment unit that is to commence reuse after July 29, 1992 must install two or more liners and a leachate collection and removal system between such liners. "Construction commences" is as defined in 260.10 under "existing facility". (11/90; 12/92; 12/93)

(1) (i) The liner system must include: (12/93)

(A) A top liner designed and constructed of materials (e.g., a geomembrane) to prevent the migration of hazardous constituents into such liner during the active life and post-closure care period; and

(B) A composite bottom liner, consisting of at least two components. The upper component must be designed and constructed of materials (e.g., a geomembrane) to prevent the migration of hazardous constituents into this component during the active life and post-closure care period. The lower component must be designed and constructed of materials to minimize the migration of hazardous constituents if a breach in the upper component were to occur. The lower component must be constructed of at least 3 feet (91 cm) of compacted soil material with a hydraulic conductivity of no more than $1x10/^{-7}$/cm/sec.

(ii) The liners must comply with paragraphs (a) (1), (2), and (3) of this section.

(2) The leachate collection and removal system between the liners, and immediately above the bottom composite liner in the case of multiple leachate collection and removal systems, is also a leak detection system. This leak detection system must be capable of detecting, collecting, and removing leaks of hazardous constituents at the earliest practicable time through all areas of the top liner likely to be exposed to waste or leachate during the active life and post-closure care period. The requirements for a leak detection system in this paragraph are satisfied by installation of a system that is, at a minimum: (12/93)

(i) Constructed with a bottom slope of one percent or more;

(ii) Constructed of granular drainage materials with a hydraulic conductivity of $1x10/^{-1}$/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 $3x10/^{-4}/m^2$sec or more;

(iii) Constructed of materials that are chemically resistant to the waste managed in the surface impoundment and the leachate expected to be generated, and of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes and any waste cover materials or equipment used at the surface impoundment;

(iv) Designed and operated to minimize clogging during the active life and post-closure care period; and

(v) Constructed with sumps and liquid removal methods (e.g., pumps) of sufficient size to collect and remove liquids from the sump and prevent liquids from backing up into the drainage layer. Each unit must have its own sump(s). The design of each sump and removal system must provide a method for measuring and recording the volume of liquids present in the sump and of liquids removed.

(3) The owner or operator shall collect and remove pumpable liquids in the sumps to minimize the head on the bottom liner. (12/93)

(4) The owner or operator of a leak detection system that is not located completely above the seasonal high water table must demonstrate that the operation of the leak detection system will not be adversely affected by the presence of ground water. (12/93)

(d) The Department may approve alternative design or operating practices to those specified in paragraph (c) of this section if the owner or operator demonstrates to the Department that such design and operating practices, together with location characteristics: (12/93)

(1) Will prevent the migration of any hazardous constituent into the groundwater or surface water at least as effectively as the liners and leachate collection and removal system specified in paragraph (c) of this section; and (12/93)

(2) Will allow detection of leaks of hazardous constituents through the top liner at least as effectively. (12/93)

(e) The double liner requirement set forth in paragraph (c) of this section may be waived by the Department for any monofill, if:

(1) The monofill contains only hazardous wastes from foundry furnace emission controls or metal casting molding sand, and such wastes do not contain constituents which would render the wastes hazardous for reasons other than the TCLP toxicity characteristics in R.61-79.261.24; and (11/90)

(2) (i) (A) 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, groundwater, 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 (c) of this section on the basis of a liner designed, constructed, installed, and operated to prevent hazardous waste from passing beyond the liner, at the closure of such 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 will comply with appropriate postclosure requirements, including but not limited to groundwater monitoring and corrective action;

(B) The monofill is located more than one-quarter mile from an underground source of drinking water; and

(C) The monofill is in compliance with generally applicable groundwater monitoring requirements for facilities with permits under R.61-79, S.C. 44-56-60 or RCRA section 3005(c); (12/92) or

(ii) 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 groundwater or surface water at any future time.

(f) The owner or operator of any replacement surface impoundment unit is exempt from paragraph (c) of this section if: (12/93)

(1) The existing unit was constructed in compliance with the design standards of sections 3004 (o)(1)(A)(i) and (o)(5) of the Resource Conservation and Recovery Act; and

(2) There is no reason to believe that the liner is not functioning as designed.

(g) A surface impoundment must be designed, constructed, maintained, and operated to prevent overtopping resulting from normal or abnormal operations; overfilling; wind and wave action; rainfall; runon; malfunctions of level controllers, alarms, and other equipment; and human error. (12/93)

(h) A surface impoundment must have dikes that are designed, constructed, and maintained with sufficient structural integrity to prevent massive failure of the dikes, an outside protective cover to minimize erosion by wind and water. In ensuring structural integrity, it must not be presumed that the liner system will function without leakage during the active life of the unit. (12/93)

(i) The owner or operator shall specify in the permit application all design and operating practices that are necessary to ensure that the requirements of this section are satisfied.

(j) A surface impoundment shall be designed and constructed such that the bottom of any liner system or natural in-place barrier is at least five (5) feet above the seasonal high water table unless it can be demonstrated to the Department that adequate protection of the groundwater can be maintained at a lesser distance. (12/93)

264.222 Action leakage rate (12/93)

(a) The Department shall approve an action leakage rate for surface impoundment units subject to 264.221 (c) or (d). 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 1 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 consider 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.).

(b) 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 264.226(d) to an average daily flow rate (gallons per acre per day) for each sump. Unless the Department 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 is closed in accordance with section 264.228(b), monthly during the post-closure care period when monthly monitoring is required under section 264.226(d).

264.223 Response actions (12/93)

(a) The owner or operator of surface impoundment units subject to section 264.221 (c) or (d) must have an approved response action plan before receipt of waste. 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 (b) of this section.

(b) If the flow rate into the leak detection system exceeds the action leakage rate for any sump, the owner or operator must:

(1) Notify the Department in writing of the exceedence within 7 days of the determination;

(2) Submit a preliminary written assessment to the Department 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;

(3) Determine to the extent practicable the location, size, and cause of any leak;

(4) 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;

(5) Determine any other short-term and longer-term actions to be taken to mitigate or stop any leaks; and

(6) Within 30 days after the notification that the action leakage rate has been exceeded, submit to the Department the results of the analyses specified in paragraphs (b) (3), (4), and (5) of this section, 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 Department a report summarizing the results of any remedial actions taken and actions planned.

(c) To make the leak and/or remediation determinations in paragraphs (b) (3), (4), and (5) of this section, the owner or operator must:

(1) (i) Assess the source of liquids and amounts of liquids by source,

(ii) 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

(iii) Assess the seriousness of any leaks in terms of potential for escaping into the environment; or

(2) Document why such assessments are not needed.

264.224 - 264.225 [Reserved]

264.226 Monitoring and inspection

(a) During construction and installation, liners (except in the case of existing portions of surface impoundments exempt from 264.221(a)) 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:

(1) Synthetic liners and covers must be inspected to ensure tight seams and joints and the absence of tears, punctures, or blisters; and

(2) Soil-based and admixed liners and covers must be inspected for imperfections including lenses, cracks, channels, root holes, or other structural non-uniformities that may cause an increase in the permeability of the liner or cover.

(b) While a surface impoundment is in operation, it must be inspected weekly and after storms to detect evidence of any of the following:

(1) Deterioration, malfunctions, or improper operation of overtopping control systems;

(2) Sudden drops in the level of the impoundment's contents; and

(3) Severe erosion or other signs of deterioration in dikes or other containment devices.

(c) Prior to the issuance of a permit, and after any extended period of time (at least six months) during which the impoundment was not in service, the owner or operator must obtain a certification from a registered engineer that the impoundment's dike, including that portion of any dike which provides freeboard, has structural integrity. The certification must establish, in particular, that the dike:

(1) Will withstand the stress of the pressure exerted by the types and amounts of wastes to be placed in the impoundment; and

(2) Will not fail due to scouring or piping, without dependence on any liner system included in the surface impoundment construction.

(d) (1) An owner or operator required to have a leak detection system under 264.221 (c) or (d) 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. (12/93)

(2) After the final cover is installed, the amount of liquids removed from each leak detection system sump must be recorded at least monthly. If the liquid level in the sump stays below the pump operating level for two consecutive months, the amount of liquids in the sumps must be recorded at least quarterly. If the liquid level in the sump stays below the pump operating level for two consecutive quarters, the amount of liquids in the sumps 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 amounts of liquids removed from each sump until the liquid level again stays below the pump operating level for two consecutive months. (12/93)

(3) "Pump operating level" is a liquid level proposed by the owner or operator and approved by the Department based on pump activation level, sump dimensions, and level that avoids backup into the drainage layer and minimizes head in the sump. (12/93)

264.227 Emergency repairs; contingency plans

(a) A surface impoundment must be removed from service in accordance with paragraph (b) of this section when:

(1) The level of liquids in the impoundment suddenly drops and the drop is not known to be caused by changes in the flows into or out of the impoundment; (12/92) or

(2) The dike leaks.

(b) When a surface impoundment must be removed from service as required by paragraph (a) of this section, the owner or operator must:

(1) Immediately shut off the flow or stop the addition of wastes into the impoundment;

(2) Immediately contain any surface leakage which has occurred or is occurring;

(3) Immediately stop the leak;

(4) Take any other necessary steps to stop or prevent catastrophic failure;

(5) If a leak cannot be stopped by any other means, empty the impoundment; and

(6) Notify the Department of the problem in writing within seven days after detecting the problem.

(c) As part of the contingency plan required in Subpart D of this part, the owner or operator must specify a procedure for complying with the requirements of paragraph (b) of this section. (12/93)

(d) No surface impoundment that has been removed from service in accordance with the requirements of this section may be restored to service unless the portion of the impoundment which was failing is repaired and the following steps are taken:

(1) If the impoundment was removed from service as the result of actual or imminent dike failure, the dike's structural integrity must be recertified in accordance with 264.226(c).

(2) If the impoundment was removed from service as the result of a sudden drop in the liquid level, then:

(i) For any existing portion of the impoundment, a liner must be installed in compliance with 264.221(a); and (12/93)

(ii) For any other portion of the impoundment, the repaired liner system must be certified by a registered engineer as meeting the design specifications specified in the permit application.

(e) A surface impoundment that has been removed from service in accordance with the requirements of this section and that is not being repaired must be closed in accordance with the provisions of 264.228.

264.228 Closure and postclosure care

(a) At closure, the owner or operator must:

(1) 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 R.61-79.261.3(d) applies; or

(2) (i) Eliminate free liquids by removing liquid wastes or solidifying the remaining wastes and waste residues;

(ii) Stabilize remaining wastes to a bearing capacity sufficient to support final cover; and

(iii) Cover the surface impoundment with a final cover designed and constructed to: (6/89)

(A) Provide long-term minimization of the migration of liquids through the closed impoundment;

(B) Function with minimum maintenance;

(C) Promote drainage and minimize erosion or abrasion of the final cover;

(D) Accommodate settling and subsidence so that the cover's integrity is maintained; and

(E) Have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present.

(b) If some waste residues or contaminated materials are left in place at final closure, the owner or operator must comply with all postclosure requirements contained in 264.117 through .120 including maintenance and monitoring throughout the postclosure care period (specified in the permit under 264.117). The owner or operator must:

(1) Maintain the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, or other events;

(2) Maintain and monitor the leak detection system in accordance with 264.221(c)(2)(iv) and (3) and 264.226(d), and comply with all other applicable leak detection system requirements of this part; (12/93)

(3) Maintain and monitor the groundwater monitoring system and comply with all other applicable requirements of subpart F of this part; and (12/93)

(4) Prevent runon and runoff from eroding or otherwise damaging the final cover. (moved 12/93)

(c) (1) If an owner or operator plans to close a surface impoundment in accordance with paragraph (a)(1) of this section, and the impoundment does not comply with the liner requirements of 264.221(a) and is not exempt from them in accordance with 264.221(b), then:

(i) The closure plan for the impoundment under 264.112 must include both a plan for complying with paragraph (a)(1) of this section and a contingent plan for complying with paragraph (a)(2) of this section in case not all contaminated subsoils can be practicably removed at closure; and (12/93)

(ii) The owner or operator must prepare a contingent postclosure plan under 264.118 for complying with paragraph (b) of this section in case not all contaminated subsoils can be practicably removed at closure. (12/93)

(2) The cost estimates calculated under sections 264.142 and 264.144 for closure and postclosure care of an impoundment subject to this paragraph must include the cost of complying with the contingent closure plan and the contingent postclosure plan, but are not required to include the cost of expected closure under paragraph (a)(1) of this section. (12/93)

264.229 Special requirements for ignitable or reactive waste

Ignitable or reactive waste must not be placed in a surface impoundment.

264.230 Special requirements for incompatible wastes

Incompatible wastes, or incompatible wastes and materials, (see Appendix V of this part for examples) must not be placed in the same surface impoundment, unless 264.17(b) is complied with. (12/93)

264.231 Special requirements for hazardous wastes FO20, FO21, FO22, FO23, FO26, and FO27

(a) Hazardous Wastes F020, F021, F022, F023, F026, and F027 must not be placed in a surface impoundment unless the owner or operator operates the surface impoundment in accordance with a management

plan for these wastes that is approved by the Department pursuant to the standards set out in this paragraph, and in accord with all other applicable requirements of this part. The factors to be considered are:

(1) The volume, physical, and chemical characteristics of the wastes, including their potential to migrate through soil or to volatilize or escape into the atmosphere;

(2) The attenuative properties of underlying and surrounding soils or other materials;

(3) The mobilizing properties of other materials co-disposed with these wastes; and

(4) The effectiveness of additional treatment, design, or monitoring techniques.

(b) The Department may determine that additional design, operating, and monitoring requirements are necessary for surface impoundments managing hazardous wastes F020, F021, F022, F023, F026, and F027 in order to reduce the possibility of migration of these wastes to groundwater, surface water, or air so as to protect human health and the environment.

264.232 Air emission standards

The owner or operator shall manage all hazardous waste placed in a surface impoundment in accordance with the applicable requirements of subparts BB and CC of this part. (9/98)

Subpart L - Waste Piles

264.250 Applicability

(a) The regulations in this subpart apply to owners and operators of facilities that store or treat hazardous waste in piles, except as section 264.1 provides otherwise. (12/93)

(b) The regulations in this subpart do not apply to owners or operators of waste piles that are closed with wastes left in place. Such waste piles are subject to regulation under subpart N of this part (Landfills). (12/93)

(c) The owner or operator of any waste pile that is inside or under a structure that provides protection from precipitation so that neither runoff nor leachate is generated is not subject to regulation under 264.251 or under subpart F of this part, provided that: (12/93)

(1) Liquids or materials containing free liquids are not placed in the pile;

(2) The pile is protected from surface water runon by the structure or in some other manner;

(3) The pile is designed and operated to control dispersal of the waste by wind, where necessary, by means other than wetting; and

(4) The pile will not generate leachate through decomposition or other reactions.

264.251 Design and operating requirements

(a) A waste pile (except for an existing portion of a waste pile) must have:

(1) A liner that is designed, constructed, and installed to prevent any migration of wastes out of the pile into the adjacent subsurface soil or groundwater or surface water at any time during the active life (including the closure period) of the waste pile. The liner may be constructed of materials that may allow waste to migrate into the liner itself (but not into the adjacent subsurface soil or groundwater or surface water) during the active life of the facility. The liner must be:

(i) Constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the waste or leachate to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation;

(ii) Placed upon a foundation or base capable of providing support to the liner and resistance to pressure gradients above and below the liner to prevent failure of the liner due to settlement, compression, or uplift; and

(iii) Installed to cover all surrounding earth likely to be in contact with the waste or leachate; and

(2) A leachate collection and removal system immediately above the liner that is designed, constructed, maintained, and operated to collect and remove leachate from the pile. This system shall be designed and operated to ensure that the leachate depth over the liner does not exceed 30 cm (one foot). The leachate collection and removal system must be:

(i) Constructed of materials that are:

(A) Chemically resistant to the waste managed in the pile and the leachate expected to be generated; and

(B) Of sufficient strength and thickness to prevent collapse under the pressures exerted by overlaying wastes, waste cover materials, and by any equipment used at the pile; and

(ii) Designed and operated to function without clogging through the scheduled closure of the waste pile.

(b) The owner or operator will be exempted from the requirements of paragraph (a) of this section, if the Department finds, based on a demonstration by the owner or operator, that alternate design and operating practices, together with location characteristics, will prevent the migration of any hazardous constituents (see section 264.93) into the groundwater or surface water at any future time. In making such demonstration, the owner or operator shall consider: (12/93)

(1) The nature and quantity of the wastes;

(2) The proposed alternate design and operation;

(3) The hydrogeologic setting of the facility, including attenuative capacity and thickness of the liners and soils present between the pile and groundwater or surface water; and

(4) All other factors which would influence the quality and mobility of the leachate produced and the potential for it to migrate to groundwater or surface water.

(c) 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. "Construction commences" is as defined in section 260.10 under "existing facility". (12/93)

(1) (i) The liner system must include:

(A) A top liner designed and constructed of materials (e.g., a geomembrane) to prevent the migration of hazardous constituents into such liner during the active life and post-closure care period; and

(B) A composite bottom liner, consisting of at least two components. The upper component must be designed and constructed of materials (e.g., a geomembrane) to prevent the migration of hazardous constituents into this component during the active life and post-closure care period. The lower component must be designed and constructed of materials to minimize the migration of hazardous constituents if a breach in the upper component were to occur. The lower component must be constructed of at least 3 feet (91 cm) of compacted soil material with a hydraulic conductivity of no more than $1x10^{-7}$ cm/sec.

(ii) The liners must comply with paragraphs (a)(1)(i), (ii), and (iii) of this section.

(2) The leachate collection and removal system immediately above the top liner must be designed, constructed, operated, and maintained to collect and remove leachate from the waste pile during the active life and post-closure care period. The Department will specify design and operating conditions in the permit to ensure that the leachate depth over the liner does not exceed 30 cm (one foot). The leachate collection and removal system must comply with paragraphs (c)(3)(iii) and (iv) of this section.

(3) The leachate collection and removal system between the liners, and immediately above the bottom composite liner in the case of multiple leachate collection and removal systems, is also a leak detection system. This leak detection system must be capable of detecting, collecting, and removing leaks of hazardous constituents at the earliest practicable time through all areas of the top liner likely to be exposed to waste or leachate during the active life and post-closure care period. The requirements for a leak detection system in this paragraph are satisfied by installation of a system that is, at a minimum:

(i) Constructed with a bottom slope of one percent or more;

(ii) Constructed of granular drainage materials with a hydraulic conductivity of $1x10^{-2}$ 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 $3x10^{-5}$ m^2/sec or more:

(iii) Constructed of materials that are chemically resistant to the waste managed in the waste pile and the leachate expected to be generated, and of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes, waste cover materials, and equipment used at the waste pile;

(iv) Designed and operated to minimize clogging during the active life and post-closure care period; and

(v) Constructed with sumps and liquid removal methods (e.g., pumps) of sufficient size to collect and remove liquids from the sump and prevent liquids from backing up into the drainage layer. Each unit must have its own sump(s). The design of each sump and removal system must provide a method for measuring and recording the volume of liquids present in the sump and of liquids removed.

(4) The owner or operator shall collect and remove pumpable liquids in the leak detection system sumps to minimize the head on the bottom liner.

(5) The owner or operator of a leak detection system that is not located completely above the seasonal high water table must demonstrate that the operation of the leak detection system will not be adversely affected by the presence of ground water.

(d) The Department may approve alternative design or operating practices to those specified in paragraph (c) of this section if the owner or operator demonstrates to the Department that such design and operating practices, together with location characteristics: (12/93)

(1) Will prevent the migration of any hazardous constituent into the ground water or surface water at least as effectively as the liners and leachate collection and removal systems specified in paragraph (c) of this section; and

(2) Will allow detection of leaks of hazardous constituents through the top liner at least as effectively.

(e) Paragraph (c) of this section does not apply to monofills that are granted a waiver by the Department in accordance with 264.221(e). (12/93)

(f) The owner or operator of any replacement waste pile unit is exempt from paragraph (c) of this section if: (12/93)

(1) 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; and

(2) There is no reason to believe that the liner is not functioning as designed.

(g) The owner or operator must design, construct, operate, and maintain a runon control system capable of preventing flow onto the active portion of the pile during peak discharge from at least a 25-year storm. (12/93)

(h) The owner or operator must design, construct, operate, and maintain a runoff management system to collect and control at least the water volume resulting from a 24-hour, 25-year storm. (12/93)

(i) Collection and holding facilities (e.g., tanks or basins) associated with runon and runoff control systems must be emptied or otherwise managed expeditiously after storms to maintain design capacity of the system. (12/92; 12/93)

(j) If the pile contains any particulate matter which may be subject to wind dispersal, the owner or operator must cover or otherwise manage the pile to control wind dispersal. (12/93)

(k) The owner or operator shall specify in the permit application all design and operating practices that are necessary to ensure that the requirements of this section are satisfied. (12/93)

264.252 Action leakage rate (12/93)

(a) The Department shall approve an action leakage rate for waste pile units subject to 264.251(c) or (d). 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 1 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 consider 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.).

(b) 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 264.254(c) to an average daily flow rate (gallons per acre per day) for each sump. Unless the Department approves a different calculation, the average daily flow rate for each sump must be calculated weekly during the active life and closure period.

264.253 Response actions (12/93)

(a) The owner or operator of waste pile units subject to 264.251 (c) or (d) must have an approved response action plan before receipt of waste. 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 (b) of this section.

(b) If the flow rate into the leak detection system exceeds the action leakage rate for any sump, the owner or operator must:

(1) Notify the Department in writing of the exceedance within 7 days of the determination;

(2) Submit a preliminary written assessment to the Department 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;

(3) Determine to the extent practicable the location, size, and cause of any leak;

(4) 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;

(5) Determine any other short-term and long-term actions to be taken to mitigate or stop any leaks; and

(6) Within 30 days after the notification that the action leakage rate has been exceeded, submit to the Department the results of the analyses specified in paragraphs (b) (3), (4), and (5) of this section, 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 Department a report summarizing the results of any remedial actions taken and actions planned.

(c) To make the leak and/or remediation determinations in paragraphs (b) (3), (4), and (5) of this section, the owner or operator must:

(1) (i) Assess the source of liquids and amounts of liquids by source,

(ii) 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

(iii) Assess the seriousness of any leaks in terms of potential for escaping into the environment; or

(2) Document why such assessments are not needed.

264.254 Monitoring and inspection

(a) During construction or installation, liners (except in the case of existing portions of piles exempt from 264.251(a)) 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:

(1) Synthetic liners and covers must be inspected to ensure tight seams and joints and the absence of tears, punctures, or blisters; and

(2) Soil-based and admixed liners and covers must be inspected for imperfections including lenses, cracks, channels, root holes, or other structural non-

uniformities that may cause an increase in the permeability of the liner or cover.

(b) While a waste pile is in operation, it must be inspected weekly and after storms to detect evidence of any of the following:

(1) Deterioration, malfunctions, or improper operation of runon and runoff control systems; (12/92)

(2) Proper functioning of wind dispersal control systems, where present; and

(3) The presence of leachate in and proper functioning of leachate collection and removal systems, where present.

(c) An owner or operator required to have a leak detection system under section 264.251(c) 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. (12/93)

264.255 [Reserved]

264.256 Special requirements for ignitable or reactive waste

Ignitable or reactive waste must not be placed in a waste pile.

264.257 Special requirements for incompatible wastes

(a) Incompatible wastes, or incompatible wastes and materials, (see Appendix V of this part for examples) must not be placed in the same pile, unless 264.17(b) is complied with. (12/93)

(b) A pile of hazardous waste that is incompatible with any waste or other material stored nearby in containers, other 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.

(c) Hazardous waste must not be piled on the same base where incompatible wastes or materials were previously piled, unless the base has been decontaminated sufficiently to ensure compliance with 264.17(b).

264.258 Closure and Postclosure Care

(a) 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 R.61-79.261.3(d) applies.

(b) 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 (a) of this section, the owner or operator finds that not all contaminated subsoils can be practicably removed or decontaminated, he must close the facility and perform postclosure care in accordance with the closure and postclosure care requirements that apply to landfills (section 264.310). (11/90)

(c) (11/90)

(1) The owner or operator of a waste pile that does not comply with the liner requirements of 264.251(a)(1) and is not exempt from them in accordance with 264.250(c) or 264.251(b), must:

(i) Include in the closure plan for the pile under 264.112 both a plan for complying with paragraph (a) of this section and a contingent plan for complying with paragraph (b) of this section in case not all contaminated subsoils can be practicably removed at closure; and

(ii) Prepare a contingent postclosure plan under 264.118 for complying with paragraph (b) of this section in case not all contaminated subsoils can be practicably removed at closure.

(2) The cost estimates calculated under 264.142 and 264.144 for closure and postclosure care of a pile subject to this paragraph must include the cost of complying with the contingent closure plan and the contingent postclosure plan, but are not required to include the cost of expected closure under paragraph (a) of this section.

264.259 Special requirements for hazardous wastes F020, F021, F022, F023, F026, and F027 (11/90)

(a) Hazardous Wastes F020, F021, F022, F023, F026, and F027 must not be placed in waste piles that are not enclosed (as defined in section 264.250(c)) unless the owner or operator operates the waste pile in accordance with a management plan for these wastes that is approved by the Department pursuant to the standards set out in this paragraph, and in accord with all other applicable requirements of this part. The factors to be considered are: (11/90)

(1) The volume, physical, and chemical characteristics of the wastes, including their potential to migrate through soil or to volatilize or escape into the atmosphere;

(2) The attenuative properties of underlying and surrounding soils or other materials;

(3) The mobilizing properties of other materials co-disposed with these wastes; and

(4) The effectiveness of additional treatment, design, or monitoring techniques.

(b) The Department may determine that additional design, operating, and monitoring requirements are necessary for piles managing hazardous wastes F020, F021, F022, F023, F026, and F027 in order to reduce the possibility of migration of these wastes to groundwater, surface water, or air so as to protect human health and the environment.

Subpart M - Land Treatment

264.270 Applicability

The regulations in this subpart apply to owners and operators of facilities that treat or dispose of hazardous waste in land treatment units, except as 264.1 provides otherwise.

264.271 Treatment program

(a) An owner or operator subject to this subpart must establish a land treatment program that is designed to ensure that hazardous constituents placed in or on the treatment zone are degraded, transformed, or immobilized within the treatment zone. The owner or operator shall specify in the permit application the elements of the treatment program, including: (11/90)

(1) The wastes that are capable of being treated at the unit based on a demonstration under 264.272;

(2) Design measures and operating practices necessary to maximize the success of degradation, transformation, and immobilization processes in the treatment zone in accordance with 264.273(a); and

(3) Unsaturated zone monitoring provisions meeting the requirements of 264.278.

(b) The owner or operator will specify in the permit application the hazardous constituents that must be degraded, transformed, or immobilized under this subpart. Hazardous constituents are constituents identified in Appendix VIII of R.61-79.261 that are reasonably expected to be in, or derived from, waste placed in or on the treatment zone. (12/93)

(c) The owner or operator will specify in his permit application the vertical and horizontal dimensions of the treatment zone. The treatment zone is the portion of the unsaturated zone below and including the land surface in which the owner or operator intends to maintain the conditions necessary for effective degradation, transformation, or immobilization of hazardous constituents. The maximum depth of the treatment zone must be: (12/93)

(1) No more than 1.5 meters (5 feet) from the initial soil surface; and

(2) More than 1.5 meters (5 feet) above the seasonal high water table. (12/93)

264.272 Treatment demonstration

(a) For each waste that will be applied to the treatment zone, the owner or operator must demonstrate, prior to application of the waste, that hazardous constituents in the waste can be completely degraded, transformed, or immobilized in the treatment zone.

(b) In making this demonstration, the owner or operator may use field tests, laboratory analyses, available data, or, in the case of existing units, operating data. If the owner or operator intends to conduct field tests or laboratory analyses in order to make the demonstration required under paragraph (a) of this section, he must obtain a treatment or disposal permit under R.61-79.270.63. The owner or operator shall specify in his application for this permit the testing, analytical, design, and operating requirements (including the duration of the tests and analyses, and, in the case of field tests, the horizontal and vertical dimensions of the treatment zone, monitoring procedures, closure and cleanup activities) necessary to meet the requirements in paragraph (c) of this section.

(c) Any field test or laboratory analysis conducted in order to make a demonstration under paragraph (a) of this section must:

(1) Accurately simulate the characteristics and operating conditions for the proposed land treatment unit including:

(i) The characteristics of the waste (including the presence of Appendix VIII of R.61-79.261 constituents);

(ii) The climate in the area;

(iii) The topography of the surrounding area;

(iv) The characteristics of the soil in the treatment zone (including depth); and

(v) The operating practices to be used at the unit.

(2) Be likely to show that hazardous constituents in the waste to be tested will be completely degraded, transformed, or immobilized in the treatment zone of the proposed land treatment unit; and

(3) Be conducted in a manner that protects human health and the environment considering:

(i) The characteristics of the waste to be tested;

(ii) The operating and monitoring measures taken during the course of the test;

(iii) The duration of the test;

(iv) The volume of waste used in the test;

(v) In the case of field tests, the potential for migration of hazardous constituents to groundwater or surface water.

264.273 Design and operating requirements

The owner or operator will specify in the facility permit application how the owner or operator will design, construct, operate, and maintain the land treatment unit in compliance with this section. (12/93)

(a) The owner or operator must design, construct, operate, and maintain the unit to maximize the degradation, transformation, and immobilization of hazardous constituents in the treatment zone. The owner or operator must design, construct, operate, and maintain the unit in accord with all design and operating conditions that were used in the treatment demonstration under 264.272. At a minimum, the owner or operator will specify the following in the facility permit application: (12/93)

(1) The rate and method of waste application to the treatment zone;

(2) Measures to control soil pH;

(3) Measures to enhance microbial or chemical reactions (e.g., fertilization, tilling); and

(4) Measures to control the moisture content of the treatment zone.

(b) The owner or operator must design, construct, operate, and maintain the treatment zone to minimize runoff of hazardous constituents during the active life of the land treatment unit.

(c) The owner or operator must design, construct, operate, and maintain a runon control system capable of preventing flow onto the treatment zone during peak discharge from at least a 25-year storm.

(d) The owner or operator must design, construct, operate, and maintain a runoff management system to collect and control at least the water volume resulting from a 24-hour, 25-year storm.

(e) Collection and holding facilities (e.g., tanks or basins) associated with runon and runoff control systems must be emptied or otherwise managed expeditiously after storms to maintain the design capacity of the system.

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

(g) The owner or operator must inspect the unit weekly and after storms to detect evidence of:

(1) Deterioration, malfunctions, or improper operation of runon and runoff control systems; and

(2) Improper functioning of wind dispersal control measures.

264.274 - 264.275 [Reserved]

264.276 Foodchain crops

The Department may allow the growth of foodchain crops in or on the treatment zone only if the owner or operator satisfies the conditions of this section. The owner or operator will specify in the facility permit application the specific foodchain crops which he intends to grow and necessary documentation of the following: (12/93)

(a) (1) The owner or operator must demonstrate that there is no substantial risk to human health caused by the growth of such crops in or on the treatment zone by demonstrating, prior to the planting of such crops, that hazardous constituents other than cadmium:

(i) Will not be transferred to the food or feed portions of the crop by plant uptake or direct contact, and will not otherwise be ingested by foodchain animals (e.g., by grazing); or

(ii) Will not occur in greater concentrations in or on the food or feed portions of crops grown on the treatment zone than in or on identical portions of the same crops grown on untreated soils under similar conditions in the same region.

(2) The owner or operator must make the demonstration required under this paragraph prior to the planting of crops at the facility for all constituents identified in Appendix VIII of R.61-79.261 that are reasonably expected to be in, or derived from, waste placed in or on the treatment zone.

(3) In making a demonstration under this paragraph, the owner or operator may use field tests, greenhouse studies, available data, or, in the case of existing units, operating data, and must:

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

(ii) Describe the procedures used in conducting any tests, including the sample selection criteria, sample size, analytical methods, and statistical procedures.

(4) If the owner or operator intends to conduct field tests or greenhouse studies in order to make the demonstration required under this paragraph, he must obtain a permit for conducting such activities.

(b) The owner or operator must comply with the following conditions if cadmium is contained in wastes applied to the treatment zone:

(1) (i) The pH of the waste and soil mixture must be 6.5 or greater at the time of each waste application, except for waste containing cadmium at concentrations of 2 mg/kg (dry weight) or less;

(ii) The annual application of cadmium from waste must not exceed 0.5 kilograms per hectare (kg/ha) on land used for production of tobacco, leafy vegetables, or root crops grown for human consumption. For other foodchain crops, the annual cadmium application rate must not exceed:

TIME PERIOD	Annual Cd application rate (kilograms per hectare)
Present to June 30, 1984	2.0
July 1, 1984 to December 31, 1986	1.25
Beginning January 1, 1987	0.5

(iii) The cumulative application of cadmium from waste must not exceed 5 kg/ha if the waste and soil mixture has a pH of less than 6.5; and

(iv) If the waste and soil mixture has a pH of 6.5 or greater or is maintained at a pH of 6.5 or greater during crop growth, the cumulative application of cadmium from waste must not exceed: 5 kg/ha if soil cation exchange capacity (CEC) is less than 5 meq/100g; 10 kg/ha if soil CEC is 5 - 15 meq/100g; and 20 kg/ha if soil CEC is greater than 15 meq/100g; or

(2) (i) Animal feed must be the only foodchain crop produced;

(ii) The pH of the waste and soil mixture must be 6.5 or greater at the time of waste application or at

the time the crop is planted, whichever occurs later, and this pH level must be maintained whenever foodchain crops are grown;

(iii) There must be an operating plan which demonstrates how the animal feed will be distributed to preclude ingestion by humans. The operating plan must describe the measures to be taken to safeguard against possible health hazards from cadmium entering the food chain, which may result from alternative land uses; and

(iv) Future property owners must be notified by a stipulation in the land record or property deed which states that the property has received waste at high cadmium application rates and that foodchain crops must not be grown except in compliance with paragraph (b)(2) of this section.

264.277 [Reserved]

264.278 Unsaturated zone monitoring.

An owner or operator subject to this subpart must establish an unsaturated zone monitoring program to discharge the following responsibilities:

(a) The owner or operator must monitor the soil and soil-pore liquid to determine whether hazardous constituents migrate out of the treatment zone.

(1) The owner or operator will monitor for those hazardous constituents specified under 264.271(b). (12/93)

(2) The Department may require monitoring for principal hazardous constituents (PHCs) in lieu of the constituents specified under section 264.271(b). PHCs are hazardous constituents contained in the wastes to be applied at the unit that are the most difficult to treat, considering the combined effects of degradation, transformation, and immobilization. The Department will establish PHCs if it finds, based on waste analyses, treatment demonstrations, or other data, that effective degradation, transformation, or immobilization of the PHCs will assure treatment at least equivalent levels for the other hazardous constituents in the wastes. (12/93)

(b) The owner or operator must install an unsaturated zone monitoring system that includes soil monitoring using soil cores and soil-pore liquid monitoring using devices such as lysimeters. The unsaturated zone monitoring system must consist of a sufficient number of sampling points at appropriate locations and depths to yield samples that:

(1) Represent the quality of background soil-pore liquid quality and the chemical makeup of soil that has not been affected by leakage from the treatment zone; and

(2) Indicate the quality of soil-pore liquid and the chemical makeup of the soil below the treatment zone.

(c) The owner or operator must establish a background value for each hazardous constituent to be monitored under paragraph (a) of this section. The permit will specify the background values for each constituent or specify the procedures to be used to calculate the background values.

(1) Background soil values may be based on a one-time sampling at a background plot having characteristics similar to those of the treatment zone.

(2) Background soil-pore liquid values must be based on at least quarterly sampling for one year at a background plot having characteristics similar to those of the treatment zone.

(3) The owner or operator must express all background values in a form necessary for the determination of statistically significant increases under paragraph (f) of this section.

(4) In taking samples used in the determination of all background values, the owner or operator must use an unsaturated zone monitoring system that complies with paragraph (b)(1) of this section.

(d) The owner or operator must conduct soil monitoring and soil-pore liquid monitoring immediately below the treatment zone. The owner or operator will specify in the permit application the frequency and timing of soil and soil-pore liquid monitoring after considering the frequency, timing, and rate of waste application, and the soil permeability. The owner or operator must express the results of soil and soil-pore liquid monitoring in a form necessary for the determination of statistically significant increases under paragraph (f) of this section. (12/93)

(e) The owner or operator must use consistent sampling and analysis procedures that are designed to ensure sampling results that provide a reliable indication of soil-pore liquid quality and the chemical makeup of the soil below the treatment zone. At a minimum, the owner or operator must implement procedures and techniques for:

(1) Sample collection;

(2) Sample preservation and shipment;

(3) Analytical procedures; and

(4) Chain of custody control.

(f) The owner or operator must determine whether there is a statistically significant change over background values for any hazardous constituent to be monitored under paragraph (a) of this section below the treatment zone each time he conducts soil monitoring and soil-pore liquid monitoring under paragraph (d) of this section.

(1) In determining whether a statistically significant increase has occurred, the owner or operator must compare the value of each constituent, as determined under paragraph (d) of this section, to the background value for that constituent according to the statistical procedure specified in the facility permit under this paragraph. (12/92; 12/93)

(2) The owner or operator must determine whether there has been a statistically significant increase below the treatment zone within a reasonable time period after completion of sampling. The owner or operator will specify that time period in the facility

permit application after considering the complexity of the statistical test and the availability of laboratory facilities to perform the analysis of soil and soil-pore liquid samples. (12/92; 12/93)

(3) The owner or operator must determine whether there is a statistically significant increase below the treatment zone using a statistical procedure that is approved by the Department and that provides reasonable confidence that migration from the treatment zone will be identified. The owner or operator will specify in the permit application a statistical procedure that: (12/93)

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

(ii) Provides a reasonable balance between the probability of falsely identifying migration from the treatment zone and the probability of failing to identify real migration from the treatment zone.

(g) If the owner or operator determines, pursuant to paragraph (f) of this section, that there is a statistically significant increase of hazardous constituents below the treatment zone, he must:

(1) Notify the Department of this finding in writing within seven days. The notification must indicate what constituents have shown statistically significant increases.

(2) Within 90 days, submit to the Department an application for a permit modification to modify the operating practices at the facility in order to maximize the success of degradation, transformation, or immobilization processes in the treatment zone.

(3) Discontinue all land treatment in the contaminated area as determined in (f) until corrective measures can be taken.

(h) If the owner or operator determines, pursuant to paragraph (f) of this section, that there is a statistically significant increase of hazardous constituents below the treatment zone, he may demonstrate that a source other than regulated units caused the increase or that the increase resulted from an error in sampling, analysis, or evaluation. While the owner or operator may make a demonstration under this paragraph in addition to, or in lieu of, submitting a permit modification application under paragraph (g)(2) of this section, he is not relieved of the requirement to submit a permit modification application within the time specified in paragraph (g)(2) of this section unless the demonstration made under this paragraph successfully shows that a source other than regulated units caused the increase or that the increase resulted from an error in sampling, analysis, or evaluation. In making a demonstration under this paragraph, the owner or operator must:

(1) Notify the Department in writing within seven days of determining a statistically significant increase below the treatment zone that he intends to make a determination under this paragraph;

(2) Within 90 days, submit a report to the Department demonstrating that a source other than the regulated units caused the increase or that the increase resulted from error in sampling, analysis, or evaluation;

(3) Within 90 days, submit to the Department an application for a permit modification to make any appropriate changes to the unsaturated zone monitoring program at the facility; and

(4) Continue to monitor in accordance with the unsaturated zone monitoring program established under this section.

264.279 Recordkeeping

The owner or operator must include hazardous waste application dates and rates in the operating record required under 264.73.

264.280 Closure and postclosure care

(a) During the closure period the owner or operator must:

(1) Continue all operations (including pH control) necessary to maximize degradation, transformation, or immobilization of hazardous constituents within the treatment zone as required under 264.273(a), except to the extent such measures are inconsistent with paragraph (a)(8) of this section.

(2) Continue all operations in the treatment zone to minimize runoff of hazardous constituents as required under 264.273(b);

(3) Maintain the runon control system required under 264.273(c);

(4) Maintain the runoff management system required under 264.273(d);

(5) Control wind dispersal of hazardous waste if required under 264.273(f);

(6) Continue to comply with any prohibitions or conditions concerning growth of food-chain crops under 264.276;

(7) Continue unsaturated zone monitoring in compliance with 264.278, except that soil-pore liquid monitoring may be terminated 90 days after the last application of waste to the treatment zone; and

(8) Establish a vegetative cover on the portion of the facility being closed at such time that the cover will not substantially impede degradation, transformation, or immobilization of hazardous constituents in the treatment zone. The vegetative cover must be capable of maintaining growth without extensive maintenance.

(b) For the purpose of complying with 264.115, when closure is completed the owner or operator may submit to the Department certification by an independent qualified soil scientist, in lieu of an independent registered professional engineer, that the facility has been closed in accordance with the specifications in the approved closure plan.

(c) During the postclosure care period the owner or operator must:

(1) Continue all operations (including pH control) necessary to enhance degradation and transformation and sustain immobilization of hazardous constituents in

the treatment zone to the extent that such measures are consistent with other postclosure care activities;

(2) Maintain a vegetative cover over closed portions of the facility;

(3) Maintain the runon control system required under 264.273(c);

(4) Maintain the runoff management system required under 264.273(d);

(5) Control wind dispersal of hazardous waste if required under 264.273(f);

(6) Continue to comply with any prohibitions or conditions concerning growth of food-chain crops under 264.276; and

(7) Continue unsaturated zone monitoring in compliance with 264.278, except that soil-pore liquid monitoring may be terminated 90 days after the last application of waste to the treatment zone.

(d) The owner or operator is not subject to regulation under paragraphs (a)(8) and (c) of this section if the Department finds that the level of hazardous constituents in the treatment zone soil does not exceed the background value of those constituents by an amount that is statistically significant when using the test specified in paragraph (d)(3) of this section. The owner or operator may submit such a demonstration to the Department at any time during the closure or postclosure care periods. For the purposes of this paragraph: (12/93)

(1) The owner or operator must establish background soil values and determine whether there is a statistically significant increase over those values for all hazardous constituents specified in the facility permit under 264.271(b).

(i) Background soil values may be based on a one-time sampling of a background plot having characteristics similar to those of the treatment zone.

(ii) The owner or operator must express background values and values for hazardous constituents in the treatment zone in a form necessary for the determination of statistically significant increases under paragraph (d)(3) of this section.

(2) In taking samples used in the determination of background and treatment zone values, the owner or operator must take samples at a sufficient number of sampling points and at appropriate locations and depths to yield samples that represent the chemical makeup of soil that has not been affected by leakage from the treatment zone and the soil within the treatment zone, respectively.

(3) In determining whether a statistically significant increase has occurred, the owner or operator must compare the value of each constituent in the treatment zone to the background value for that constituent using a statistical procedure that provides reasonable confidence that constituent presence in the treatment zone will be identified. The owner or operator must use a statistical procedure that:

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

(ii) Provides a reasonable balance between the probability of falsely identifying hazardous constituent presence in the treatment zone and the probability of failing to identify real presence in the treatment zone.

(e) The owner or operator is not subject to regulation under subpart F if the Department finds that the owner or operator satisfies paragraph (d) of this section and if unsaturated zone monitoring under 264.278 indicates that hazardous constituents have not migrated beyond the treatment zone during the active life of the land treatment unit.

264.281 Special requirements for ignitable or reactive waste

Ignitable or reactive wastes must not be treated or disposed in land treatment units.

264.282 Special requirements for incompatible wastes

The owner or operator must not place incompatible wastes, or incompatible wastes and materials (see Appendix V of this part for examples), in or on the same treatment zone, unless 264.17(b) is complied with. (12/93)

264.283 Special requirements for hazardous wastes F020, F021, F022, F023, F026, and F027

(a) Hazardous Wastes F020, F021, F022, F023, F026 and F027 must not be placed in a land treatment unit unless the owner or operator operates the facility in accordance with a management plan for these wastes that is approved by the Department pursuant to the standards set out in this paragraph, and in accord with all other applicable requirements of this part. The factors to be considered are: (12/93)

(1) The volume, physical, and chemical characteristics of the wastes, including their potential to migrate through soil or to volatilize or escape into the atmosphere;

(2) The attenuative properties of underlying and surrounding soils or other materials;

(3) The mobilizing properties of other materials co-disposed with these wastes; and

(4) The effectiveness of additional treatment, design, or monitoring techniques.

(b) The Department may determine that additional design, operating, and monitoring requirements are necessary for land treatment facilities managing hazardous wastes F020, F021, F022, F023, F026, and F027 in order to reduce the possibility of migration of these wastes to groundwater, surface water, or air so as to protect human health and the environment.

Subpart N - Landfills

264.300 Applicability

The regulations in this subpart apply to owners and operators of facilities that dispose of hazardous waste in landfills, except as 264.1 provides otherwise.

264.301 Design and operating requirements

(a) Any landfill that is not covered by paragraph (c) of this section or 265.301 (a) of this regulation must have a liner system for all portions of the landfill (except for existing portions of such landfill). The liner system must have:

(1) A liner that is designed, constructed, and installed to prevent any migration of wastes out of the landfill to the adjacent subsurface soil or groundwater or surface water at anytime during the active life (including the closure period) of the landfill. The liner must be constructed of materials that prevent wastes from passing into the liner during the active life of the facility. The liner must be:

(i) Constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the waste or leachate to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation;

(ii) Placed upon a foundation or base capable of providing support to the liner and resistance to pressure gradients above and below the liner to prevent failure of the liner due to settlement, compression, or uplift; and

(iii) Installed to cover all surrounding earth likely to be in contact with the waste or leachate; and

(2) A leachate collection and removal system immediately above the liner that is designed, constructed, maintained, and operated to collect and remove leachate from the landfill. The Department will specify design and operating conditions in the permit to ensure that the leachate depth over the liner does not exceed 30 cm (one foot). The leachate collection and removal system must be:

(i) Constructed of materials that are:

(A) Chemically resistant to the waste managed in the landfill and the leachate expected to be generated; and

(B) Of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes, waste cover materials, and by any equipment used at the landfill; and

(ii) Designed and operated to function without clogging through the scheduled closure of the landfill.

(b) The owner or operator will be exempted from the requirements of paragraph (a) of this section if the Department finds, based on a demonstration by the owner or operator, that alternative design and operating practices, together with location characteristics, will prevent the migration of any hazardous constituents (see 264.93) into the groundwater or surface water at any future time. In deciding whether to grant an exemption, the Department will consider:

(1) The nature and quantity of the wastes;

(2) The proposed alternate design and operation;

(3) The hydrogeologic setting of the facility, including the attenuative capacity and thickness of the liners and soils present between the landfill and groundwater or surface water; and (11/90)

(4) All other factors which would influence the quality and mobility of the leachate produced and the potential for it to migrate to groundwater or surface water.

(c) The owner or operator of each new landfill unit on which construction commences after January 29, 1992, each lateral expansion of a landfill unit on which construction commences after July 29, 1992, and each replacement of an existing landfill 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. "Construction commences" is as defined in 260.10 under "existing facility". (12/93)

(1) (i) The liner system must include:

(A) A top liner designed and constructed of materials (e.g., a geomembrane) to prevent the migration of hazardous constituents into such liner during the active life and post-closure care period; and (12/93)

(B) A composite bottom liner, consisting of at least two components. The upper component must be designed and constructed of materials (e.g., a geomembrane) to prevent the migration of hazardous constituents into this component during the active life and post-closure care period. The lower component must be designed and constructed of materials to minimize the migration of hazardous constituents if a breach in the upper component were to occur. The lower component must be constructed of at least 3 feet (91 cm) of compacted soil material with a hydraulic conductivity of no more than $1x10^{-7}$ cm/sec. (12/93)

(ii) The liners must comply with paragraphs (a)(1) (i), (ii), and (iii) of this section. (12/93)

(2) The leachate collection and removal system immediately above the top liner must be designed, constructed, operated, and maintained to collect and remove leachate from the landfill during the active life and post-closure care period. The Department will specify design and operating conditions in the permit to ensure that the leachate depth over the liner does not exceed 30 cm (one foot). The leachate collection and removal system must comply with paragraphs (3)(c) (iii) and (iv) of this section. (12/93)

(3) The leachate collection and removal system between the liners, and immediately above the bottom

composite liner in the case of multiple leachate collection and removal systems, is also a leak detection system. This leak detection system must be capable of detecting, collecting, and removing leaks of hazardous constituents at the earliest practicable time through all areas of the top liner likely to be exposed to waste or leachate during the active life and post-closure care period. The requirements for a leak detection system in this paragraph are satisfied by installation of a system that is, at a minimum: (12/93)

(i) Constructed with a bottom slope of one percent or more;

(ii) Constructed of granular drainage materials with a hydraulic conductivity of $1x10^{-2}$ 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 $3X10\text{-}^{5}$ m^2/sec or more;

(iii) Constructed of materials that are chemically resistant to the waste managed in the landfill and the leachate expected to be generated, and of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes, waste cover materials, and equipment used at the landfill;

(iv) Designed and operated to minimize clogging during the active life and post-closure care period; and

(v) Constructed with sumps and liquid removal methods (e.g., pumps) of sufficient size to collect and remove liquids from the sump and prevent liquids from backing up into the drainage layer. Each unit must have its own sump(s). The design of each sump and removal system must provide a method for measuring and recording the volume of liquids present in the sump and of liquids removed.

(4) The owner or operator shall collect and remove pumpable liquids in the leak detection system sumps to minimize the head on the bottom liner. (12/93)

(5) The owner or operator of a leak detection system that is not located completely above the seasonal high water table must demonstrate that the operation of the leak detection system will not be adversely affected by the presence of ground water. (12/93)

(d) The Department may approve alternative design or operating practices to those specified in paragraph (c) of this section if the owner or operator demonstrates to the Department that such design and operating practices, together with location characteristics: (12/93)

(1) Will prevent the migration of any hazardous constituent into the groundwater or surface water at least as effectively as the liners and leachate collection and removal systems specified in paragraph (c) of this section; and (12/93)

(2) Will allow detection of leaks of hazardous constituents through the top liner at least as effectively. (12/93)

(e) The double liner requirement set forth in paragraph (c) of this section may be waived by the Department for any monofill, if:

(1) The monofill contains only hazardous wastes from foundry furnace emission controls or metal casting molding sand, and such wastes do not contain constituents which would render the wastes hazardous for reasons other than the Toxicity Characteristic in R.61-79.261.24, with EPA Hazardous Waste Numbers D004 through D017; and (11/90)

(2) (i) (A) The monofill has at least one liner for which there is no evidence that such liner is leaking;

(B) The monofill is located more than one-quarter mile from an underground source of drinking water (as that term is defined in Department regulation 61-68; and (12/93)

(C) The monofill is in compliance with generally applicable groundwater monitoring requirements for facilities with permits under R.61-79.270, S.C. 44-56-60, or RCRA 3005(c); (12/92) or

(ii) 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 groundwater or surface water at any future time.

(f) The owner or operator of any replacement landfill unit is exempt from paragraph (c) of this section if: (12/93)

(1) 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; and

(2) There is no reason to believe that the liner is not functioning as designed.

(g) The owner or operator must design, construct, operate, and maintain a runon control system capable of preventing flow onto the active portion of the landfill during peak discharge from at least a 25-year storm. (12/93)

(h) The owner or operator must design, construct, operate, and maintain a runoff management system to collect and control at least the water volume resulting from a 24-hour, 25-year storm. (12/93)

(i) Collection and holding facilities (e.g., tanks or basins) associated with runon and runoff control systems must be emptied or otherwise managed expeditiously after storms to maintain design capacity of the system. These surface waters will be considered as hazardous unless upon analysis the material is determined not to be hazardous and may be discharged in accordance with a NPDES permit. (11/90; 12/93)

(j) If the landfill contains any particulate matter which may be subject to wind dispersal, the owner or operator must cover or otherwise manage the landfill to control wind dispersal. (12/93)

(k) The owner or operator will specify in the permit application all design and operating practices that are necessary to ensure that the requirements of this section

are satisfied and include an estimate with justifying documentation of how long the facility shall be expected to meet the designed minimum technology requirements after closure. (12/93)

(l) The owner or operator of a landfill which is not exempt from the requirements of R.61-79.264 Subpart F pursuant to R.61-79.264.90(b) shall maintain at least ten feet of naturally occurring material with an average permeability of no more than 1E-06 centimeter per second directly beneath and in contact with the bottom of the constructed liner system as required under R.61-79.264.301(a) and (c). (6/95)

264.302 Action leakage rate (12/93)

(a) The Department shall approve an action leakage rate for landfill units subject to 264.301(c) or (d). 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 l 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 consider 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.).

(b) 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 264.303(c), to an average daily flow rate (gallons per acre per day) for each sump. Unless the Department approves a different calculation, the average daily flow rate for each sump must be calculated weekly during the active life and closure period, and monthly during the post-closure care period when monthly monitoring is required under section 264.303(c).

264.303 Monitoring and inspection

(a) During construction or installation, liners (except in the case of existing portions of landfills exempt from 264.301 (a)) 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:

(1) Synthetic liners and covers must be inspected to ensure tight seams and joints and the absence of tears, punctures, or blisters; and

(2) Soil-based and admixed liners and covers must be inspected for imperfections including lenses, cracks, channels, root holes, or other structural non-uniformities that may cause an increase in the permeability of the liner or cover.

(b) While a landfill is in operation, it must be inspected weekly and after storms to detect evidence of any of the following:

(1) Deterioration, malfunctions, or improper operation of runon and runoff control systems;

(2) Proper functioning of wind dispersal control systems, where present; and

(3) The presence of leachate in and proper functioning of leachate collection and removal systems, where present.

(c) (1) An owner or operator required to have a leak detection system under 264.301(c) or (d) 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. (12/93)

(2) After the final cover is installed, the amount of liquids removed from each leak detection system sump must be recorded at least monthly. If the liquid level in the sump stays below the pump operating level for two consecutive months, the amount of liquids in the sumps must be recorded at least quarterly. If the liquid level in the sump stays below the pump operating level for two consecutive quarters, the amount of liquids in the sumps 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 amounts of liquids 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 Department based on pump activation level, sump dimensions, and level that avoids backup into the drainage layer and minimizes head in the sump.

264.304 Response actions (12/93)

(a) The owner or operator of landfill units subject to 264.301(c) or (d) must have an approved response action plan before receipt of waste. 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 (b) of this section.

(b) If the flow rate into the leak detection system exceeds the action leakage rate for any sump, the owner or operator must:

(1) Notify the Department in writing of the exceedence within 7 days of the determination;

(2) Submit a preliminary written assessment to the Department 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;

(3) Determine to the extent practicable the location, size, and cause of any leak;

(4) 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;

(5) Determine any other short-term and longer-term actions to be taken to mitigate or stop any leaks; and

(6) Within 30 days after the notification that the action leakage rate has been exceeded, submit to the Department the results of the analyses specified in paragraphs (b)(3), (4), and (5) of this section, 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 Department a report summarizing the results of any remedial actions taken and actions planned.

(c) To make the leak and/or remediation determinations in paragraphs (b)(3), (4), and (5) of this section, the owner or operator must:

(1) (i) Assess the source of liquids and amounts of liquids by source,

(ii) 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

(iii) Assess the seriousness of any leaks in terms of potential for escaping into the environment; or

(2) Document why such assessments are not needed.

264.305 - 264.308 [Reserved]

264.309 Surveying and recordkeeping

The owner or operator of a landfill must maintain the following items in the operating record required under 264.73:

(a) On a map, the exact location and dimensions, including depth, of each cell with respect to permanently surveyed benchmarks; and

(b) The contents of each cell and the approximate location of each hazardous waste type within each cell.

(c) The date and volume or quantity of leachate which was withdrawn from the cells. (6/89).

264.310 Closure and postclosure care

(a) At final closure of the landfill or upon closure of any cell, (12/92) the owner or operator must cover the landfill or cell with a final cover designed and constructed to:

(1) Provide long-term minimization of migration of liquids through the closed landfill; (12/93)

(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.

(b) After final closure, the owner or operator must comply with all postclosure requirements contained in 264.117 through 264.120, including maintenance and monitoring throughout the postclosure care period (specified in the permit under 264.117). The owner or operator must:

(1) Maintain the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, or other events;

(2) Continue to operate the leachate collection and removal system until leachate is no longer detected;

(3) Maintain and monitor the leak detection system in accordance with section 264.301(c)(3)(iv) and (4) and 264.303(c), and comply with all other applicable leak detection system requirements of this part; (12/93)

(4) Maintain and monitor the groundwater monitoring system and comply with all other applicable requirements of subpart F of this part; (12/93)

(5) Prevent runon and runoff from eroding or otherwise damaging the final cover; and (12/93)

(6) Protect and maintain surveyed benchmarks used in complying with 264.309. (12/93)

264.311 [Reserved]

264.312 Special requirements for ignitable or reactive waste

Except as provided in 264.316, ignitable or reactive waste must not be placed in a landfill.

264.313 Special requirements for incompatible wastes

Incompatible wastes, or incompatible wastes and materials, (see Appendix V of this part for examples) must not be placed in the same landfill cell, unless 264.17(b) is complied with.

264.314 Special requirements for bulk and containerized liquids

(a) Bulk or noncontainerized liquid waste or waste containing free liquids may be placed in a landfill prior to May 8, 1985 only if: (12/92)

(1) The landfill has a liner and leachate collection and removal system that meet the requirements of 264.301(a); or

(2) Before disposal, the liquid waste or waste containing free liquids is treated or stabilized, chemically or physically (e.g., by mixing with an sorbent solid), so that free liquids are no longer present. (12/93)

(b) Effective May 8, 1985, the placement of bulk or noncontainerized liquid hazardous waste or hazardous waste containing free liquids (whether or not sorbents

have been added) in any landfill is prohibited. (12/92; 12/93)

(c) To demonstrate the absence or presence of free liquids in either a containerized or a bulk waste, the following test must be used: Method 9095 (Paint Filter Liquids Test) as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods," EPA Publication SW-846, as incorporated by reference in R.61-79.260.11. (12/93)

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

(1) All freestanding liquid:

(i) has been removed by decanting, or other methods;

(ii) has been mixed with sorbent or solidified so that freestanding liquid is no longer observed; or (12/93)

(iii) has been otherwise eliminated; or

(2) The container is very small, such as an ampule; or

(3) The container is designed to hold free liquids for use other than storage, such as a battery or capacitor; or

(4) The container is a lab pack as defined in 264.316 and is disposed of in accordance with 264.316.

(e) Sorbents used to treat free liquids to be disposed of in landfills must be nonbiodegradable. Nonbiodegradable sorbents are: materials listed or described in paragraph (e)(1) of this section; materials that pass one of the tests in paragraph (e)(2) of this section; or materials that are determined by the Department and EPA to be nonbiodegradable through the part 260 petition process. (12/93)

(1) Nonbiodegradable sorbents.

(i) 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

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

(iii) Mixtures of these nonbiodegradable materials.

(2) Tests for nonbiodegradable sorbents.

(i) 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; or

(ii) The sorbent material is determined to be nonbiodegradable under ASTM Method G22-76 (1984b)-Standard Practice for Determining Resistance of Plastics to Bacteria; or

(iii) The sorbent material is determined to be non-biodegradable under OECD test 301B: [CO_2 Evolution (Modified Sturm Test)]. (9/98)

(f) Effective November 8, 1985, the placement of any liquid which is not a hazardous waste in a landfill is prohibited unless the owner or operator of such landfill demonstrates to the Department, or the Department determines, that: (12/92; 12/93)

(1) The only reasonably available alternative to the placement in such landfill is placement in a landfill or unlined surface impoundment, whether or not permitted or operating under interim status, which contains, or may reasonably be anticipated to contain, hazardous waste; and (11/90)

(2) Placement in such owner or operator's landfill will not present a risk of contamination of any underground source of drinking water (as that term is defined in Department regulation R.61-68. (12/93)

264.315 Special requirements for containers

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

(a) At least 90 percent full when placed or buried in the landfill; or (6/95)

(b) Crushed, shredded, or similarly reduced in volume to the maximum practical extent before placement or burial in the landfill. (6/95).

264.316 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:

(a) 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 Department of Transportation (DOT) hazardous materials regulations (49 CFR parts 173, 178, and 179), if those regulations specify a particular inside container for the waste.

(b) The inside containers must be overpacked in an open head DOT specification metal shipping container (49 CFR parts 178 and 179) of no more than 416-liter (110 gallon) capacity and surrounded by, at a minimum, a sufficient quantity of sorbent material, determined to be nonbiodegradable in accordance with 264.314(e), 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. (12/93)

(c) 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 264.17(b). (12/93)

(d) Incompatible wastes, as defined in R.61-79.260.10, must not be placed in the same outside container.

(e) Reactive wastes, other than cyanide- or sulfide-bearing waste as defined in R.61-79.261.23(a)(5), must be treated or rendered nonreactive prior to packaging in accordance with paragraphs (a) through (d) of this section. Cyanide- and sulfide-bearing reactive waste may be packed in accordance with paragraphs (a) through (d) of this section without first being treated or rendered nonreactive.

(f) Such disposal is in compliance with the requirements of part 268. Persons who incinerate lab packs according to the requirements in 268.42(c)(1) may use fiber drums in place of metal outer containers. Such fiber drums must meet the DOT specifications in 49 CFR 173.12 and be overpacked according to the requirements in paragraph (b) of this section. (12/92)

264.317 Special requirements for hazardous wastes FO20, FO21, FO22, FO23, FO26, and FO27

(a) Hazardous Wastes F020, F021, F022, F023, F026, and F027 must not be placed in a landfill unless the owner or operator operates the landfill in accord with a management plan for these wastes that is approved by the Department pursuant to the standards set out in this paragraph, and in accord with all other applicable requirements of this part. The factors to be considered are: (12/93)

(1) The volume, physical, and chemical characteristics of the wastes, including their potential to migrate through the soil or to volatilize or escape into the atmosphere;

(2) The attenuative properties of underlying and surrounding soils or other materials;

(3) The mobilizing properties of other materials co-disposed with these wastes; and

(4) The effectiveness of additional treatment, design, or monitoring requirements.

(b) The Department may determine that additional design, operating, and monitoring requirements are necessary for landfills managing hazardous wastes F020, F021, F022, F023, F026, and F027 in order to reduce the possibility of migration of these wastes to groundwater, surface water, or air so as to protect human health and the environment.

Subpart O - Incinerators

264.340 Applicability

(a) The regulations of this subpart apply to owners and operators of facilities that incinerate hazardous waste (as defined in 260.10), except as 264.1 provides otherwise. The following facility owners or operators are considered to incinerate hazardous waste: (12/93)

(1) Owners or operators of hazardous waste incinerators (as defined in R.61-79.260.10); and

(2) Owners or operators who burn hazardous waste in boilers or in industrial furnaces in order to destroy them, or who burn hazardous waste in boilers or in industrial furnaces for any recycling purpose and elect to be regulated under this regulation.

(b) Integration of the MACT standards. (9/01, 6/03)

(1) Except as provided by paragraphs (b)(2), (b)(3), and (b)(4), the standards of this part no longer apply when an owner or operator demonstrates compliance with the maximum achievable control technology (MACT) requirements of 40 CFR part 63, Subpart EEE, by conducting a comprehensive performance test and submitting to the Department a Notification of Compliance under 40 CFR 63.1207(j) and 63.1210(b) documenting compliance with the requirements of 40 CFR part 63, Subpart EEE,. Nevertheless, even after this demonstration of compliance with the MACT standards, RCRA permit conditions that were based on the standards of this part will continue to be in effect until they are removed from the permit or the permit is terminated or revoked, unless the permit expressly provides otherwise. (6/03)

(2) The MACT standards do not replace the closure requirements of 264.351 or the applicable requirements of subparts A through H, BB and CC of this part.

(3) 264.343(c) remains in effect for incinerators that elect to comply with the alternative standard. (7/02)

(4) The following requirements remain in effect for startup, shutdown and malfunction events if you elect to comply with 270.235(a)(1)(i) to minimize emissions of toxic compounds from these events; (6/03)

(i) 264.345(a) requiring that an incinerator operate in accordance with operating requirements as specified in the permit; and

(ii) 264.345(c) requiring compliance with the emission standards and operating requirements during startup and shutdown if hazardous waste is in the combustion chamber, except for particular hazardous wastes.

(c) After consideration of the waste analysis included with Part B of the permit application, the Department, upon demonstration by the owner or operator, must exempt the applicant from all requirements of this subpart except 264.341 (Waste Analysis) and 264.351 (Closure), (12/93, moved from (b), 6/03)

(1) If the Department finds that the waste to be burned is:

(i) Listed as a hazardous waste in part 261, Subpart D, solely because it is ignitable (Hazard Code I), corrosive (Hazard Code C), or both; or

(ii) Listed as a hazardous waste in part 261, Subpart D, solely because it is reactive (Hazard Code

R) for characteristics other than those listed in 261.23(a)(4) and (5), 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 characteristic of ignitability, corrosivity, or both, as determined by the test for characteristics of hazardous wastes under part 261, Subpart C,; or

(iv) A hazardous waste solely because it possesses any of the reactivity characteristics described by 261.23(a)(1), (2), (3), (6), (7), and (8), and will not be burned when other hazardous wastes are present in the combustion zone; and

(2) If the waste analysis shows that the waste contains none of the hazardous constituents listed in part 261, Appendix VIII, which would reasonably be expected to be in the waste.

(d) If the waste to be burned is one which is described by paragraphs (b)(1)(i), (ii), (iii), or (iv) of this section and contains insignificant concentrations of the hazardous constituents listed in 261, Appendix VIII, then the Department may, in establishing permit conditions, exempt the applicant from all requirements of this subpart, except 264.341 (Waste Analysis) and 264.351 (Closure), after consideration of the waste analysis included with Part B of the permit application, unless the Department finds that the waste will pose a threat to human health and the environment when burned in an incinerator.

(e) The owner or operator of an incinerator may conduct trial burns subject only to the requirements of 270.62 (Short term and incinerator permits).

264.341 Waste analysis

(a) As a portion of the trial burn plan required by R.61-79.270.62, or with Part B of the permit application, the owner or operator must have included an analysis of the waste feed sufficient to provide all information required by R.61-79.270.19 or 270.62(b). Owners or operators of new hazardous waste incinerators must provide the information required by 270.62(c) or 270.19 270.62 to the greatest extent possible. (12/93)

(b) Throughout normal operation the owner or operator must conduct sufficient waste analysis to verify that waste feed to the incinerator is within the physical and chemical composition limits specified in his permit application (under 264.345(b)). (12/93)

264.342 Principal organic hazardous constituents (POHCs)

(a) Principal Organic Hazardous Constituents (POHCs) in the waste feed must be treated to the extent required by the performance standard of 264.343.

(b) (1) One or more POHCs will be specified in the owner's or operator's facility's permit application, from among those constituents listed in R.61-79.261, Appendix VIII, for each waste feed to be burned. This specification will be based on the degree of difficulty of incineration of the organic constituents in the waste and on their concentration or mass in the waste feed, considering the results of waste analyses and trial burns or alternative data submitted with Part B of the facility's permit application. Organic constituents which represent the greatest degree of difficulty of incineration will be those most likely to be designated as POHCs. Constituents are more likely to be designated as POHCs if they are present in large quantities or concentrations in the waste. (11/90; 12/93)

(2) Trial POHCs will be designated for performance of trial burns in accordance with the procedure specified in R.61-79.270.62 for obtaining trial burn permits. (12/93)

264.343 Performance standards

An incinerator burning hazardous waste must be designed, constructed, and maintained so that, when operated in accordance with operating requirements specified under 264.345, it will meet the following performance standards: (11/90)

(a) (1) Except as provided in paragraph (a)(2) of this section, an incinerator burning hazardous waste must achieve a destruction and removal efficiency (DRE) of 99.99% for each principal organic hazardous constituent (POHC) designated (under 264.342) in its permit application for each waste feed. DRE is determined for each POHC from the following equation:

$$DRE = \frac{(W_{in} - W_{out})}{W_{in}} X\ 100\%$$

where:

W_{in} = mass feed rate of one principal organic hazardous constituent (POHC) in the waste stream feeding the incinerator

and

W_{out} = mass emission rate of the same POHC present in exhaust emissions prior to release to the atmosphere.

(2) An incinerator burning hazardous wastes F020, F021, F022, F023, F026, or F027 must achieve a destruction and removal efficiency (DRE) of 99.9999% for each principal organic hazardous constituent (POHC) designated (under 264.342) in its permit application. This performance must be demonstrated on POHCs that are more difficult to incinerate than tetra-, penta-, and hexachlorodibenzo-p-dioxins and dibenzofurans. DRE is determined for each POHC from the equation in 264.343(a)(1). In addition, the owner or operator of the incinerator must notify the Department of his intent to incinerate hazardous wastes F020, F021, F022, F023, F026, or F027.

(b) An incinerator burning hazardous waste and producing stack emissions of more than 1.8 kilograms per hour (4 pounds per hour) of hydrogen chloride (HCl) must control HCl emissions such that the rate of emission is no greater than the larger of either 1.8

kilograms per hour or 1% of the HCl in the stack gas prior to entering any pollution control equipment.

(c) An incinerator burning hazardous waste must not emit particulate matter in excess of 180 milligrams per dry standard cubic meter (0.08 grains per dry standard cubic foot) when corrected for the amount of oxygen in the stack gas according to the formula: $P_c = P_m \times \frac{14}{21 - Y}$

Where P_c is the corrected concentration of particulate matter, P_m is the measured concentration of particulate matter, and Y is the measured concentration of oxygen in the stack gas, using the Orsat method for oxygen analysis of dry flue gas presented in 40 CFR part 60, Appendix A (Method 3). This correction procedure is to be used by all hazardous waste incinerators except those operating under conditions of oxygen enrichment. For these an appropriate correction procedure, to be specified in the facility permit application. (12/93)

(d) For purposes of permit enforcement, compliance with the operating requirements specified in the permit application (under 264.345) will be regarded as compliance with this section. However, evidence that compliance with those permit conditions is insufficient to ensure compliance with the performance requirements of this section may be "information" justifying modification, revocation, or reissuance of a permit under R.61-79.270.41. (12/93)

264.344 Hazardous waste incinerator permits under these regulations

(a) The owner or operator of a hazardous waste incinerator may burn only wastes specified in his permit application and only under operating conditions specified in his permit application for those wastes under 264.345, except:

(1) In approved trial burns under R.61-79.270.62; or

(2) Under exemptions created by 264.340.

(b) Other hazardous wastes may be burned only after operating conditions have been specified in a new permit or a permit modification as applicable. Operating requirements for new wastes may be based on either trial burn results or alternative data included with Part B of a permit application under R.61-79.270.19. (12/93)

(c) The permit application for a new hazardous waste incinerator must establish appropriate conditions for each of the applicable requirements of this subpart, including but not limited to allowable waste feeds and operating conditions necessary to meet the requirements of 264.345, sufficient to comply with the following standards: (12/93)

(1) For the period beginning with initial introduction of hazardous waste to the incinerator and ending with initiation of the trial burn, and only for the minimum time required to establish operating conditions required in paragraph (c)(2) of this section, not to exceed a duration of 720 hours operating time for treatment of hazardous waste, the operating requirements must be those most likely to ensure compliance with the performance standards of 264.343, based on the Department's engineering judgment. The Department may extend the duration of this period once for up to 720 additional hours when good cause for the extension is demonstrated by the applicant. (11/90)

(2) For the duration of the trial burn, the operating requirements must be sufficient to demonstrate compliance with the performance standards of 264.343 and must be in accordance with the approved trial burn plan; (11/90)

(3) For the period immediately following completion of the trial burn, and only for the minimum period sufficient to allow sample analysis, data computation, and submission of the trial burn results by the applicant, and review of the trial burn results and modification of the facility permit by the Department, the operating requirements must be those most likely to ensure compliance with the performance standards of 264.343, based on the Department's engineering judgment. (11/90; 12/93)

(4) For the remaining duration of the permit, the operating requirements must be those demonstrated, in a trial burn or by alternative data specified in R.61-79.270.19(c) as sufficient to ensure compliance with the performance standards of 264.343. (11/90)

264.345 Operating requirements (11/90)

(a) An incinerator must be operated in accordance with operating requirements specified in its permit application and as specified on a case-by-case basis as those demonstrated (in a trial burn or in alternative data as specified in 264.344(b) and included with Part B of a facility's permit application) to be sufficient to comply with the performance standards of 264.343. (11/90; 12/93)

(b) Each set of operating requirements will specify the composition of the waste feed (including acceptable variations in the physical or chemical properties of the waste feed which will not affect compliance with the performance requirement of 264.343) to which the operating requirements apply. For each such waste feed, the permit application will specify acceptable operating limits including the following conditions: (11/90; 12/93)

(1) Carbon monoxide (CO) level in the stack exhaust gas;

(2) Waste feed rate;

(3) Combustion temperature;

(4) An appropriate indicator of combustion gas velocity;

(5) Allowable variations in incinerator system design or operating procedures; and

(6) Such other operating requirements as are necessary to ensure that the performance standards of 264.343 are met.

(c) During startup and shutdown of an incinerator, hazardous waste (except wastes exempted in accordance with 264.340) must not be fed into the incinerator unless the incinerator is operating within the conditions of operation (temperature, air feed rate, etc.) specified in the permit application. (11/90)

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

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

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

(3) An alternate means of control demonstrated (with Part B of the permit application) to provide fugitive emissions control equivalent to maintenance of combustion zone pressure lower than atmospheric pressure.

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

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

264.346 [Reserved]

264.347 Monitoring and inspections

(a) The owner or operator must conduct, as a minimum, the following monitoring while incinerating hazardous waste:

(1) Combustion temperature, waste feed rate, and the indicator of combustion gas velocity specified in the facility permit under these regulations must be monitored on a continuous basis. (11/90, 12/92)

(2) CO must be monitored on a continuous basis at a point in the incinerator downstream of the combustion zone and prior to release to the atmosphere.

(3) Upon request by the Department, sampling and analysis of the waste and exhaust emissions must be conducted to verify that the operating requirements established in the permit application achieve the performance standards of 264.343. (11/90; 12/93)

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

(c) The emergency waste feed cutoff system and associated alarms must be tested at least weekly to verify operability, unless the applicant demonstrates to the Department that weekly inspections will unduly restrict or upset operations and that less frequent inspection will be adequate. At a minimum, operational testing must be conducted at least monthly.

(d) This monitoring and inspection data must be recorded and the records must be placed in the operating log required by 264.73 of this regulation.

264.348 - 264.350 [Reserved]

264.351 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 site.

[Comment: At closure, as throughout the operating period, unless the owner or operator can demonstrate, in accordance with 261.3(d), 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 applicable requirements of parts 262 through 266.] (12/92)

Subpart P - R [Reserved]

Subpart S - Special Provisions for Cleanup

264.550 Applicability of Corrective Action Management Unit (CAMU) Regulations. (6/03)

(a) Except as provided in paragraph (b) of this section, CAMUs are subject to the requirements of 264.552.

(b) CAMUs that were approved before April 22, 2002, or for which substantially complete applications (or equivalents) were submitted to the Agency on or before November 20, 2000, are subject to the requirements in 264.551 for grandfathered CAMUs; CAMU waste, activities, and design will not be subject to the standards in 264.552, so long as the waste, activities, and design remain within the general scope of the CAMU as approved.

264.551 Grandfathered Corrective Action Management Units (CAMUs) (6/03)

(a) To implement remedies under 264.101 or RCRA Section 3008(h), or to implement remedies at a permitted facility that is not subject to 264.101, the owner or operator may designate an area at the facility as a corrective action management unit under the requirements of this section. Corrective action management unit means an area within a facility that is used only for managing remediation wastes for implementing corrective action or cleanup at the facility. A CAMU must be located within the contiguous property under the control of the owner or operator where the wastes to be managed in the CAMU originated. This request is subject to approval by the Department. One or more CAMUs may be designated at a facility. (8/00)

(b) (1) The owner or operator may request to designate a regulated unit (as defined in 264.90(a)(2))

as a CAMU, or may incorporate a regulated unit into a CAMU, if:

(i) The regulated unit is closed or closing, meaning it has begun the closure process under 264.113 or 265.113; and

(ii) Inclusion of the regulated unit will enhance implementation of effective, protective and reliable remedial actions for the facility.

(2) The subpart F, G, and H requirements and the unit-specific requirements of part 264 or 265 that applied to that regulated unit will continue to apply to that portion of the CAMU after incorporation into the CAMU.

(c) The owner or operator shall designate a CAMU in accordance with the following:

(1) The CAMU shall facilitate the implementation of reliable, effective, protective, and cost-effective remedies;

(2) Waste management activities associated with the CAMU shall not create unacceptable risks to humans or to the environment resulting from exposure to hazardous wastes or hazardous constituents;

(3) The CAMU shall include uncontaminated areas of the facility, only if including such areas for the purpose of managing remediation waste is more protective than management of such wastes at contaminated areas of the facility;

(4) Areas within the CAMU, where wastes remain in place after closure of the CAMU, shall be managed and contained so as to minimize future releases, to the extent practicable;

(5) The CAMU shall expedite the timing of remedial activity implementation, when appropriate and practicable;

(6) The CAMU shall enable the use, when appropriate, of treatment technologies (including innovative technologies) to enhance the long-term effectiveness of remedial actions by reducing the toxicity, mobility, or volume of wastes that will remain in place after closure of the CAMU; and

(7) The CAMU shall, to the extent practicable, minimize the land area of the facility upon which wastes will remain in place after closure of the CAMU.

(d) The owner/operator shall provide sufficient information to enable the Department to designate a CAMU in accordance with the criteria in 264.552.

(e) The Department shall specify, in the permit, requirements for CAMUs to include the following: The owner or operator shall specify in the permit application the following information for each CAMU:

264.552 Corrective Action Management Units (CAMU) (6/03).

(a) To implement remedies under 264.101 or RCRA Section 3008(h), or to implement remedies at a permitted facility that is not subject to 264.101, the Department may designate an area at the facility as a corrective action management unit under the requirements in this section. Corrective action management unit means an area within a facility that is used only for managing CAMU-eligible wastes for implementing corrective action or cleanup at the facility. A CAMU must be located within the contiguous property under the control of the owner or operator where the wastes to be managed in the CAMU originated. One or more CAMUs may be designated at a facility.

(1) CAMU-eligible waste means:

(i) All solid and hazardous wastes, and all media (including ground water, surface water, soils, and sediments) and debris, that are managed for implementing cleanup. As-generated wastes (either hazardous or non-hazardous) from ongoing industrial operations at a site are not CAMU-eligible wastes.

(ii) Wastes that would otherwise meet the description in paragraph (a)(1)(i) are not "CAMU-Eligible Wastes" where:

(A) The wastes are hazardous wastes found during cleanup in intact or substantially intact containers, tanks, or other non-land-based units found above ground, unless the wastes are first placed in the tanks, containers or non-land-based units as part of cleanup, or the containers or tanks are excavated during the course of cleanup; or

(B) The Department exercises the discretion in paragraph (a)(2) to prohibit the wastes from management in a CAMU.

(iii) Notwithstanding paragraph (a)(1)(i), where appropriate, as-generated non-hazardous waste may be placed in a CAMU where such waste is being used to facilitate treatment or the performance of the CAMU.

(2) The Department may prohibit, where appropriate, the placement of waste in a CAMU where the Department has or receives information that such wastes have not been managed in compliance with applicable land disposal treatment standards of part 268, or applicable unit design requirements, or applicable unit design requirements of part 265, or that non-compliance with other applicable requirements likely contributed to the release of the waste.

(3) Prohibition against placing liquids in CAMUs.

(i) The placement of bulk or noncontainerized liquid hazardous waste or free liquids contained in hazardous waste (whether or not sorbents have been added) in any CAMU is prohibited except where placement of such wastes facilitates the remedy selected for the waste.

(ii) The requirements in 264.314(d) for placement of containers holding free liquids in landfills apply to placement in a CAMU except where placement facilitates the remedy selected for the waste.

(iii) The placement of any liquid which is not a hazardous waste in a CAMU is prohibited unless such placement facilitates the remedy selected for the

waste or a demonstration is made pursuant to 264.314(f).

(iv) The absence or presence of free liquids in either a containerized or a bulk waste must be determined in accordance with 264.314(c). Sorbents used to treat free liquids in CAMUs must meet the requirements of 264.314(e).

(4) Placement of CAMU-eligible wastes into or within a CAMU does not constitute land disposal of hazardous wastes.

(5) Consolidation or placement of CAMU-eligible wastes into or within a CAMU does not constitute creation of a unit subject to minimum technology requirements.

(b) (1) The Department may designate a regulated unit (as defined in 264.90(a)(2)) as a CAMU, or may incorporate a regulated unit into a CAMU, if:

(i) The regulated unit is closed or closing, meaning it has begun the closure process under 264.113 or 265.113; and

(ii) Inclusion of the regulated unit will enhance implementation of effective, protective and reliable remedial actions for the facility.

(2) The Subpart F, G, and H requirements and the unit-specific requirements 264 or part 265 that applied to the regulated unit will continue to apply to that portion of the CAMU after incorporation into the CAMU.

(c) The Department shall designate a CAMU that will be used for storage and/or treatment only in accordance with paragraph (f). The Department shall designate all other CAMUs in accordance with the following:

(1) The CAMU shall facilitate the implementation of reliable, effective, protective, and cost-effective remedies;

(2) Waste management activities associated with the CAMU shall not create unacceptable risks to humans or to the environment resulting from exposure to hazardous wastes or hazardous constituents;

(3) The CAMU shall include uncontaminated areas of the facility, only if including such areas for the purpose of managing CAMU-eligible waste is more protective than management of such wastes at contaminated areas of the facility;

(4) Areas within the CAMU, where wastes remain in place after closure of the CAMU, shall be managed and contained so as to minimize future releases, to the extent practicable;

(5) The CAMU shall expedite the timing of remedial activity implementation, when appropriate and practicable;

(6) The CAMU shall enable the use, when appropriate, of treatment technologies (including innovative technologies) to enhance the long-term effectiveness of remedial actions by reducing the toxicity, mobility, or volume of wastes that will remain in place after closure of the CAMU; and

(7) The CAMU shall, to the extent practicable, minimize the land area of the facility upon which wastes will remain in place after closure of the CAMU.

(d) The owner/operator shall provide sufficient information to enable the Department to designate a CAMU in accordance with the criteria in this section. This must include, unless not reasonably available, information on:

(1) The origin of the waste and how it was subsequently managed (including a description of the timing and circumstances surrounding the disposal and/or release);

(2) Whether the waste was listed or identified as hazardous at the time of disposal and/or release; and

(3) Whether the disposal and/or release of the waste occurred before or after the land disposal requirements of part 268 were in effect for the waste listing or characteristic.

(e) The Department shall specify, in the permit, requirements for CAMUs to include the following:

(1) The areal configuration of the CAMU.

(2) Except as provided in paragraph (g), requirements for CAMU-eligible waste management to include the specification of applicable design, operation, treatment and closure requirements.

(3) Minimum design requirements. CAMUs, except as provided in paragraph (f), into which wastes are placed must be designed in accordance with the following:

(i) Unless the Department approves alternate requirements under (e)(3)(ii), CAMUs that consist of new, replacement, or laterally expanded units must include a composite liner and a leachate collection system that is designed and constructed to maintain less than a 30-cm depth of leachate over the liner. For purposes, composite liner means a system consisting of two components; the upper component must consist of a minimum 30-mil flexible membrane liner (FML), and the lower component must consist of at least a two-foot layer of compacted soil with a hydraulic conductivity of no more than $1x10^{-7}$ cm/sec. FML components consisting of high density polyethylene (HDPE) must be at least 60 mil thick. The FML component must be installed in direct and uniform contact with the compacted soil component;

(ii) Alternate requirements. The Department may approve alternate requirements if:

(A) The Department finds that alternate design and operating practices, together with location characteristics, will prevent the migration of any hazardous constituents into the ground water or surface water at least as effectively as the liner and leachate collection systems in (e)(3)(i); or

(B) The CAMU is to be established in an area with existing significant levels of contamination, and the Department finds that an alternative design, including a design that does not

include a liner, would prevent migration from the unit that would exceed long-term remedial goals.

(4) Minimum treatment requirements: Unless the wastes will be placed in a CAMU for storage and/or treatment only in accordance with (f), CAMU-eligible wastes that, absent this section, would be subject to the treatment requirements of part 268, and that the Department determines contain principal hazardous constituents must be treated to the standards specified in (e)(4)(iii)of this section.

(i) Principal hazardous constituents are those constituents that the Department determines pose a risk to human health and the environment substantially higher than the cleanup levels or goals at the site.

(A) In general, the Department will designate as principal hazardous constituents:

(1) Carcinogens that pose a potential direct risk from ingestion or inhalation at the site at or above 10^{-3}; and

(2) Non-carcinogens that pose a potential direct risk from ingestion or inhalation at the site an order of magnitude or greater over their reference dose.

(B) The Department will also designate constituents as principal hazardous constituents, where appropriate, when risks to human health and the environment posed by the potential migration of constituents in wastes to ground water are substantially higher than cleanup levels or goals at the site; when making such a designation, the Department may consider such factors as constituent concentrations, and fate and transport characteristics under site conditions.

(C) The Department may also designate other constituents as principal hazardous constituents that the Department determines pose a risk to human health and the environment substantially higher than the cleanup levels or goals at the site.

(ii) In determining which constituents are "principal hazardous constituents," the Department must consider all constituents which, absent this section, would be subject to the treatment requirements in part 268.

(iii) Waste that the Department determines contains principal hazardous constituents must meet treatment standards determined in accordance with (e)(4)(iv) or (e)(4)(v):

(iv) Treatment standards for wastes placed in CAMUs.

(A) For non-metals, treatment must achieve 90 percent reduction in total principal hazardous constituent concentrations, except as provided by (e)(4)(iv)(C).

(B) For metals, treatment must achieve 90 percent reduction in principal hazardous constituent concentrations as measured in leachate from the treated waste or media (tested according to the TCLP) or 90 percent reduction in total constituent concentrations (when a metal removal treatment technology is used), except as provided by (e)(4)(iv)(C)of this section.

(C) When treatment of any principal hazardous constituent to a 90 percent reduction standard would result in a concentration less than 10 times the Universal Treatment Standard for that constituent, treatment to achieve constituent concentrations less than 10 times the Universal Treatment Standard is not required. Universal Treatment Standards are identified in 268.48 Table UTS.

(D) For waste exhibiting the hazardous characteristic of ignitability, corrosivity or reactivity, the waste must also be treated to eliminate these characteristics.

(E)For debris, the debris must be treated in accordance with 268.45, or by methods or to levels established under s (e)(4)(iv)(A) through (D) or (e)(4)(v), whichever the Department determines is appropriate.

(F) Alternatives to TCLP. For metal bearing wastes for which metals removal treatment is not used, the Department may specify a leaching test other than the TCLP (SW846 Method 1311, 260.11(11)) to measure treatment effectiveness, provided the Department determines that an alternative leach testing protocol is appropriate for use, and that the alternative more accurately reflects conditions at the site that affect leaching.

(v) Adjusted standards. The Department may adjust the treatment level or method in (e)(4)(iv) to a higher or lower level, based on one or more of the following factors, as appropriate. The adjusted level or method must be protective of human health and the environment:

(A) The technical impracticability of treatment to the levels or by the methods in (e)(4)(iv);

(B) The levels or methods in (e)(4)(iv) would result in concentrations of principal hazardous constituents (PHCs) that are significantly above or below cleanup standards applicable to the site (established either site-specifically, or promulgated under state or federal law);

(C) The views of the affected local community on the treatment levels or methods in (e)(4)(iv) as applied at the site, and, for treatment levels, the treatment methods necessary to achieve these levels;

(D) The short-term risks presented by the on-site treatment method necessary to achieve the levels or treatment methods in (e)(4)(iv);

(E)The long-term protection offered by the engineering design of the CAMU and related engineering controls:

(1) Where the treatment standards in (e)(4)(iv) are substantially met and the principal hazardous constituents in the waste or residuals are of very low mobility; or

(2) Where cost-effective treatment has been used and the CAMU meets the Subtitle C liner and

leachate collection requirements for new land disposal units at 264.301(c) and (d); or

(3) Where, after review of appropriate treatment technologies, the Department determines that cost-effective treatment is not reasonably available, and the CAMU meets the Subtitle C liner and leachate collection requirements for new land disposal units at 264.301(c) and (d); or

(4) Where cost-effective treatment has been used and the principal hazardous constituents in the treated wastes are of very low mobility; or

(5) Where, after review of appropriate treatment technologies, the Department determines that cost-effective treatment is not reasonably available, the principal hazardous constituents in the wastes are of very low mobility, and either the CAMU meets or exceeds the liner standards for new, replacement, or laterally expanded CAMUs in (e)(3)(i)and (ii), or the CAMU provides substantially equivalent or greater protection.

(vi) The treatment required by the treatment standards must be completed prior to, or within a reasonable time after, placement in the CAMU.

(vii) For the purpose of determining whether wastes placed in CAMUs have met site-specific treatment standards, the Department may, as appropriate, specify a subset of the principal hazardous constituents in the waste as analytical surrogates for determining whether treatment standards have been met for other principal hazardous constituents. This specification will be based on the degree of difficulty of treatment and analysis of constituents with similar treatment properties.

(5) Except as provided in (f), requirements for ground water monitoring and corrective action that are sufficient to:

(i) Continue to detect and to characterize the nature, extent, concentration, direction, and movement of existing releases of hazardous constituents in ground water from sources located within the CAMU; and

(ii) Detect and subsequently characterize releases of hazardous constituents to ground water that may occur from areas of the CAMU in which wastes will remain in place after closure of the CAMU; and

(iii) Require notification to the Department and corrective action as necessary to protect human health and the environment for releases to ground water from the CAMU.

(6) Except as provided in (d), closure and post-closure requirements:

(i) Closure of corrective action management units shall:

(A) Minimize the need for further maintenance; and

(B) Control, minimize, or eliminate, to the extent necessary to protect human health and the environment, for areas where wastes remain in place, post-closure escape of hazardous wastes, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products to the ground, to surface waters, or to the atmosphere.

(ii) Requirements for closure of CAMUs shall include the following, as appropriate and as deemed necessary by the Department for a given CAMU:

(A) Requirements for excavation, removal, treatment or containment of wastes; and

(B) Requirements for removal and decontamination of equipment, devices, and structures used in CAMU-eligible waste management activities within the CAMU.

(iii) In establishing specific closure requirements for CAMUs under (e), the Department shall consider the following factors:

(A) CAMU characteristics;

(B) Volume of wastes which remain in place after closure;

(C) Potential for releases from the CAMU;

(D) Physical and chemical characteristics of the waste;

(E) Hydrological and other relevant environmental conditions at the facility which may influence the migration of any potential or actual releases; and

(F) Potential for exposure of humans and environmental receptors if releases were to occur from the CAMU.

(iv) Cap requirements:

(A) At final closure of the CAMU, for areas in which wastes will remain after closure of the CAMU, with constituent concentrations at or above remedial levels or goals applicable to the site, the owner or operator must cover the CAMU with a final cover designed and constructed to meet the following performance criteria, except as provided in (e)(6)(iv)(B):

(1) Provide long-term minimization of migration of liquids through the closed unit;

(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.

(B) The Department may determine that modifications to (e)(6)(iv)(A) are needed to facilitate treatment or the performance of the CAMU (e.g., to promote biodegradation).

(v) Post-closure requirements as necessary to protect human health and the environment, to include, for areas where wastes will remain in place, monitoring and maintenance activities, and the frequency with

which such activities shall be performed to ensure the integrity of any cap, final cover, or other containment system.

(f) CAMUs used for storage and/or treatment only are CAMUs in which wastes will not remain after closure. Such CAMUs must be designated in accordance with all of the requirements, except as follows.

(1) CAMUs that are used for storage and/or treatment only and that operate in accordance with the time limits established in the staging pile regulations at 264.554(d)(1)(iii), (h), and (i) are subject to the requirements for staging piles at 264.554(d)(1)(i) and (ii), 264.554(d)(2), 264.554(e) and (f), and 264.554(j) and (k) in lieu of the performance standards and requirements for CAMUs in this section at (c) and (e)(3) through (6).

(2) CAMUs that are used for storage and/or treatment only and that do not operate in accordance with the time limits established in the staging pile regulations at 264.554(d)(1)(iii), (h), and (i):

(i) Must operate in accordance with a time limit, established by the Department, that is no longer than necessary to achieve a timely remedy selected for the waste, and

(ii) Are subject to the requirements for staging piles at 264.554(d)(1)(i) and (ii), 264.554(d)(2), 264.554(e) and (f), and 264.554(j) and (k) in lieu of the performance standards and requirements for CAMUs in this section at (c) and (e)(4) and (6).

(g) CAMUs into which wastes are placed where all wastes have constituent levels at or below remedial levels or goals applicable to the site do not have to comply with the requirements for liners at (e)(3)(i), caps at (e)(6)(iv), ground water monitoring requirements at (e)(5) or, for treatment and/or storage-only CAMUs, the design standards at (f).

(h) The Department shall provide public notice and a reasonable opportunity for public comment before designating a CAMU. Such notice shall include the rationale for any proposed adjustments under (e)(4)(v) of this section to the treatment standards in (e)(4)(iv).

(i) Notwithstanding any other provision, the Department may impose additional requirements as necessary to protect human health and the environment.

(j) Incorporation of a CAMU into an existing permit must be approved by the Department according to the procedures for Department-initiated permit modifications under 270.41, or according to the permit modification procedures of 270.42.

(k) The designation of a CAMU does not change the Department's existing authority to address clean-up levels, media-specific points of compliance to be applied to remediation at a facility, or other remedy selection decisions.

264.553 Temporary Units (TU) (12/93)

(a) For temporary tanks and container storage areas used for treatment or storage of hazardous remediation wastes, during remedial activities required under 264.101 or RCRA section 3008(h), or at a permitted facility that is not subject to 264.101 the owner or operator may request approval by the Department to designate a unit at the facility as a temporary unit. A temporary unit must be located within the contiguous property under the control of the owner/operator where the wastes to be managed in the temporary unit originated. For temporary units, the Department may replace the design, operating, or closure standard applicable to these units under this part 264 or part 265 with alternative requirements which protect human health and the environment. (8/00)

(b) Any temporary unit to which alternative requirements are applied in accordance with paragraph (a) of this section shall be:

(1) Located within the facility boundary; and

(2) Used only for treatment or storage of remediation wastes.

(c) In establishing standards to be applied to a temporary unit, the Department shall consider the following factors:

(1) Length of time such unit will be in operation;

(2) Type of unit;

(3) Volumes of wastes to be managed;

(4) Physical and chemical characteristics of the wastes to be managed in the unit;

(5) Potential for releases from the unit;

(6) Hydrogeological and other relevant environmental conditions at the facility which may influence the migration of any potential releases; and

(7) Potential for exposure of humans and environmental receptors if releases were to occur from the unit.

(d) The owner or operator shall specify in the permit application or order the length of time a temporary unit will be allowed to operate, to be no longer than a period of one year. The shall also specify the design, operating, and closure requirements for the unit.

(e) The Department may extend the operational period of a temporary unit once for no longer than a period of one year beyond that originally specified in the permit or order, if the Department determines that:

(1) Continued operation of the unit will not pose a threat to human health and the environment; and

(2) Continued operation of the unit is necessary to ensure timely and efficient implementation of remedial actions at the facility.

(f) Incorporation of a temporary unit or a time extension for a temporary unit into an existing permit shall be:

(1) Approved in accordance with the procedures for Department-initiated permit modifications under 270.41; or

(2) Requested by the owner/operator as a Class II modification according to the procedures under 270.42 of this chapter. (8/00)

(g) The owner or operator shall document the rationale for designating a temporary unit and for granting time extensions for temporary units and the Department shall make such documentation available to the public.

264.554 Staging piles. (8/00)

This section is written in a special format to make it easier to understand the regulatory requirements. Like other regulations, this establishes enforceable legal requirements. For this "I" and "you" refer to the owner/operator.

(a) What is a staging pile? A staging pile is an accumulation of solid, non-flowing remediation waste (as defined in 260.10 of this chapter) that is not a containment building and is used only during remedial operations for temporary storage at a facility. A staging pile must be located within the contiguous property under the control of the owner/operator where the wastes to be managed in the staging pile originated. Staging piles must be designated by the Department in according to the requirements in this section.

(1) For the purposes of this section, storage includes mixing, sizing, blending, or other similar physical operations as long as they are intended to prepare the wastes for subsequent management or treatment. (6/03)

(2) [Reserved 6/03]

(b) When may I use a staging pile? You may use a staging pile to store hazardous remediation waste (or remediation waste otherwise subject to land disposal restrictions) only if you follow the standards and design criteria the Department has designated for that staging pile. The Department must designate the staging pile in a permit or, at an interim status facility, in a closure plan or order (consistent with 270.72(a)(5) and (b)(5) of this chapter). The Department must establish conditions in the permit, closure plan, or order that comply with paragraphs (d) through (k) of this section.

(c) What information must I provide to get a staging pile designated? When seeking a staging pile designation, you must provide:

(1) Sufficient and accurate information to enable the Department to impose standards and design criteria for your staging pile according to paragraphs (d) through (k) of this section;

(2) Certification by an independent, qualified, registered professional engineer for technical data, such as design drawings and specifications, and engineering studies, unless the Department determines, based on information that you provide, that this certification is not necessary to ensure that a staging pile will protect human health and the environment; and

(3) Any additional information the Department determines is necessary to protect human health and the environment.

(d) What performance criteria must a staging pile satisfy? The Department must establish the standards and design criteria for the staging pile in the permit, closure plan, or order.

(1) The standards and design criteria must comply with the following:

(i) The staging pile must facilitate a reliable, effective and protective remedy;

(ii) The staging pile must be designed so as to prevent or minimize releases of hazardous wastes and hazardous constituents into the environment, and minimize or adequately control cross-media transfer, as necessary to protect human health and the environment (for example, through the use of liners, covers, run-off/run-on controls, as appropriate); and

(iii) The staging pile must not operate for more than two years, except when the Department grants an operating term extension under paragraph (i) of this section (entitled "May I receive an operating extension for a staging pile?"). You must measure the two-year limit, or other operating term specified by the Department in the permit, closure plan, or order, from the first time you place remediation waste into a staging pile. You must maintain a record of the date when you first placed remediation waste into the staging pile for the life of the permit, closure plan, or order, or for three years, whichever is longer.

(2) In setting the standards and design criteria, the Department must consider the following factors:

(i) Length of time the pile will be in operation;

(ii) Volumes of wastes you intend to store in the pile;

(iii) Physical and chemical characteristics of the wastes to be stored in the unit;

(iv) Potential for releases from the unit;

(v) Hydrogeological and other relevant environmental conditions at the facility that may influence the migration of any potential releases; and

(vi) Potential for human and environmental exposure to potential releases from the unit;

(e) May a staging pile receive ignitable or reactive remediation waste? You must not place ignitable or reactive remediation waste in a staging pile unless:

(1) You have treated, rendered or mixed the remediation waste before you placed it in the staging pile so that:

(i) The remediation waste no longer meets the definition of ignitable or reactive under 261.21 or 261.23 of this chapter; and

(ii) You have complied with 264.17(b); or

(2) You manage the remediation waste to protect it from exposure to any material or condition that may cause it to ignite or react.

(f) How do I handle incompatible remediation wastes in a staging pile? The term "incompatible waste" is defined in 260.10 of this chapter. You must comply with the following requirements for incompatible wastes in staging piles:

(1) You must not place incompatible remediation wastes in the same staging pile unless you have complied with 264.17(b);

(2) If remediation waste in a staging pile is incompatible with any waste or material stored nearby in containers, other piles, open tanks or land disposal units (for example, surface impoundments), you must separate the incompatible materials, or protect them from one another by using a dike, berm, wall or other device; and

(3) You must not pile remediation waste on the same base where incompatible wastes or materials were previously piled, unless the base has been decontaminated sufficiently to comply with 264.17(b).

(g) Are staging piles subject to Land Disposal Restrictions (LDR) and Minimum Technological Requirements (MTR)? No. Placing hazardous remediation wastes into a staging pile does not constitute land disposal of hazardous wastes or create a unit that is subject to the minimum technological requirements of RCRA 3004(o).

(h) How long may I operate a staging pile? The Department may allow a staging pile to operate for up to two years after hazardous remediation waste is first placed into the pile. You must use a staging pile no longer than the length of time designated by the Department in the permit, closure plan, or order (the "operating term"), except as provided in paragraph (i) of this section.

(i) May I receive an operating extension for a staging pile?

(1) The Department may grant one operating term extension of up to 180 days beyond the operating term limit contained in the permit, closure plan, or order (see paragraph (l) of this section for modification procedures). To justify to the Department the need for an extension, you must provide sufficient and accurate information to enable the Department to determine that continued operation of the staging pile:

(i) Will not pose a threat to human health and the environment; and

(ii) Is necessary to ensure timely and efficient implementation of remedial actions at the facility.

(2) The Department may, as a condition of the extension, specify further standards and design criteria in the permit, closure plan, or order, as necessary, to ensure protection of human health and the environment.

(j) What is the closure requirement for a staging pile located in a previously contaminated area?

(1) Within 180 days after the operating term of the staging pile expires, you must close a staging pile located in a previously contaminated area of the site by removing or decontaminating all:

(i) Remediation waste;

(ii) Contaminated containment system components; and

(iii) Structures and equipment contaminated with waste and leachate.

(2) You must also decontaminate contaminated subsoils in a manner and according to a schedule that the Department determines will protect human health and the environment.

(3) The Department must include the above requirements in the permit, closure plan, or order in which the staging pile is designated.

(k) What is the closure requirement for a staging pile located in an uncontaminated area?

(1) Within 180 days after the operating term of the staging pile expires, you must close a staging pile located in an uncontaminated area of the site according to 264.258(a) and 264.111; or according to 265.258(a) and 265.111 of this chapter.

(2) The Department must include the above requirement in the permit, closure plan, or order in which the staging pile is designated.

(l) How may my existing permit (for example, RAP), closure plan, or order be modified to allow me to use a staging pile?

(1) To modify a permit, other than a RAP, to incorporate a staging pile or staging pile operating term extension, either:

(i) The Department must approve the modification under the procedures for Department-initiated permit modifications in 270.41 of this chapter; or

(ii) You must request a Class 2 modification under 270.42 of this chapter.

(2) To modify a RAP to incorporate a staging pile or staging pile operating term extension, you must comply with the RAP modification requirements under 270.170 and

(3) To modify a closure plan to incorporate a staging pile or staging pile operating term extension, you must follow the applicable requirements under 264.112(c) or 265.112(c) of this chapter.

(4) To modify an order to incorporate a staging pile or staging pile operating term extension, you must follow the terms of the order and the applicable provisions of 270.72(a)(5) or (b)(5) of this chapter.

(m) Is information about the staging pile available to the public? The Department must document the rationale for designating a staging pile or staging pile operating term extension and make this documentation available to the public.

264.555 Disposal of CAMU-eligible wastes in permitted hazardous waste landfills. (6/03)

(a) The Department with regulatory oversight at the location where the cleanup is taking place may approve placement of CAMU-eligible wastes in hazardous waste landfills not located at the site from which the waste

originated, without the wastes meeting the requirements of RCRA part 268, if the conditions in (a)(1) through (3) are met:

(1) The waste meets the definition of CAMU-eligible waste in 264.552(a)(1) and (2).

(2) The Department with regulatory oversight at the location where the cleanup is taking place identifies principal hazardous constitutes in such waste, in accordance with 264.552(e)(4)(i) and (ii), and requires that such principal hazardous constituents are treated to any of the following standards specified for CAMU-eligible wastes:

(i) The treatment standards under 264.552(e)(4)(iv); or

(ii) Treatment standards adjusted in accordance with 264.552(e)(4)(v)(A), (C), (D) or (E)(1); or

(iii) Treatment standards adjusted in accordance with 264.552(e)(4)(v)(E)(2), where treatment has been used and that treatment significantly reduces the toxicity or mobility of the principal hazardous constituents in the waste, minimizing the short-term and long-term threat posed by the waste, including the threat at the remediation site.

(3) The landfill receiving the CAMU-eligible waste must have a RCRA hazardous waste permit, meet the requirements for new landfills in Subpart N, and be authorized to accept CAMU-eligible wastes; for the purposes of this requirement, "permit" does not include interim status.

(b) The person seeking approval shall provide sufficient information to enable the Department with regulatory oversight at the location where the cleanup is taking place to approve placement of CAMU-eligible waste in accordance with (a). Information required by 264.552(d)(1) through (3) for CAMU applications must be provided, unless not reasonably available.

(c) The Department with regulatory oversight at the location where the cleanup is taking place shall provide public notice and a reasonable opportunity for public comment before approving CAMU eligible waste for placement in an off-site permitted hazardous waste landfill, consistent with the requirements for CAMU approval at 264.552(h). The approval must be specific to a single remediation.

(d) Applicable hazardous waste management requirements in this part, including recordkeeping requirements to demonstrate compliance with treatment standards approved under this section, for CAMU-eligible waste must be incorporated into the receiving facility permit through permit issuance or a permit modification, providing notice and an opportunity for comment and a hearing. Notwithstanding 270.4(a), a landfill may not receive hazardous CAMU-eligible waste under this section unless its permit specifically authorizes receipt of such waste.

(e) For each remediation, CAMU-eligible waste may not be placed in an off-site landfill authorized to receive CAMU-eligible waste in accordance with (d) until the following additional conditions have been met:

(1) The landfill owner/operator notifies the Department responsible for oversight of the landfill and persons on the facility mailing list, maintained in accordance with 124.10(c)(1)(ix), of his or her intent to receive CAMU-eligible waste in accordance with this section; the notice must identify the source of the remediation waste, the principal hazardous constituents in the waste, and treatment requirements.

(2) Persons on the facility mailing list may provide comments, including objections to the receipt of the CAMU-eligible waste, to the Department within 15 days of notification.

(3) The Department may object to the placement of the CAMU-eligible waste in the landfill within 30 days of notification; the Department may extend the review period an additional 30 days because of public concerns or insufficient information.

(4) CAMU-eligible wastes may not be placed in the landfill until the Department has notified the facility owner/operator that he or she does not object to its placement.

(5) If the Department objects to the placement or does not notify the facility owner/operator that he or she has chosen not to object, the facility may not receive the waste, notwithstanding 270.4(a), until the objection has been resolved, or the owner/operator obtains a permit modification in accordance with the procedures of 270.42 specifically authorizing receipt of the waste.

(6) As part of the permit issuance or permit modification process of (d), the Department may modify, reduce, or eliminate the notification requirements of this as they apply to specific categories of CAMU-eligible waste, based on minimal risk.

(f) Generators of CAMU-eligible wastes sent off-site to a hazardous waste landfill under this section must comply with the requirements of 268.7(a)(4); off-site facilities treating CAMU-eligible wastes to comply with this section must comply with the requirements of 268.7(b)(4), except that the certification must be with respect to the treatment requirements of (a)(2)of this section.

(g) For the purposes of this section only, the "design of the CAMU" in 264.552(e)(4)(v)(E) means design of the permitted Subtitle C landfill.

Subpart T - V [Reserved]

Subpart W - Drip Pads (12/92)

264.570 Applicability

(a) The requirements of this subpart apply to owners and operators of facilities that use new or existing drip pads to convey treated wood drippage, precipitation, and/or surface water runoff 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 264.573(b)(3) to install a leak collection system applies only to those drip pads that are constructed after December 24, 1992 except for those 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. (12/93)

(b) The owner or operator of any drip pad that is inside or under a structure that provides protection from precipitation so that neither runoff nor runon is generated is not subject to regulation under 264.573(e) or 264.573(f), as appropriate.

(c) The requirements of this subpart are not applicable to the management of infrequent and incidental drippage in storage yards provided that: (12/93)

(1) 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 owner or operator will do the following:

(i) Clean up the drippage;

(ii) Document the cleanup of the drippage;

(iii) Retain the documents regarding cleanup for three years; and

(iv) Manage the contaminated media in a manner consistent with State and Federal regulations.

264.571 Assessment of existing drip pad integrity

(a) For each existing drip pad as defined in 264.570 of this subpart, the owner or operator must evaluate the drip pad and determine that it meets all of the requirements of this subpart, except the requirements for liners and leak detection systems of 264.573(b). No later than the effective date of this rule, 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 registered professional engineer that attests to the results of the evaluation. The assessment must be reviewed, updated and recertified annually until all upgrades, repairs, or modifications necessary to achieve compliance with all of the standards of 264.573 of this subpart are complete. The evaluation must document the extent to which the drip pad meets each of the design and operating standards of 264.573 of this subpart, except the standards for liners and leak detection systems, specified in 264.573(b) of this subpart. (12/93)

(b) The owner or operator must develop a written plan for upgrading, repairing, and modifying the drip pad to meet the requirements of 264.573(b), and submit the plan to the Department no later than 2 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 264.573 of this subpart. The plan must be reviewed and certified by an independent qualified registered professional engineer. (12/93; 12/94, 9/98)

(c) Upon completion of all upgrades, repairs, and modifications, the owner or operator must submit to the Department the as-built drawings for the drip pad together with a certification by an independent qualified registered professional engineer attesting that the drip pad conforms to the drawings.

(d) If the drip pad is found to be leaking or unfit for use, the owner or operator must comply with the provisions of 264.573 (m) of this subpart or close the drip pad in accordance with 264.575.

264.572 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: (12/93)

(a) all of the requirements of 264.573 (except 264.573(a)(4)), 264.574 and 264.575 of this subpart, or (12/93)

(b) all of the requirements of 264.573 (except 264.573(b)), 264.574 and 264.575 of this subpart. (12/93)

264.573 Design and operating requirements

(a) Drip pads must:

(1) Be constructed of non-earthen materials, excluding wood and non-structurally supported asphalt:

(2) 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;

(3) Have a curb or berm around the perimeter;

(4) (i) Have a hydraulic conductivity of less than or equal to $1x10^{-7}$ 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 $1x10^{-7}$ 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 264.572(a) instead of 264.572(b). (12/93, 12/94, 9/98)

(ii) 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 registered professional engineer 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 section, except for paragraph (b) of this Section. (12/93)

(5) Be of sufficient structural strength and thickness to prevent failure due to physical contact, climatic conditions, the stress of daily operations, e.g., variable and moving loads such as vehicle traffic, movement of wood, etc.

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

(b) If an owner/operator elects to comply with 264.572(b) instead of 264.572(a), the drip pad must have: (12/93; 12/94, 9/01)

(1) 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 to prevent releases into the adjacent subsurface soil or groundwater or surface water during the active life of the facility. The liner must be:

(i) Constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the waste or 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);

(ii) Placed upon a foundation or base capable of providing support to the liner and resistance to pressure gradients above and below the liner to prevent failure of the liner due to settlement, compression or uplift; and

(iii) Installed to cover all surrounding earth that could come in contact with the waste or leakage; and

(2) 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:

(i) Constructed of materials that are:

(A) Chemically resistant to the waste managed in the drip pad and the leakage that might be generated; and

(B) Of sufficient strength and thickness to prevent collapse under the pressures exerted by overlaying materials and by any equipment used at the drip pad;

(ii) Designed and operated to function without clogging through the scheduled closure of the drip pad; and

(iii) 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.

(3) 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 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. (12/93)

(c) 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 264.573(m) for remedial action required if deterioration or leakage is detected.

(d) 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 runoff.

(e) Unless protected by a structure, as described in 264.570(b), the owner or operator must design, construct, operate and maintain a runon 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 runoff that might enter the system.

(f) Unless protected by a structure or cover as described in 264.570(b), the owner or operator must design, construct, operate and maintain a runoff management system to collect and control at least the water volume resulting from a 24-hour, 25-year storm.

(g) The drip pad must be evaluated to determine that it meets the requirements of paragraphs (a) through (f) of this section and the owner or operator must obtain a statement from an independent, qualified registered professional engineer certifying that the drip pad design meets the requirements of this section.

(h) Drippage and accumulated precipitation must be removed from the associated collection system as necessary to prevent overflow onto the drip pad.

(i) 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. The owner/operator must

determine if the residues are hazardous as per R.69-79.262.11 and, if so, must manage them under parts 261-268, 270, and section 3010 of RCRA. (12/93)

(j) 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.

(k) After being removed from the treatment vessel, treated wood from pressure and nonpressure 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.

(l) Collection and holding units associated with runon and runoff control systems must be emptied or otherwise managed as soon as possible after storms to maintain design capacity of the system.

(m) Throughout the active life of the drip pad and as specified in the permit, 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:

(1) Upon detection of a condition that may have caused or has caused a release of hazardous waste (e.g., upon detection of leakage in the leak detection system), the owner or operator must:

(i) Enter a record of the discovery in the facility operating log;

(ii) Immediately remove the portion of the drip pad affected by the condition from service;

(iii) Determine what steps must be taken to repair the drip pad and clean up any leakage from below the drip pad, and establish a schedule for accomplishing the repairs;

(iv) Within 24 hours after discovery of the condition, notify the Department of the condition and, within 10 working days, provide written notice to the Department 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.

(2) The Department 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 the owner or operator of the determination and the underlying rationale in writing.

(3) Upon completing all repairs and clean up, the owner or operator must notify the Department in writing and provide a certification signed by an independent, qualified registered professional engineer, that the repairs and clean up have been completed according to the written plan submitted in accordance with paragraph (m)(1)(iv) of this section.

(n) Should a permit under these regulations be necessary, the Department will specify in the permit all design and operating practices that are necessary to ensure that the requirements of this section are satisfied.

(o) 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.

264.574 Inspections

(a) 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 264.573 of this subpart by an independent qualified, registered professional engineer. This 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.

(b) While a drip pad is in operation, it must be inspected weekly and after storms to detect evidence of any of the following:

(1) Deterioration, malfunctions or improper operation of runon and runoff control systems;

(2) The presence of leakage in and proper functioning of leak detection system.

(3) Deterioration or cracking of the drip pad surface.

Note: See 264.573(m) for remedial action required if deterioration or leakage is detected.

264.575 Closure

(a) 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.

(b) 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 (a) of this section, the owner or operator finds that not all contaminated subsoils can be practicably removed or decontaminated, he must close the facility and perform postclosure care in accordance with closure and postclosure care requirements that apply to landfills (264.310). For permitted units, the requirement to have a permit continues throughout the postclosure period. In addition, for the purpose of closure, postclosure, and financial responsibility, such a drip pad is then considered to be landfill, and the owner or operator

must meet all of the requirements for landfills specified in subparts G and H of this part.

(c) (1) The owner or operator of an existing drip pad, as defined in 264.570 of this subpart, that does not comply with the liner requirements of 264.573(b)(1) must:

(i) Include in the closure plan for the drip pad under 264.112 both a plan for complying with paragraph (a) of this section and a contingent plan for complying with paragraph (b) of this section in case not all contaminated subsoils can be practicably removed at closure; and

(ii) Prepare a contingent postclosure plan under 264.118 of this part for complying with paragraph (b) of this section in case not all contaminated subsoils can be practicably removed at closure.

(2) The cost estimates calculated under 264.112 and 264.144 of this part for closure and postclosure care of a drip pad subject to this paragraph must include the cost of complying with the contingent closure plan and the contingent postclosure plan, but are not required to include the cost of expected closure under paragraph (a) of this section.

Subpart X - Miscellaneous Units (11/90)

264.600 Applicability

The requirements in this subpart apply to owners and operators of facilities that treat, store, or dispose of hazardous waste in miscellaneous units, except as 264.1 provide otherwise.

264.601 Environmental performance standards

A miscellaneous unit must be located, designed, constructed, operated, maintained, and closed in a manner that will ensure protection of human health and the environment. Applications for miscellaneous units are to contain such terms and provisions as necessary to protect human health and the environment, including, but not limited to, as appropriate, design and operating requirements, detection and monitoring requirements, and requirements for responses to releases of hazardous waste or hazardous constituents from the unit. Permit terms and provisions must include those requirements of subparts I through O and subparts AA through CC of this Part, Part 270, and 40 CFR part 63 subpart EEE, and 40 CFR part 146 that are appropriate for the miscellaneous unit being permitted. Protection of human health and the environment includes, but is not limited to: (9/01)

(a) Prevention of any releases that may have adverse effects on human health or the environment due to migration of waste constituents in the groundwater or subsurface environment, considering: (12/93)

(1) The volume and physical and chemical characteristics of the waste in the unit, including its potential for migration through soil, liners, or other containing structures;

(2) The hydrologic and geologic characteristics of the unit and the surrounding area;

(3) The existing quality of groundwater, including other sources of contamination and their cumulative impact on the groundwater;

(4) The quantity and direction of groundwater flow;

(5) The proximity to and withdrawal rates of current and potential groundwater users;

(6) The patterns of land use in the region;

(7) The potential for deposition or migration of waste constituents into subsurface physical structures, and into the root zone of food chain crops and other vegetation;

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

(9) The potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents;

(b) Prevention of any releases that may have adverse effects on human health or the environment due to migration of waste constituents in surface water, or wetlands or on the soil surface considering:

(1) The volume and physical and chemical characteristics of the waste in the unit;

(2) The effectiveness and reliability of containing, confining, and collecting systems and structures in preventing migration;

(3) The hydrologic characteristics of the unit and the surrounding area, including the topography of the land around the unit;

(4) The patterns of precipitation in the region;

(5) The quantity, quality, and direction of groundwater flow;

(6) The proximity of the unit to surface waters;

(7) The current and potential uses of nearby surface waters and any water quality standards established for those surface waters;

(8) The existing quality of surface waters and surface soils, including other sources of contamination and their cumulative impact on surface waters and surface soils;

(9) The patterns of land use in the region;

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

(11) The potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents.

(c) Prevention of any release that may have adverse effects on human health or the environment due to migration of waste constituents in the air, considering:

(1) The volume and physical and chemical characteristics of the waste in the unit, including its potential for the emission and dispersal of gases, aerosols and particulates;

(2) The effectiveness and reliability of systems and structures to reduce or prevent emissions of hazardous constituents to the air;

(3) The operating characteristics of the unit;

(4) The atmospheric, meteorologic, and topographic characteristics of the unit and the surrounding area;

(5) The existing quality of the air, including other sources of contamination and their cumulative impact on the air;

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

(7) The potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents.

264.602 Monitoring, analysis, inspection, response, reporting, and corrective action

Monitoring, testing, analytical data, inspections, response, and reporting procedures and frequencies must ensure compliance with 264.601, 264.15, 264.33, 264.75, 264.76, 264.77, and 264.101 as well as meet any additional requirements needed to protect human health and the environment as specified in the permit under these regulations. (12/92)

264.603 Postclosure care

A miscellaneous unit that is a disposal unit must be maintained in a manner that complies with 264.601 during the postclosure care period. In addition, if a treatment or storage unit has contaminated soils or groundwater that cannot be completely removed or decontaminated during closure, then that unit must also meet the requirements of 264.601 during postclosure care. The postclosure plan under 264.118 must specify the procedures that will be used to satisfy this requirement.

Subparts Y-Z [Reserved]

Subpart AA - Air Emission Standards for Process Vents (12/92)

264.1030 Applicability

(a) The regulations in this subpart apply to owners and operators of facilities that treat, store, or dispose of hazardous wastes (except as provided in 264.1).

(b) Except for 264.1034, paragraphs (d) and (e), this subpart 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:

(1) A unit that is subject to the permitting requirements of 270, or (9/98)

(2) A unit (including a hazardous waste recycling unit) that is not exempt from permitting under the provisions of 262.34(a) (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 270, or (9/98)

(3) A unit that is exempt from permitting under the provisions of 262.34(a) (i.e., a 90-day tank or container) and is not a recycling unit under the provisions of 261.6. (9/98, 11//99)

(c) For the owner and operator of a facility subject to this subpart and who received a final permit under 44-56-60 and RCRA section 3005 prior to December 6, 1996, the requirements of this subpart shall be incorporated into the permit when the permit is reissued in accordance with the requirements of 124.15 or reviewed in accordance with the requirements of 270.50(d). Until such date when the owner and operator receives a final permit incorporating the requirements of this subpart, the owner and operator is subject to the requirements of 265 Subpart AA. (9/98, 11/99)

[Note: The requirements of 264.1032 through 264.1036 apply to process vents on hazardous waste recycling units previously exempt under 261.6(c)(1). Other exemptions under 261.4, and 264.1(g) are not affected by these requirements.] (8/00)

(d) Reserved (11/99)

(e) The requirements of this subpart 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 subpart 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. The documentation of compliance under regulations at 40 CFR part 60, part 61, or part 63 shall be kept with, or made readily available with, the facility operating record. (11/99)

264.1031 Definitions

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act and parts 260 - 266.

Air stripping operation is a desorption operation employed to transfer one or more volatile components from a liquid mixture into a gas (air) either with or without the application of heat to the liquid. Packed towers, spray towers, and bubblecap, sieve, or valvetype plate towers are among the process configurations used for contacting the air and a liquid.

Bottoms receiver means a container or tank used to receive and collect the heavier bottoms fractions of the distillation feed stream that remain in the liquid phase.

Closed-vent system means a system that is not open to the atmosphere and that is composed of piping, connections, and, if necessary, flow-inducing devices that transport gas or vapor from a piece or pieces of equipment to a control device.

Condenser means a heat transfer device that reduces a thermodynamic fluid from its vapor phase to its liquid phase.

Connector means flanged, screwed, welded, or other joined fittings used to connect two pipelines or a pipeline and a piece of equipment. For the purposes of reporting and recordkeeping, connector means flanged fittings that are not covered by insulation or other materials that prevent location of the fittings.

Continuous recorder means a data recording device recording an instantaneous data value at least once every 15 minutes.

Control device means an enclosed combustion device, vapor recovery system, or flare. Any device the primary function of which is the recovery or capture of solvents or other organics for use, reuse, or sale (e.g., a primary condenser on a solvent recovery unit) is not a control device.

Control device shutdown means the cessation of operation of a control device for any purpose.

Distillate receiver means a container or tank used to receive and collect liquid material (condensed) from the overhead condenser of a distillation unit and from which the condensed liquid is pumped to larger storage tanks or other process units.

Distillation operation means an operation, either batch or continuous, separating one or more feed stream(s) into two or more exit streams, each exit stream having component concentrations different from those in the feed stream(s). The separation is achieved by the redistribution of the components between the liquid and vapor phase as they approach equilibrium within the distillation unit.

Double block and bleed system means two block valves connected in series with a bleed valve or line that can vent the line between the two block valves.

Equipment means each valve, pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, or flange or other connector, and any control devices or systems required by this subpart. (8/00)

Flame zone means the portion of the combustion chamber in a boiler occupied by the flame envelope.

Flow indicator means a device that indicates whether gas flow is present in a vent stream.

First attempt at repair means to take rapid action for the purpose of stopping or reducing leakage of organic material to the atmosphere using best practices.

Fractionation operation means a distillation operation or method used to separate a mixture of several volatile components of different boiling points in successive stages, each stage removing from the mixture some proportion of one of the components.

Hazardous waste management unit shutdown means a work practice or operational procedure that stops operation of a hazardous waste management unit or part of a hazardous waste management unit. An unscheduled work practice or operational procedure that stops operation of a hazardous waste management unit or part of a hazardous waste management unit for less than 24 hours is not a hazardous waste management unit shutdown. The use of spare equipment and technically feasible bypassing of equipment without stopping operation are not hazardous waste management unit shutdowns.

Hot well means a container for collecting condensate as in a steam condenser serving a vacuum-jet or steam-jet ejector.

In gas/vapor service means that the piece of equipment contains or contacts a hazardous waste stream that is in the gaseous state at operating conditions.

In heavy liquid service means that the piece of equipment is not in gas/vapor service or in light liquid service.

In light liquid service means that the piece of equipment contains or contacts a waste stream where the vapor pressure of one or more of the organic components in the stream is greater than 0.3 kiloPascals (kPa) at 20 EC, the total concentration of the pure components having a vapor pressure greater than 0.3 kPa at 20 EC is equal to or greater than 20 percent by weight, and the fluid is a liquid at operating conditions. (12/93, 11/99)

In situ sampling systems means nonextractive samplers or in-line samplers.

In vacuum service means that equipment is operating at an internal pressure that is at least 5 kPa below ambient pressure. (12/93)

Malfunction means any sudden failure of a control device or a hazardous waste management unit or failure of a hazardous waste management unit to operate in a normal or usual manner, so that organic emissions are increased.

Open-ended valve or line means any valve, except pressure relief valves, having one side of the valve seat in contact with hazardous waste and one side open to the atmosphere, either directly or through open piping. (8/00)

Pressure release means the emission of materials resulting from the system pressure being greater than the set pressure of the pressure relief device.

Process heater means a device that transfers heat liberated by burning fuel to fluids contained in tubes, including all fluids except water that are heated to produce steam.

Process vent means any open-ended pipe or stack that is vented to the atmosphere either directly, through a vacuum-producing system, or through a tank (e.g., distillate receiver, condenser, bottoms receiver, surge control tank, separator tank, or hot well) associated with hazardous waste distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations.

Repaired means that equipment is adjusted, or otherwise altered, to eliminate a leak.

Sampling connection system means an assembly of equipment within a process or waste management unit used during periods of representative operation to take

samples of the process or waste fluid. Equipment used to take non-routine grab samples is not considered a sampling connection system. (8/00)

Sensor means a device that measures a physical quantity or the change in a physical quantity, such as temperature, pressure, flow rate, pH, or liquid level.

Separator tank means a device used for separation of two immiscible liquids.

Solvent extraction operation means an operation or method of separation in which a solid or solution is contacted with a liquid solvent (the two being mutually insoluble) to preferentially dissolve and transfer one or more components into the solvent.

Startup means the setting in operation of a hazardous waste management unit or control device for any purpose.

Steam stripping operation means a distillation operation in which vaporization of the volatile constituents of a liquid mixture takes place by the introduction of steam directly into the charge.

Surge control tank means a large sized pipe or storage reservoir sufficient to contain the surging liquid discharge of the process tank to which it is connected.

Thin-film evaporation operation means a distillation operation that employs a heating surface consisting of a large diameter tube that may be either straight or tapered, horizontal or vertical. Liquid is spread on the tube wall by a rotating assembly of blades that maintain a close clearance from the wall or actually ride on the film of liquid on the wall.

Vapor incinerator means any enclosed combustion device that is used for destroying organic compounds and does not extract energy in the form of steam or process heat.

Vented means discharged through an opening, typically an open-ended pipe or stack, allowing the passage of a stream of liquids, gases, or fumes into the atmosphere. The passage of liquids, gases, or fumes is caused by mechanical means such as compressors or vacuum-producing systems or by process-related means such as evaporation produced by heating and not caused by tank loading and unloading (working losses) or by natural means such as diurnal temperature changes.

264.1032 Standards: Process vents

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

(1) 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

(2) Reduce, by use of a control device, total organic emissions from all affected process vents at the facility by 95 weight percent.

(b) If the owner or operator installs a closed-vent system and control device to comply with the provisions of paragraph (a) of this section the closed-vent system and control device must meet the requirements of 264.1033.

(c) 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 264.1034(c).

(d) When an owner or operator and the Department 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 procedures in 264.1034(c) shall be used to resolve the disagreement.

264.1033 Standards: Closed-vent systems and control devices

(a) (1) Owners or operators of closed-vent systems and control devices used to comply with provisions of this part shall comply with the provisions of this section.

(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 subpart on the effective date that the facility becomes subject to the provisions of this subpart 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 subpart for installation and startup. (9/01)

(ii) Any unit that begins operation after December 21, 1990, and is subject to the provisions of this subpart 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. (11/99)

(iii) The owner or operator of any facility in existence on the effective date of a statutory or EPA regulatory amendment that renders the facility subject to this subpart shall comply with all requirements of this subpart as soon as practicable but no later than 30 months after the amendment's effective date. When control equipment required by this subpart can not 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 subpart. The owner or operator shall enter the implementation schedule in the operating record or in a permanent, readily available file located at the facility. (11/99)

(iv) Owners and operators of facilities and units that become newly subject to the requirements of this subpart after December 8, 1997, due to an action other than those described in paragraph (a)(2)(iii) of this section 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 subpart; the 30-month implementation schedule does not apply). (11/99)

(b) 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 264.1032(a)(1) for all affected process vents can be attained at an efficiency less than 95 weight percent.

(c) 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 3 percent oxygen; or to provide a minimum residence time of 0.50 seconds at a minimum temperature of 760 EC. If a boiler or process heater is used as the control device, then the vent stream shall be introduced into the flame zone of the boiler or process heater.

(d) (1) A flare shall be designed for and operated with no visible emissions as determined by the methods specified in paragraph (e)(1) of this section, except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.

(2) A flare shall be operated with a flame present at all times, as determined by the methods specified in paragraph (f)(2)(iii) of this section.

(3) 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 paragraph (e)(2) of this section.

(4) (i) A steam-assisted or nonassisted flare shall be designed for and operated with an exit velocity, as determined by the methods specified in paragraph (e)(3) of this section, less than 18.3 m/s (60 ft/s), except as provided in paragraphs (d)(4) (ii) and (iii) of this section.

(ii) A steam-assisted or nonassisted flare designed for and operated with an exit velocity, as determined by the methods specified in paragraph (e)(3) of this section, 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).

(iii) A steam-assisted or nonassisted flare designed for and operated with an exit velocity, as determined by the methods specified in paragraph (e)(3) of this section, less than the velocity, V_{max}, as determined by the method specified in paragraph (e)(4) of this section and less than 122 m/s (400 ft/s) is allowed.

(5) 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 paragraph (e)(5) of this section.

(6) A flare used to comply with this section shall be steam-assisted, air-assisted, or nonassisted.

(e) (1) Reference Method 22 in 40 CFR part 60 shall be used to determine the compliance of a flare with the visible emission provisions of this subpart. The observation period is 2 hours and shall be used according to Method 22.

(2) The net heating value of the gas being combusted in a flare shall be calculated using the following equation:

$$H_T = K \left[\sum_{i=1}^{n} C_i H_i \right]$$

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 EC and 760 mm Hg, but the standard temperature for determining the volume corresponding to 1 mol is 20 EC;

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

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 and measured for hydrogen and carbon monoxide by ASTM D 1946-82 (incorporated by reference as specified in 260.11); and

H_i = Net heat of combustion of sample component i, kcal/9 mol at 25 EC and 760 mm Hg. The heats of combustion may be determined using ASTM D 2382-83 (incorporated by reference as specified in 260.11) if published values are not available or cannot be calculated.

(3) 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 as appropriate, by the unobstructed (free) cross-sectional area of the flare tip.

(4) The maximum allowed velocity in m/s, V_{max}, for a flare complying with paragraph (d)(4)(iii) of this section shall be determined by the following equation:

$$Log_{10}(V_{max})=(H_T+28.8)/31.7$$

where:

28.8 = Constant,
31.7 = Constant,
H_T = The net heating value as determined in paragraph (e)(2) of this section.

(5) 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 paragraph (e)(2) of this section.

(f) The owner or operator shall monitor and inspect each control device required to comply with this section to ensure proper operation and maintenance of the control device by implementing the following requirements:

(1) 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 sensor shall be installed in the vent stream at the nearest feasible point to the control device inlet but before the point at which the vent streams are combined.

(2) Install, calibrate, maintain, and operate according to the manufacturer's specifications a device to continuously monitor control device operation as specified below:

(i) 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 EC or ∀0.5 EC, whichever is greater. The temperature sensor shall be installed at a location in the combustion chamber downstream of the combustion zone.

(ii) 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 EC or ∀0.5 EC, 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.

(iii) For a flare, a heat sensing monitoring device equipped with a continuous recorder that indicates the continuous ignition of the pilot flame.

(iv) For a boiler or process heater having a design heat input 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 EC or ∀0.5 EC, whichever is greater. The temperature sensor shall be installed at a location in the furnace downstream of the combustion zone.

(v) 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.

(vi) For a condenser, either:

(A) 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

(B) 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 (EC) or ∀0.5 EC, 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). (9/98)

(vii) For a carbon adsorption system that regenerates the carbon bed directly in the control device such as a fixed bed carbon adsorber, either:

(A) 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

(B) 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.

(3) Inspect the readings from each monitoring device required by paragraphs (f)(1) and (2) of this section 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 section.

(g) 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 264.1035(b)(4)(iii)(F).

(h) 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:

(1) 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 264.1035(b)(4)(iii)(G), whichever is longer.

(2) 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 264.1035(b)(4)(iii)(G).

(i) An alternative operational or process parameter may be monitored if it can be demonstrated that another parameter will ensure that the control device is operated in conformance with these standards and the control device's design specifications.

(j) An owner or operator of an affected facility seeking to comply with the provisions of this part 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.

(k) A closed-vent system shall meet either of the following design requirements: (9/98)

(1) A closed-vent systems 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 264.1034(b) of this subpart, and by visual inspections; or

(2) 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 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.

(l) 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: (9/98)

(1) Each closed-vent system that is used to comply with paragraph (k)(1) of this section shall be inspected and monitored in accordance with the following requirements:

(i) 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 section. The owner or operator shall monitor the closed-vent system components and connections using the procedures specified in 264.1034(b) of this subpart 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.

(ii) After initial leak detection monitoring required in paragraph (l)(1)(i) of this section, the owner or operator shall inspect and monitor the closed-vent system as follows:

(A) 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 264.1034(b) of this subpart 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).

(B) Closed-vent system components or connections other than those specified in paragraph (l)(1)(ii)(A) of this section shall be monitored annually and at other times as requested by the Department, except as provided for in paragraph (o) of this section, using the procedures specified in 264.1034(b) of this subpart to demonstrate that the components or connections operate with no detectable emissions.

(iii) 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 paragraph (l)(3) of this section.

(iv) The owner or operator shall maintain a record of the inspection and monitoring in accordance with the requirements specified in 264.1035 of this subpart.

(2) Each closed-vent system that is used to comply with paragraph (k)(2) of this section shall be inspected and monitored in accordance with the following requirements:

(i) 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.

(ii) 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.

(iii) In the event that a defect or leak is detected, the owner or operator shall repair the defect in

accordance with the requirements of paragraph (l)(3) of this section.

(iv) The owner or operator shall maintain a record of the inspection and monitoring in accordance with the requirements specified in 264.1035 of this subpart.

(3) The owner or operator shall repair all detected defects as follows:

(i) 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 paragraph (l)(3)(iii) of this section.

(ii) A first attempt at repair shall be made no later than 5 calendar days after the emission is detected.

(iii) 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.

(iv) The owner or operator shall maintain a record of the defect repair in accordance with the requirements specified in 264.1035 of this subpart.

(m) Closed-vent systems and control devices used to comply with provisions of this subpart shall be operated at all times when emissions may be vented to them. (9/98)

(n) 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: (9/98)

(1) Regenerated or reactivated in a thermal treatment unit that meets one of the following:

(i) The owner or operator of the unit has been issued a final permit under part 270 which implements the requirements of subpart X of this part; or

(ii) The unit is equipped wit and operating air emission controls in accordance with the applicable requirements of subparts AA and CC of either this part or of part 265; or

(iii) 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.

(2) Incinerated in a hazardous waste incinerator for which the owner or operator either:

(i) Has been issued a final permit under part 270 which implements the requirements of subpart O of this part; or

(ii) Has designed and operates the incinerator in accordance with the interim status requirements of part 265, subpart O.

(3) Burned in a boiler or industrial furnace for which the owner or operator either:

(i) Has been issued a final permit under part 270 which implements the requirements of part 266, subpart H; or

(ii) Has designed and operates the boiler or industrial furnace in accordance with the interim status requirements of part 266, subpart H.

(o) Any components of a closed-vent system that are designated, as described in 264.1035(c)(9) of this subpart, as unsafe to monitor are exempt from the requirements of paragraph (l)(1)(ii)(B) of this section if: (9/98)

(1) 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 paragraph (l)(1)(ii)(B) of this section; and

(2) 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 paragraph (l)(1)(ii)(B) of this section as frequently as practicable during safe-to-monitor times.

264.1034 Test methods and procedures

(a) Each owner or operator subject to the provisions of this subpart shall comply with the test methods and procedures requirements provided in this section.

(b) When a closed-vent system is tested for compliance with no detectable emissions, as required in 264.1033(l) of this subpart, the test shall comply with the following requirements: (11/99)

(1) Monitoring shall comply with Reference Method 21 in 40 CFR part 60.

(2) The detection instrument shall meet the performance criteria of Reference Method 21.

(3) The instrument shall be calibrated before use on each day of its use by the procedures specified in Reference Method 21.

(4) Calibration gases shall be:

(i) Zero air (less than 10 ppm of hydrocarbon in air).

(ii) A mixture of methane or n-hexane and air at a concentration of approximately, but less than, 10,000 ppm methane or n-hexane.

(5) The background level shall be determined as set forth in Reference Method 21.

(6) The instrument probe shall be traversed around all potential leak interfaces as close to the interface as possible as described in Reference Method 21.

(7) The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with 500 ppm for determining compliance.

(c) Performance tests to determine compliance with 264.1032(a) and with the total organic compound concentration limit of 264.1033(c) shall comply with the following:

(1) 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:

(i) Method 2 in 40 CFR part 60 for velocity and volumetric flow rate.

(ii) Method 18 in 40 CFR part 60 for organic content.

(iii) Each performance test shall consist of three separate runs; each run conducted for at least 1 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 timeweighted basis.

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

$$E_h = Q_{2sd} \left\{ \sum_{i=1}^{n} C_i M W_i \right\} [0.0416] [10^{-6}]$$

where:

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

Q_{sd} = 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, kgmol/m^3 (@ 293 K and 760 mm Hg);

10^{-6} = Conversion from ppm, ppm^{-1}.

(v) 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

(vi) 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 paragraph (c)(1)(iv) of this section) and by summing the annual total organic mass emission rates (E_A, as determined in paragraph (c)(1)(v) of this section) for all affected process vents at the facility.

(2) 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.

(3) The owner or operator of an affected facility shall provide, or cause to be provided, performance testing facilities as follows:

(i) Sampling ports adequate for the test methods specified in paragraph (c)(1) of this section.

(ii) Safe sampling platform(s).

(iii) Safe access to sampling platform(s).

(iv) Utilities for sampling and testing equipment.

(4) For the purpose of making compliance determinations, the timeweighted 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 Department's approval, be determined using the average of the results of the two other runs.

(d) 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 subpart, the owner or operator must make an initial determination that the timeweighted, 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:

(1) Direct measurement of the organic concentration of the waste using the following procedures:

(i) 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.

(ii) 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 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.

(iii) Each sample shall be analyzed and the total organic concentration of the sample shall be computed using Method 9060 or 8260 of SW-846 (incorporated by reference under 260.11). (9/98)

(iv) 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 timeweighted, annual average total organic concentration of the waste. The timeweighted 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.

(2) 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.

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

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

(2) For continuously generated waste, annually, or

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

(f) 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 procedures in Method 8260 of SW-846 (incorporated by reference under 260.11) may be used to resolve the dispute. (9/98, 11/99)

264.1035 Recordkeeping requirements

(a) (1) Each owner or operator subject to the provisions of this subpart shall comply with the recordkeeping requirements of this section.

(2) An owner or operator of more than one hazardous waste management unit subject to the provisions of this subpart 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.

(b) Owners and operators must record the following information in the facility operating record:

(1) For facilities that comply with the provisions of 264.1033(a)(2), 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 subpart.

(2) Up-to-date documentation of compliance with the process vent standards in 264.1032, including:

(i) 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).

(ii) 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 and emission reductions must be made using operating parameter values (e.g., temperatures, 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.

(3) 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:

(i) 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.

(ii) A detailed engineering description of the closed-vent system and control device including:

(A) Manufacturer's name and model number of control device.

(B) Type of control device.

(C) Dimensions of the control device.

(D) Capacity.

(E) Construction materials.

(iii) A detailed description of sampling and monitoring procedures, including sampling and monitoring locations in the system, the equipment to be used, sampling and monitoring frequency, and planned analytical procedures for sample analysis.

(4) Documentation of compliance with 264.1033 shall include the following information:

(i) A list of all information references and sources used in preparing the documentation.

(ii) Records, including the dates, of each compliance test required by 264.1033(k).

(iii) 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 260.11) or other engineering texts acceptable to the Department 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 paragraphs (b)(4)(iii)(A) through (b)(4)(iii)(G) of this section may be used to comply with this requirement. The design analysis shall address the vent stream characteristics and control device operation parameters as specified below.

(A) 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.

(B) 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.

(C) For a boiler or process heater, 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 flame zone temperatures, combustion zone residence time, and description of method and location where the vent stream is introduced into the combustion zone.

(D) 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 264.1033(d).

(E) 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.

(F) 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.

(G) 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.

(iv) 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 level reasonably expected to occur.

(v) 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 264.1032(a) is achieved at an efficiency less than 95 weight percent or the total organic emission limits of 264.1032(a) for affected process vents at the facility can be attained by a control device 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.

(vi) If performance tests are used to demonstrate compliance, all test results.

(c) Design documentation and monitoring, operating, and inspection information for each closed-vent system and control device required to comply with the provisions of this part shall be recorded and kept up-to-date in the facility operating record. The information shall include:

(1) Description and date of each modification that is made to the closed-vent system or control device design.

(2) Identification of operating parameter, description of monitoring device, and diagram of monitoring sensor location or locations used to comply with 264.1033 (f)(1) and (f)(2).

(3) Monitoring, operating, and inspection information required by paragraphs (f) through (k) of 264.1033.

(4) 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:

(i) For a thermal vapor incinerator designed to operate with a minimum residence time of 0.50 second at a minimum temperature of 760EC, period when the combustion temperature is below 760EC. (6/04)

(ii) For a thermal vapor incinerator designed to operate with an organic emission reduction efficiency of 95 weight 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 paragraph (b)(4)(iii)(A) of this section. (6/04)

(iii) For a catalytic vapor incinerator, period when:

(A) Temperature of the vent stream at the catalyst bed inlet is more than 28EC below the average temperature of the inlet vent stream established as a requirement of paragraph (b)(4)(iii)(B) of this section, or

(B) Temperature difference across the catalyst bed is less than 80 percent of the design average temperature difference established as a requirement of paragraph (b)(4)(iii)(B) of this section.

(iv) For a boiler or process heater, period when:

(A) Flame zone temperature is more than 28EC below the design average flame zone temperature established as a requirement of paragraph (b)(4)(iii)(C) of this section, or

(B) Position changes where the vent stream is introduced to the combustion zone from the location established as a requirement of paragraph (b)(4)(iii)(C) of this section.

(v) For a flare, period when the pilot flame is not ignited.

(vi) For a condenser that complies with 264.1033(f)(2)(vi)(A), 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 paragraph (b)(4)(iii)(E) of this section.

(vii) For a condenser that complies with 264.1033(f)(2)(vi)(B), period when:

(A) Temperature of the exhaust vent stream from the condenser is more than 6EC above the design average exhaust vent stream temperature established as a requirement of paragraph (b)(4)(iii)(E) of this section; or

(B) Temperature of the coolant fluid exiting the condenser is more than 6EC above the design average coolant fluid temperature at the condenser outlet established as a requirement of paragraph (b)(4)(iii)(E) of this section.

(viii) 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 264.1033(f)(2)(vii)(A), 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 paragraph (b)(4)(iii)(F) of this section.

(ix) 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 264.1033(f)(2)(vii)(B), period when the vent stream continues to flow through the control device beyond the predetermined carbon bed regeneration time established as a requirement of paragraph (b)(4)(iii)(F) of this section.

(5) Explanation for each period recorded under paragraph (4) of the cause for control device operating parameter exceeding the design value and the measures implemented to correct the control device operation.

(6) For a carbon adsorption system operated subject to requirements specified in 264.1033(g) or 264.1033(h)(2), date when existing carbon in the control device is replaced with fresh carbon.

(7) For a carbon adsorption system operated subject to requirements specified in 264.1033(h)(1), a log that records:

(i) Date and time when control device is monitored for carbon breakthrough and the monitoring device reading.

(ii) Date when existing carbon in the control device is replaced with fresh carbon.

(8) Date of each control device startup and shutdown.

(9) An owner or operator designating any components of a closed-vent system as unsafe to monitor pursuant to 264.1033(o) of this subpart 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 264.1033(o) of this subpart, 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. (9/98)

(10) When each leak is detected as specified in 264.1033(l) of this subpart, the following information shall be recorded: (9/98)

(i) The instrument identification number, the closed-vent system component identification number, and the operator name, initials, or identification number.

(ii) The date the leak was detected and the date of first attempt to repair the leak.

(iii) The date of successful repair of the leak.

(iv) Maximum instrument reading measured by Method 21 of 40 CFR part 60, Appendix A after it is successfully repaired or determined to be nonrepairable.

(v) "Repair delayed" and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak.

(A) 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.

(B) 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.

(d) Records of the monitoring, operating, and inspection information required by paragraphs (c)(3) through (c)(10) of this section shall be maintained by the owner or operator for at least 3 years following the date of each occurrence, measurement, maintenance, corrective action, or record. (9/98)

(e) For a control device other than a thermal vapor incinerator, catalytic vapor incinerator, flare, boiler, process heater, condenser, or carbon adsorption system, the Department will specify the appropriate recordkeeping requirements.

(f) Up-to-date information and data used to determine whether or not a process vent is subject to the requirements in 264.1032 including supporting documentation as required by 264.1034(d)(2) 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.

264.1036 Reporting requirements

(a) A semiannual report shall be submitted by owners and operators subject to the requirements of this subpart to the Department by dates specified by the Department. The report shall include the following information:

(1) The Environmental Protection Agency identification number, name, and address of the facility. (12/93)

(2) For each month during the semiannual reporting period, dates when the control device exceeded or operated outside of the design specifications as defined in 264.1035(c)(4) and as indicated by the control device monitoring required by 264.1033(f) and such exceedances were not corrected within 24 hours, or that a flare operated with visible emissions as defined in 264.1033(d) and as determined by Method 22 monitoring, the duration and cause of each exceedance or visible emissions, and any corrective measures taken.

(b) If, during the semiannual reporting period, the control device does not exceed or operate outside of the design specifications as defined in 264.1035(c)(4) for more than 24 hours or a flare does not operate with visible emissions as defined in 264.1033(d), a report to the Department is not required.

264.1037 - 264.1049 [Reserved]

Subpart BB - Air Emission Standards for Equipment Leaks (12/92)

264.1050 Applicability

(a) The regulations in this subpart apply to owners and operators of facilities that treat, store, or dispose of hazardous wastes (except as provided in 264.1).

(b) Except as provided in 264.1064(k), this subpart 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: (9/98)

(1) A unit that is subject to the permitting requirements of part 270, or

(2) A unit (including a hazardous waste recycling unit that is not exempt from permitting under the provisions of 262.34(a) (i.e., a hazardous waste recycling unit that is not a A90-day@ tank or container) and that is located at a hazardous waste management facility otherwise subject to the permitting requirements of part 270, or

(3) A unit that is exempt from permitting under the provisions of 262.34(a) (i.e., a "90-day" tank or container) and is not a recycling unit under the provisions of 261.6. (11/99)

(c) For the owner or operator of a facility subject to this subpart and who received a final permit under RCRA section 3005 prior to December 6, 1996, the requirements of this subpart shall be incorporated into the permit when the permit is reissued in accordance with the requirements of 124.15 or reviewed in accordance with the requirements of 270.50(d). Until such date when the owner or operator receives a final

permit incorporating the requirements of this subpart, the owner or operator is subject to the requirements of part 265, subpart BB. (11/99)

(d) Each piece of equipment to which this subpart applies shall be marked in such a manner that it can be distinguished readily from other pieces of equipment.

(e) Equipment that is in vacuum service is excluded from the requirements of 264.1052 to 264.1060 if it is identified as required in 264.1064(g)(5).

(f) 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 264.1052 through 264.1060 of this subpart if it is identified as required in 264.1064(g)(6) of this subpart. (9/98, 11/99)

(g) [Reserved] (9/98; 8/00)

(h) 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 IIII, are not subject to the requirements of this subpart. (6/06)

[Note: The requirements of 264.1052 through 264.1065 apply to equipment associated with hazardous waste recycling units previously exempt under 261.6(c)(1). Other exemptions under 261.4, and 264.1(g) are not affected by these requirements.] (9/98, 6/06)

264.1051 Definitions

As used in this subpart, all terms shall have the meaning given them in 264.1031, the Act, and parts 260 - 266.

264.1052 Standards: Pumps in light liquid service

(a) (1) Each pump in light liquid service shall be monitored monthly to detect leaks by the methods specified in 264.1063(b), except as provided in paragraphs (d), (e), and (f) of this section.

(2) Each pump in light liquid service shall be checked by visual inspection each calendar week for indications of liquids dripping from the pump seal.

(b) (1) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.

(2) If there are indications of liquids dripping from the pump seal, a leak is detected.

(c) (1) 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 264.1059.

(2) A first attempt at repair (e.g., tightening the packing gland) shall be made no later than 5 calendar days after each leak is detected.

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

(1) Each dual mechanical seal system must be:

(i) Operated with the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure, or

(ii) 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 264.1060, or

(iii) Equipped with a system that purges the barrier fluid into a hazardous waste stream with no detectable emissions to the atmosphere.

(2) The barrier fluid system must not be a hazardous waste with organic concentrations 10 percent or greater by weight.

(3) Each barrier fluid system must be equipped with a sensor that will detect failure of the seal system, the barrier fluid system, or both.

(4) Each pump must be checked by visual inspection, each calendar week, for indications of liquids dripping from the pump seals.

(5) (i) Each sensor as described in paragraph (d)(3) of this section must be checked daily or be equipped with an audible alarm that must be checked monthly to ensure that it is functioning properly.

(ii) 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.

(6) (i) 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 paragraph (d)(5)(ii) of this section, a leak is detected.

(ii) 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 264.1059.

(iii) A first attempt at repair (e.g., relapping the seal) shall be made no later than 5 calendar days after each leak is detected.

(e) Any pump that is designated, as described in 264.1064(g)(2), for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the requirements of paragraphs (a), (c), and (d) of this section if the pump meets the following requirements:

(1) Must have no externally actuated shaft penetrating the pump housing.

(2) 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 264.1063(c).

(3) Must be tested for compliance with paragraph (e)(2) of this section initially upon designation, annually, and at other times as requested by the Department.

(f) 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 264.1060, it is exempt from the requirements of paragraphs (a) through (e) of this section.

264.1053 Standards: Compressors

(a) Each compressor shall be equipped with a seal system that includes a barrier fluid system and that prevents leakage of total organic emissions to the atmosphere, except as provided in paragraphs (h) and (i) of this section.

(b) Each compressor seal system as required in paragraph (a) of this section shall be:

(1) Operated with the barrier fluid at a pressure that is at all times greater than the compressor stuffing box pressure, or

(2) Equipped with a barrier fluid system that is connected by a closed-vent system to a control device that complies with the requirements of 264.1060, or (12/93)

(3) Equipped with a system that purges the barrier fluid into a hazardous waste stream with no detectable emissions to atmosphere.

(c) The barrier fluid must not be a hazardous waste with organic concentrations 10 percent or greater by weight.

(d) Each barrier fluid system as described in paragraphs (a) through (c) of this section shall be equipped with a sensor that will detect failure of the seal system, barrier fluid system, or both.

(e) (1) Each sensor as required in paragraph (d) of this section 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.

(2) 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.

(f) If the sensor indicates failure of the seal system, the barrier fluid system, or both based on the criterion determined under paragraph (e)(2) of this section, a leak is detected.

(g) (1) 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 264.1059.

(2) A first attempt at repair (e.g., tightening the packing gland) shall be made no later than 5 calendar days after each leak is detected.

(h) A compressor is exempt from the requirements of paragraphs (a) and (b) of this section 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 264.1060, except as provided in paragraph (i) of this section.

(i) Any compressor that is designated, as described in 264.1064(g)(2), for no detectable emissions as indicated by an instrument reading of less than 500 ppm above background is exempt from the requirements of paragraphs (a) through (h) of this section if the compressor:

(1) 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 264.1063(c).

(2) Is tested for compliance with paragraph (i)(1) of this section initially upon designation, annually, and at other times as requested by the Department.

264.1054 Standards: Pressure relief devices in gas/vapor service

(a) 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 264.1063(c).

(b) (1) 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 5 calendar days after each pressure release, except as provided in 264.1059.

(2) No later than 5 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 264.1063(c).

(c) 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 264.1060 is exempt from the requirements of paragraphs (a) and (b) of this section.

264.1055 Standards: Sampling connecting systems

(a) 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. (9/98)

(b) Each closed purge, closed-loop, or closed-vent system as required in paragraph (a) of this section shall meet one of the following requirements: (9/98)

(1) Return the purged process fluid directly to the process line;

(2) Collect and recycle the purged process fluid; or

(3) 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 264.1084 through 264.1086 of this

subpart or a control device that complies with the requirements of 264.1060 of this subpart.

(c) In situ sampling systems and sampling systems without purges are exempt from the requirements of paragraphs (a) and (b) of this section. (9/98)

264.1056 Standards: Open-ended valves or lines

(a) (1) Each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve.

(2) 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.

(b) 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.

(c) 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 (a) of this section at all other times.

264.1057 Standards: Valves in gas/vapor service or in light liquid service

(a) Each valve in gas/vapor or light liquid service shall be monitored monthly to detect leaks by the methods specified in 264.1063(b) and shall comply with paragraphs (b) through (e) of this section, except as provided in paragraphs (f), (g), and (h) of this section, and 264.1061 and 264.1062.

(b) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.

(c) (1) 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.

(2) If a leak is detected, the valve shall be monitored monthly until a leak is not detected for two successive months,

(d) (1) 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 264.1059.

(2) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

(e) First attempts at repair include, but are not limited to, the following best practices where practicable:

(1) Tightening of bonnet bolts.

(2) Replacement of bonnet bolts.

(3) Tightening of packing gland nuts.

(4) Injection of lubricant into lubricated packing.

(f) Any valve that is designated, as described in 264.1064(g)(2), for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the requirements of paragraph (a) of this section if the valve:

(1) Has no external actuating mechanism in contact with the hazardous waste stream.

(2) Is operated with emissions less than 500 ppm above background as determined by the method specified in 264.1063(c).

(3) Is tested for compliance with paragraph (f)(2) of this section initially upon designation, annually, and at other times as requested by the Department.

(g) Any valve that is designated, as described in 264.1064(h)(1), as an unsafe-to-monitor valve is exempt from the requirements of paragraph (a) of this section if:

(1) 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 (a) of this section.

(2) 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.

(h) Any valve that is designated, as described in 264.1064(h)(2), as a difficult-to-monitor valve is exempt from the requirements of paragraph (a) of this section if:

(1) The owner or operator of the valve determines that the valve cannot be monitored without elevating the monitoring personnel more than 2 meters above a support surface.

(2) The hazardous waste management unit within which the valve is located was in operation before June 21, 1990.

(3) The owner or operator of the valve follows a written plan that requires monitoring of the valve at least once per calendar year.

264.1058 Standards: Pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and flanges and other connectors

(a) 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 5 days by the method specified in 264.1063(b) if evidence of a potential leak is found by visual, audible, olfactory, or any other detection method.

(b) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.

(c) (1) 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 264.1059.

(2) The first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

(d) First attempts at repair include, but are not limited to, the best practices described under 264.1057(e).

(e) 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 (a) of this section and from the recordkeeping requirements of 264.1064 of this subpart. (9/98)

264.1059 Standards: Delay of repair

(a) 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.

(b) 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.

(c) Delay of repair for valves will be allowed if:

(1) 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.

(2) When repair procedures are effected, the purged material is collected and destroyed or recovered in a control device complying with 264.1060.

(d) Delay of repair for pumps will be allowed if:

(1) Repair requires the use of a dual mechanical seal system that includes a barrier fluid system.

(2) Repair is completed as soon as practicable, but not later than 6 months after the leak was detected.

(e) 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 had 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 shutdown occurs sooner than 6 months after the first hazardous waste management unit shutdown.

264.1060 Standards: Closedvent systems and control devices

(a) Owners and operators of closed-vent systems and control devices subject to this subpart shall comply with the provisions of 264.1033 of this part. (11/99)

(b) (1) 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 subpart on the effective date that the facility becomes subject to the provisions of this subpart 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 subpart for installation and startup. (11/99)

(2) Any unit that begins operation after December 21, 1990, and is subject to the provisions of this subpart 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. (11/99)

(3) The owner or operator of any facility in existence on the effective date of a statutory or EPA regulatory amendment that renders the facility subject to this subpart shall comply with all requirements of this subpart as soon as practicable but no later than 30 months after the amendment's effective date. When control equipment required by this subpart can not 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 or 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 subpart. The owner or operator shall enter the implementation schedule in the operating record or in a permanent, readily available file located at the facility. (11/99)

(4) Owners and operators of facilities and units that become newly subject to the requirements of this subpart after December 8, 1997, due to an action other than those described in paragraph (b)(3) of this section 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 subpart; the 30-month implementation schedule does not apply). (11/99)

264.1061 Alternative standards for valves in gas/vapor service or in light liquid service: percentage of valves allowed to leak

(a) An owner or operator subject to the requirements of 264.1057 may elect to have all valves within a hazardous waste management unit comply with an alternative standard that allows no greater than 2 percent of the valves to leak.

(b) The following requirements shall be met if an owner or operator decides to comply with the alternative standard of allowing 2 percent of valves to leak:

(1) An owner or operator must notify the Department that the owner or operator has elected to comply with the requirements of this section.

(2) A performance test as specified in paragraph (c) of this section shall be conducted initially upon designation, annually, and at other times requested by the Department.

(3) If a valve leak is detected, it shall be repaired in accordance with 264.1057(d) and (e).

(c) Performance tests shall be conducted in the following manner:

(1) All valves subject to the requirements in 264.1057 within the hazardous waste management unit shall be monitored within 1 week by the methods specified in 264.1063(b).

(2) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.

(3) The leak percentage shall be determined by dividing the number of valves subject to the requirements in 264.1057 for which leaks are detected by the total number of valves subject to the requirements in 264.1057 within the hazardous waste management unit.

(d) If an owner or operator decides to comply with this section no longer, the owner or operator must notify the Department in writing that the work practice standard described in 264.1057(a) through (e) will be followed.

264.1062 Alternative standards for valves in gas/vapor service or in light liquid service: skip period leak detection and repair

(a) (1) An owner or operator subject to the requirements of 264.1057 may elect for all valves within a hazardous waste management unit to comply with one of the alternative work practices specified in paragraphs (b) (2) and (3) of this section.

(2) An owner or operator must notify the Department before implementing one of the alternative work practices.

(b) (1) An owner or operator shall comply with the requirements for valves, as described in 264.1057, except as described in paragraphs (b)(2) and (b)(3) of this section.

(2) After two consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than 2 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 the requirements in 264.1057 of this subpart (11/99).

(3) After five consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than 2 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 264.1057 of this subpart. (11/99)

(4) If the percentage of valves leaking is greater than 2 percent, the owner or operator shall monitor monthly in compliance with the requirements in 264.1057, but may again elect to use this section after meeting the requirements of 264.1057(c)(1).

264.1063 Test methods and procedures

(a) Each owner or operator subject to the provisions of this subpart shall comply with the test methods and procedures requirements provided in this section.

(b) Leak detection monitoring, as required in 264.1052 - 264.1062, shall comply with the following requirements:

(1) Monitoring shall comply with Reference Method 21 in 40 CFR part 60.

(2) The detection instrument shall meet the performance criteria of Reference Method 21.

(3) The instrument shall be calibrated before use on each day of its use by the procedures specified in Reference Method 21.

(4) Calibration gases shall be:

(i) Zero air (less than 10 ppm of hydrocarbon in air).

(ii) A mixture of methane or n-hexane and air at a concentration of approximately, but less than, 10,000 ppm methane or n-hexane.

(5) The instrument probe shall be traversed around all potential leak interfaces as close to the interface as possible as described in Reference Method 21.

(c) When equipment is tested for compliance with no detectable emissions. as required in 264.1052(e), 264.1053(i), 264.1054, and 264.1057(f), the test shall comply with the following requirements:

(1) The requirements of paragraphs (b)(1) through (4) of this section shall apply.

(2) The background level shall be determined as set forth in Reference Method 21.

(3) The instrument probe shall be traversed around all potential leak interfaces as close to the interface as possible as described in Reference Method 21.

(4) The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with 500 ppm for determining compliance.

(d) In accordance with the waste analysis plan required by 264.13(b), 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:

(1) Methods described in ASTM Methods D 2267-88, E 169-87, E 168-88, E 260-85 (incorporated by reference under 260.11);

(2) Method 9060 or 8260 of SW-846 (incorporated by reference under 260.11); or (9/98)

(3) 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.

(e) 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 paragraph (d)(1) or (d)(2) of this section.

(f) When an owner or operator and the Department do not agree on whether a piece of equipment contains or contacts a hazardous waste with organic concentrations at least 10 percent by weight, the procedures in paragraph (d)(1) or (d)(2) of this section can be used to resolve the dispute.

(g) 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.

(h) 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-2879-86 (incorporated by reference under 260.11).

(i) Performance tests to determine if a control device achieves 95 weight percent organic emission reduction shall comply with the procedures of 264.1034(c)(1) through (c)(4).

264.1064 Recordkeeping requirements

(a) (1) Each owner or operator subject to the provisions of this subpart shall comply with the recordkeeping requirements of this section.

(2) An owner or operator of more than one hazardous waste management unit subject to the provisions of this subpart 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.

(b) Owners and operators must record the following information in the facility operating record:

(1) For each piece of equipment to which subpart BB of part 264 applies:

(i) Equipment identification number and hazardous waste management unit identification.

(ii) Approximate locations within the facility (e.g., identify the hazardous waste management unit on a facility plot plan).

(iii) Type of equipment (e.g.. a pump or pipeline valve).

(iv) Percent by weight total organics in the hazardous waste stream at the equipment.

(v) Hazardous waste state at the equipment (e.g., gas/vapor or liquid).

(vi) Method of compliance with the standard (e.g., monthly leak detection and repair or equipped with dual mechanical seals).

(2) For facilities that comply with the provisions of 264.1033(a)(2), an implementation schedule as specified in 264.1033(a)(2).

(3) 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 264.1035(b)(3).

(4) Documentation of compliance with 264.1060, including the detailed design documentation or performance test results specified in 264.1035(b)(4).

(c) When each leak is detected as specified in 264.1052, 264.1053, 264.1057, and 264.1058, the following requirements apply:

(1) A weatherproof and readily visible identification, marked with the equipment identification number, the date evidence of a potential leak was found in accordance with 264.1058(a), and the date the leak was detected, shall be attached to the leaking equipment.

(2) The identification on equipment, except on a valve, may be removed after it has been repaired.

(3) The identification on a valve may be removed after it has been monitored for 2 successive months as specified in 264.1057(c) and no leak has been detected during those 2 months.

(d) When each leak is detected as specified in 264.1052, 264.1053, 264.1057, and 264.1058, the following information shall be recorded in an inspection log and shall be kept in the facility operating record:

(1) The instrument and operator identification numbers and the equipment identification number.

(2) The date evidence of a potential leak was found in accordance with 264.1058(a).

(3) The date the leak was detected and the dates of each attempt to repair the leak.

(4) Repair methods applied in each attempt to repair the leak.

(5) Above 10,000 if the maximum instrument reading measured by the methods specified in 264.1063(b) after each repair attempt is equal to or greater than 10,000 ppm.

(6) Repair delayed and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak.

(7) Documentation supporting the delay of repair of a valve in compliance with 264.1059(c).

(8) 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.

(9) The expected date of successful repair of the leak if a leak is not repaired within 15 calendar days.

(10) The date of successful repair of the leak.

(e) Design documentation and monitoring, operating, and inspection information for each closed-vent system and control device required to comply with the provisions of 264.1060 shall be recorded and kept up to date in the facility operating record as specified in 264.1035(c). Design documentation is specified in 264.1035 (c)(1) and (c)(2) and monitoring, operating, and inspection information in 264.1035(c)(3)-(c)(8).

(f) For a control device other than a thermal vapor incinerator, catalytic vapor incinerator, flare, boiler, process heater, condenser, or carbon adsorption system, the Department will specify the appropriate recordkeeping requirements.

(g) The following information pertaining to all equipment subject to the requirements in 264.1052 through 264.1060 shall be recorded in a log that is kept in the facility operating record:

(1) A list of identification numbers for equipment (except welded fittings) subject to the requirements of this subpart.

(2) (i) 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 264.1052(e), 264.1053(i), and 264.1057(f).

(ii) The designation of this equipment as subject to the requirements of 264.1052(e), 264.1053(i), or 264.1057(f) shall be signed by the owner or operator.

(3) A list of equipment identification numbers for pressure relief devices required to comply with 264.1054(a).

(4) (i) The dates of each compliance test required in 264.1052(e), 264.1053(i), 264.1054, and 264.1057(f).

(ii) The background level measured during each compliance test.

(iii) The maximum instrument reading measured at the equipment during each compliance test.

(5) A list of identification numbers for equipment in vacuum service.

(6) 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. (9/98, 11/99)

(h) The following information pertaining to all valves subject to the requirements of 264.1057 (g) and (h) shall be recorded in a log that is kept in the facility operating record:

(1) 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.

(2) 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.

(i) The following information shall be recorded in the facility operating record for valves complying with 264.1062:

(1) A schedule of monitoring.

(2) The percent of valves found leaking during each monitoring period.

(j) The following information shall be recorded in a log that is kept in the facility operating record:

(1) Criteria required in 264.1052(d)(5)(ii) and 264.1053(e)(2) and an explanation of the design criteria.

(2) Any changes to these criteria and the reasons for the changes.

(k) 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 section of this subpart and other specific subparts:

(1) An analysis determining the design capacity of the hazardous waste management unit.

(2) A statement listing the hazardous waste influent to and effluent from each hazardous waste management unit subject to the requirements in 264.1052 through 264.1060 and an analysis determining whether these hazardous wastes are heavy liquids.

(3) An up-to-date analysis and the supporting information and data used to determine whether or not equipment is subject to the requirements in 264.1052 through 264.1060. The record shall include supporting documentation as required by 264.1063(d)(3) 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 264.1052 through 264.1060, then a new determination is required.

(l) Records of the equipment leak information required by paragraph (d) of this section and the operating information required by paragraph (e) of this section need be kept only 3 years.

(m) The owner or operator of a facility with equipment that is subject to this subpart and to regulations at 40 CFR part 60, part 61, or part 63 may elect to determine compliance with this subpart either by documentation pursuant to 264.1064 of this subpart, or by documentation of compliance with the regulations at 40 CFR part 60, part 61, or part 63 pursuant to the relevant provisions of the regulations at 40 part 60, part 61, or part 63. The documentation of compliance under regulations at 40 CFR part 60, part 61, or part 63 shall be kept with or made readily available with the facility operating record. (11/99)

264.1065 Reporting requirements

(a) A semiannual report shall be submitted by owners and operators subject to the requirements of this subpart to the Department by dates specified by the Department. The report shall include the following information:

(1) The Environmental Protection Agency identification number, name, and address of the facility. (12/93)

(2) For each month during the semiannual reporting period:

(i) The equipment identification number of each valve for which a leak was not repaired as required in 264.1057(d).

(ii) The equipment identification number of each pump for which a leak was not repaired as required in 264.1052 (c) and (d)(6).

(iii) The equipment identification number of each compressor for which a leak was not repaired as required in 264.1053(g).

(3) Dates of hazardous waste management unit shutdowns that occurred within the semiannual reporting period.

(4) For each month during the semiannual reporting period, dates when the control device installed as required by 264.1052, 264.1053, 264.1054, or 264.1055 exceeded or operated outside of the design specifications as defined in 264.1064(e) and as indicated by the control device monitoring required by 264.1060 and was not corrected within 24 hours, the duration and cause of each exceedance, and any corrective measures taken.

(b) If, during the semiannual reporting period, leaks from valves, pumps, and compressors are repaired as required in 264.1057 (d), 264.1052 (c) and (d)(6), and 264.1053 (g), respectively, and the control device does not exceed or operate outside of the design specifications as defined in 264.1064(e) for more than 24 hours, a report to the Department is not required.

264.1066 - 264.1079 [Reserved]

Subpart CC - Air Emission Standards for Tanks, Surface Impoundments, and Containers (9/98)

264.1080 Applicability

(a) The requirements of this subpart 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 subparts I, J, or K of this part except as 264.1 and paragraph (b) of this section provide otherwise.

(b) The requirements of this subpart do not apply to the following waste management units at the facility:

(1) A waste management unit that holds hazardous waste placed in the unit before December 6, 1996, and in which no hazardous waste is added to the unit on or after December 6, 1996. (11/99)

(2) A container that has a design capacity less than or equal to 0.1 m^3.

(3) 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.

(4) 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.

(5) 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 sections 3004(u), 3004(v), or 3008(h); CERCLA authorities; or similar Federal or State authorities. (8/00)

(6) 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.

(7) 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. 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 264.1084(i), except as provided in 264.1082(c)(5).

(8) A tank that has a process vent as defined in 264.1031.

(c) For the owner and operator of a facility subject to this subpart and who received a final permit under RCRA section 3005 prior to December 6, 1996, the requirements of this subpart shall be incorporated into the permit when the permit is reissued in accordance with the requirements of 124.15 of this chapter or reviewed in accordance with the requirements of 270.50(d) of this chapter. Until such date when the permit is reissued in accordance with the requirements of 124.15 or reviewed in accordance with the requirements of 270.50(d), the owner and operator is subject to the requirements of part 265, subpart CC. (11/99)

(d) The requirements of this subpart, except for the recordkeeping requirements specified in 264.1089(i) of this subpart, are administratively stayed for a tank or a container used for the management 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:

(1) 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.

(2) The owner or operator prepares documentation, in accordance with the requirements of 264.1089(i) of this subpart, explaining why an undue safety hazard would be created if air emission controls specified in 264.1084 through 264.1087 of this subpart 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 paragraph (d)(1) of this section.

(3) The owner or operator notifies the Department in writing that hazardous waste generated by an organic peroxide manufacturing process or processes meeting the conditions of paragraph (d)(1) of this section are managed at the facility in tanks or containers meeting the conditions of paragraph (d)(2) of this section. 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.

(e) Reserved 11/99

264.1081 Definitions

As used in this subpart, all terms shall have the meaning given to them in 265.1081, the Act, and parts 260 through 266 of this chapter.

264.1082 Standards: General

(a) This section applies to the management of hazardous waste in tanks, surface impoundments, and containers subject to this subpart.

(b) The owner or operator shall control air pollutant emissions from each hazardous waste management unit in accordance with standards specified in 264.1084 through 264.1087 of this subpart, as applicable to the hazardous waste management unit, except as provided for in paragraph (c) of this section. (11/99)

(c) A tank, surface impoundment, or container is exempt from standards specified in 264.1084 through 264.1087 of this subpart, as applicable, provided that the waste management unit is one of the following:

(1) 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 264.1083(a) of this subpart. 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.

(2) 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:

(i) 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 264.1083(b) of this subpart.

(ii) 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 264.1083(b) of this subpart.

(iii) 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 264.1083(b) of this subpart.

(iv) A biological process that destroys or degrades the organics contained in the hazardous waste, such that either of the following conditions is met:

(A) 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 264.1083(b) of this subpart.

(B) 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 264.1083(b) of this subpart.

(v) A process that removes or destroys the organics contained in the hazardous waste and meets all of the following conditions:

(A) 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 264.1084 through 264.1087 of this subpart, as applicable to the waste management unit.

(B) 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 EPA considers a drain system that meets the requirements of 40 CFR part 63, subpart RR-National Emission Standards for Individual Drain Systems to be a closed system.

(C) 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 264.1083(a) of this subpart. The average VO concentration of the hazardous waste at the point of waste treatment shall be determined using the procedures specified in 264.1083(b) of this subpart.

(vi) 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 264.1083(b) and 264.1083(a) of this subpart, respectively.

(vii) A hazardous waste incinerator for which the owner or operator has either:

(A) Been issued a final permit under part 270 which implements the requirements of subpart O of this part; or

(B) Has designed and operates the incinerator in accordance with the interim status requirements of part 265, subpart O.

(viii) A boiler or industrial furnace for which the owner or operator has either:

(A) Been issued a final permit under part 270 which implements the requirements of part 266, subpart H, or

(B) Has designed and operates the boiler or industrial furnace in accordance with the interim status requirements of part 266, subpart H.

(ix) For the purpose of determining the performance of an organic destruction or removal process in accordance with the conditions in each of paragraphs (c)(2)(i) through (c)(2)(vi) of this section, 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:

(A) If Method 25D in 40 CFR part 60, Appendix A is used for the analysis, one-half the blank value determined in the method at section 4.4 of Method 25D in 40CFR Part 60, Appendix A, or a value of 25 ppmw, whichever is less. (11/99)

(B) 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 x 10^{-6} atmospheres/gram-mole/m^3] at 25 degrees Celsius. (11/99)

(3) A tank or surface impoundment used for biological treatment of hazardous waste in accordance with the requirements of paragraph (c)(2)(iv) of this section. (11/99)

(4) A tank, surface impoundment, or container for which all hazardous waste placed in the unit either:

(i) Meets the numerical concentration limits for organic hazardous constituents, applicable to the hazardous waste, as specified in part 268-Land Disposal Restrictions under Table "Treatment Standards for Hazardous Waste" in 268.40; or

(ii) The organic hazardous constituents in the waste have been treated by the treatment technology established by EPA for the waste in 268.42(a), or have been removed or destroyed by an equivalent method of treatment approved by EPA pursuant to 268.42(b).

(5) A tank used for bulk feed of hazardous waste to a waste incinerator and all of the following conditions are met:

(i) 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 for a facility at which the total annual benzene quantity from the facility waste is equal to or greater than 10 megagrams per year;

(ii) The enclosure and control device serving the tank were installed and began operation prior to November 25, 1996 and

(iii) 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. 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 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.

(d) The Department 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:

(1) 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 264.1083(a) of this subpart. The waste determination for a hazardous waste at the point of waste treatment shall be performed in accordance with the applicable requirements of 264.1083(b) of this subpart.

(2) In performing a waste determination pursuant to paragraph (d)(1) of this section, the sample preparation and analysis shall be conducted as follows:

(i) In accordance with the method used by the owner or operator to perform the waste analysis, except in the case specified in paragraph (d)(2)(ii) of this section.

(ii) If the Department 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 Department may choose an appropriate method.

(3) In a case when the owner or operator is requested to perform the waste determination, the Department may elect to have an authorized representative observe the collection of the hazardous waste samples used for the analysis.

(4) In a case when the results of the waste determination performed or requested by the Department 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 paragraph (d)(1) of this section shall be used to establish compliance with the requirements of this subpart.

(5) In a case when the owner or operator has used an averaging period greater than 1 hour for determining the average VO concentration of a hazardous waste at the point of waste origination, the Department may elect to establish compliance with this subpart by performing or requesting that the owner or operator perform a waste determination using direct measurement based on waste samples collected within a 1-hour period as follows:

(i) 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 264.1083(a) of this subpart.

(ii) Results of the waste determination performed or requested by the Department 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 subpart except in a case as provided for in paragraph (d)(5)(iii) of this section.

(iii) 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 1 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 1-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 264.1083(a) and 264.1089 of this subpart shall be considered by the Department together with the results of the waste determination performed or requested by the Department in establishing compliance with this subpart.

264.1083 Waste determination procedures

(a) Waste determination procedure to determine average volatile organic (VO) concentration of a hazardous waste at the point of waste origination.

(1) 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 264.1082(c)(1) of this subpart from using air emission controls in accordance with standards specified in 264.1084 through 264.1087 of this subpart, as applicable to the waste management unit.

(i) 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 264.1082(c)(1) of this subpart 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; and (8/00)

(ii) 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 applicable VO concentration limits specified in 264.1082 of this subpart. (8/00)

(2) For a waste determination that is required by paragraph (a)(1) of this section, the average VO concentration of a hazardous waste at the point of waste origination shall be determined in accordance with the procedures specified in) 265.1084(a)(2) through (a)(4). (11/99)

(b) Waste determination procedures for treated hazardous waste.

(1) An owner or operator shall perform the applicable waste determinations for each treated hazardous waste placed in waste management units exempted under the provisions of 264.1082(c)(2)(i) through (c)(2)(vi) of this subpart from using air emission controls in accordance with standards specified in 264.1084 through 264.1087 of this subpart, as applicable to the waste management unit. (11/99)

(i) 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 the exempt waste management unit, and thereafter update the information used for the waste determination at least once every 12 months following the date of the initial waste determination; and (8/00)

(ii) 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 264.1082(c)(2) of this subpart are not achieved. (8/00)

(2) The waste determination for a treated hazardous waste shall be performed in accordance with the procedures specified in 265.1084 (b)(2) through (b)(9), as applicable to the treated hazardous waste.

(c) Procedure to determine the maximum organic vapor pressure of a hazardous waste in a tank.

(1) 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 264.1084(c) of this subpart.

(2) The maximum organic vapor pressure of the hazardous waste may be determined in accordance with the procedures specified in 265.1084 (c)(2) through (c)(4).

(d) The procedure for determining no detectable organic emissions for the purpose of complying with this subpart shall be conducted in accordance with the procedures specified in 265.1084(d).

264.1084 Standards: Tanks

(a) The provisions of this section apply to the control of air pollutant emissions from tanks for which 264.1082(b) of this subpart references the use of this section for such air emission control.

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

(1) For a tank that manages hazardous waste that meets all of the conditions specified in paragraphs (b)(1)(i) through (b)(1)(iii) of this section, the owner or operator shall control air pollutant emissions from the tank in accordance with the Tank Level 1 controls specified in paragraph (c) of this section or the Tank Level 2 controls specified in paragraph (d) of this section.

(i) 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:

(A) For a tank design capacity equal to or greater than 151 m^3, the maximum organic vapor pressure limit for the tank is 5.2 kPa.

(B) For a tank design capacity equal to or greater than 75 m^3 but less than 151 m^3, the maximum organic vapor pressure limit for the tank is 27.6 kPa.

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

(ii) 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 paragraph (b)(1)(i) of this section.

(iii) The hazardous waste in the tank is not treated by the owner or operator using a waste stabilization process, as defined in 265.1081.

(2) For a tank that manages hazardous waste that does not meet all of the conditions specified in paragraphs (b)(1)(i) through (b)(1)(iii) of this section, 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 (d) of this section. 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 paragraph (b)(1)(i) of this section.

(c) Owners and operators controlling air pollutant emissions from a tank using Tank Level 1 controls shall meet the requirements specified in paragraphs (c)(1) through (c)(4) of this section:

(1) 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 264.1083(c) of this subpart. 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 paragraph (b)(1)(i) of this section, as applicable to the tank.

(2) The tank shall be equipped with a fixed roof designed to meet the following specifications:

(i) 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).

(ii) 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.

(iii) Each opening in the fixed roof, and any manifold system associated with the fixed roof, shall be either: (11/99)

(A) 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

(B) 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 paragraphs (c)(2)(iii)(B) (1) and (2) of this section. (11/99)

(1) During periods when it is necessary to provide access to the tank for performing the activities of paragraph (c)(2)(iii)(B)(2) of this section, venting of the vapor headspace underneath the fixed roof to the control device is not required, opening of 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 applicable, and resume operation of the control device.

(2) During periods of routine inspection, maintenance, or other activities needed for normal operations, and for removal of accumulated sludge or other residues from the bottom of the tank.

(iv) 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.

(3) 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:

(i) Opening of closure devices or removal of the fixed roof is allowed at the following times:

(A) 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.

(B) To remove accumulated sludge or other residues from the bottom of tank.

(ii) 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.

(iii) Opening of a safety device, as defined in 265.1081, is allowed at any time conditions require doing so to avoid an unsafe condition.

(4) The owner or operator shall inspect the air emission control equipment in accordance with the following requirements.

(i) 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.

(ii) 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 section. Thereafter, the owner or operator shall perform the inspections at least once every year except under the special conditions provided for in paragraph (l) of this section.

(iii) In the event that a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of paragraph (k) of this section.

(iv) The owner or operator shall maintain a record of the inspection in accordance with the requirements specified in 264.1089(b) of this subpart.

(d) Owners and operators controlling air pollutant emissions from a tank using Tank Level 2 controls shall use one of the following tanks:

(1) A fixed-roof tank equipped with an internal floating roof in accordance with the requirements specified in paragraph (e) of this section;

(2) A tank equipped with an external floating roof in accordance with the requirements specified in paragraph (f) of this section;

(3) A tank vented through a closed-vent system to a control device in accordance with the requirements specified in paragraph (g) of this section;

(4) A pressure tank designed and operated in accordance with the requirements specified in paragraph (h) of this section; or

(5) 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 (i) of this section.

(e) 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 paragraphs (e)(1) through (e)(3) of this section.

(1) The tank shall be equipped with a fixed roof and an internal floating roof in accordance with the following requirements:

(i) The internal floating roof shall be designed to float on the liquid surface except when the floating roof must be supported by the leg supports.

(ii) 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:

(A) A single continuous seal that is either a liquid-mounted seal or a metallic shoe seal, as defined in 265.1081; or

(B) Two continuous seals mounted one above the other. The lower seal may be a vapor-mounted seal.

(iii) The internal floating roof shall meet the following specifications:

(A) 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.

(B) Each opening in the internal floating roof shall be equipped with a gasketed cover or a gasketed lid except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains.

(C) 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.

(D) Each automatic bleeder vent and rim space vent shall be gasketed.

(E) Each penetration of the internal floating roof that allows for passage of a ladder shall have a gasketed sliding cover.

(F) 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.

(2) The owner or operator shall operate the tank in accordance with the following requirements:

(i) 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.

(ii) 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.

(iii) 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.

(3) The owner or operator shall inspect the internal floating roof in accordance with the procedures specified as follows:

(i) 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.

(ii) The owner or operator shall inspect the internal floating roof components as follows except as provided in paragraph (e)(3)(iii) of this section:

(A) 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, and

(B) 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.

(iii) As an alternative to performing the inspections specified in paragraph (e)(3)(ii) of this section 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 5 years.

(iv) Prior to each inspection required by paragraph (e)(3)(ii) or (e)(3)(iii) of this section, the owner or operator shall notify the Department in advance of each inspection to provide the Department with the opportunity to have an observer present during the inspection. The owner or operator shall notify the Department of the date and location of the inspection as follows:

(A) 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 Department at least 30 calendar days before refilling the tank except when an inspection is not planned as provided for in paragraph (e)(3)(iv)(B) of this section.

(B) 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 Department as soon as possible, but no later than 7 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 Department at least 7 calendar days before refilling the tank.

(v) In the event that a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of paragraph (k) of this section.

(vi) The owner or operator shall maintain a record of the inspection in accordance with the requirements specified in 264.1089(b) of this subpart.

(4) Safety devices, as defined in 265.1081, may be installed and operated as necessary on any tank complying with the requirements of paragraph (e)of this section. (11/99)

(f) The owner or operator who controls air pollutant emissions from a tank using an external floating roof shall meet the requirements specified in paragraphs (f)(1) through (f)(3) of this section.

(1) The owner or operator shall design the external floating roof in accordance with the following requirements:

(i) 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.

(ii) 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.

(A) The primary seal shall be a liquid-mounted seal or a metallic shoe seal, as defined in 265.1081. The total area of the gaps between the tank wall and the primary seal shall not exceed 212 square centimeters (cm^2) 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.

(B) 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 (cm^2) per meter of tank diameter, and the width of any portion of these gaps shall not exceed 1.3 centimeters (cm).

(iii) The external floating roof shall meet the following specifications:

(A) 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.

(B) 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.

(C) 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.

(D) Each automatic bleeder vent and each rim space vent shall be equipped with a gasket.

(E) 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.

(F) Each unslotted and slotted guide pole well shall be equipped with a gasketed sliding cover or a flexible fabric sleeve seal.

(G) Each unslotted guide pole shall be equipped with a gasketed cap on the end of the pole.

(H) Each slotted guide pole shall be equipped with a gasketed float or other device which closes off the liquid surface from the atmosphere.

(I) Each gauge hatch and each sample well shall be equipped with a gasketed cover.

(2) The owner or operator shall operate the tank in accordance with the following requirements:

(i) 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.

(ii) 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.

(iii) Covers on each access hatch and each gauge float well shall be bolted or fastened when secured in the closed position.

(iv) 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.

(v) 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.

(vi) 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.

(vii) 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.

(viii) 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 except during inspections.

(3) The owner or operator shall inspect the external floating roof in accordance with the procedures specified as follows:

(i) The owner or operator shall measure the external floating roof seal gaps in accordance with the following requirements:

(A) 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 5 years.

(B) 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.

(C) If a tank ceases to hold hazardous waste for a period of 1 year or more, subsequent introduction of hazardous waste into the tank shall be considered an initial operation for the purposes of paragraphs (f)(3)(i)(A) and (f)(3)(i)(B) of this section.

(D) 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:

(1) The seal gap measurements shall be performed at one or more floating roof levels when the roof is floating off the roof supports.

(2) 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.

(3) For a seal gap measured under paragraph (f)(3) of this section, 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.

(4) 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 paragraph (f)(1)(ii) of this section. (11/99)

(E) In the event that the seal gap measurements do not conform to the specifications in paragraph (f)(1)(ii) of this section, the owner or operator shall repair the defect in accordance with the requirements of paragraph (k) of this section.

(F) The owner or operator shall maintain a record of the inspection in accordance with the requirements specified in 264.1089(b) of this subpart.

(ii) The owner or operator shall visually inspect the external floating roof in accordance with the following requirements:

(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: 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.

(B) 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 section. Thereafter, the owner or operator shall perform the inspections at least once every year except for the special conditions provided for in paragraph (l) of this section.

(C) In the event that a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of paragraph (k) of this section.

(D) The owner or operator shall maintain a record of the inspection in accordance with the requirements specified in 264.1089(b) of this subpart.

(iii) Prior to each inspection required by paragraph (f)(3)(i) or (f)(3)(ii) of this subpart, the owner or operator shall notify the Department in advance of each inspection to provide the Department with the opportunity to have an observer present during the inspection. The owner or operator shall notify the Department of the date and location of the inspection as follows:

(A) Prior to each inspection to measure external floating roof seal gaps as required under paragraph (f)(3)(i) of this section, written notification shall be prepared and sent by the owner or operator so that it is received by the Department at least 30 calendar days before the date the measurements are scheduled to be performed.

(B) Prior to each visual inspection of an 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 Department at least 30 calendar days before refilling the tank except when an inspection is not planned as provided for in paragraph (f)(3)(iii)(C) of this section.

(C) 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 Department as soon as possible, but no later than 7 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 Department at least 7 calendar days before refilling the tank.

(4) Safety devices, as defined in 265.1081, may be installed and operated as necessary on any tank complying with the requirements of paragraph (e)of this section. (11/99)

(g) 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 paragraphs (g)(1) through (g)(3) of this section.

(1) 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:

(i) 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.

(ii) 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.

(iii) 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.

(iv) The closed-vent system and control device shall be designed and operated in accordance with the requirements of 264.1087 of this subpart.

(2) 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:

(i) 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:

(A) 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.

(B) To remove accumulated sludge or other residues from the bottom of a tank.

(ii) Opening of a safety device, as defined in 265.1081, is allowed at any time conditions require doing so to avoid an unsafe condition.

(3) The owner or operator shall inspect and monitor the air emission control equipment in accordance with the following procedures:

(i) 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.

(ii) The closed-vent system and control device shall be inspected and monitored by the owner or operator in accordance with the procedures specified in 264.1087 of this subpart.

(iii) 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 section. Thereafter, the owner or operator shall perform the inspections at least once every year except for the special conditions provided for in paragraph (l) of this section.

(iv) In the event that a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of paragraph (k) of this section.

(v) The owner or operator shall maintain a record of the inspection in accordance with the requirements specified in 264.1089(b) of this subpart.

(h) The owner or operator who controls air pollutant emissions by using a pressure tank shall meet the following requirements.

(1) 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.

(2) All tank openings shall be equipped with closure devices designed to operate with no detectable organic emissions as determined using the procedure specified in 264.1083(d) of this subpart.

(3) 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 paragraph (h)(3)(i) or (h)(3)(ii) of this section. (8/00)

(i) At those times when opening of a safety device, as defined in 265.1081 of this subpart, is required to avoid an unsafe condition. (8/00)

(ii) 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 264.1087 of this subpart. (8/00)

(i) 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 paragraphs (i)(1) through (i)(4) of this section.

(1) 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. 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.

(2) 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 264.1087 of this subpart.

(3) Safety devices, as defined in 265.1081, may be installed and operated as necessary on any enclosure, closed-vent system, or control device used to comply with the requirements of paragraphs (i)(1) and (i)(2) of this section.

(4) The owner or operator shall inspect and monitor the closed-vent system and control device as specified in 264.1087 of this subpart.

(j) The owner or operator shall transfer hazardous waste to a tank subject to this section in accordance with the following requirements:

(1) Transfer of hazardous waste, except as provided in paragraph (j)(2) of this section, to the tank from another tank subject to this section or from a surface impoundment subject to 264.1085 of this subpart 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.

(2) The requirements of paragraph (j)(1) of this section do not apply when transferring a hazardous waste to the tank under any of the following conditions:

(i) The hazardous waste meets the average VO concentration conditions specified in 264.1082(c)(1) of this subpart at the point of waste origination.

(ii) The hazardous waste has been treated by an organic destruction or removal process to meet the requirements in 264.1082(c)(2) of this subpart.

(iii) The hazardous waste meets the requirements of 264.1082(c)(4) of this subpart. (11/99)

(k) The owner or operator shall repair each defect detected during an inspection performed in accordance with the requirements of paragraph (c)(4), (e)(3), (f)(3), or (g)(3) of this section as follows:

(1) The owner or operator shall make first efforts at repair of the defect no later than 5 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 paragraph (k)(2) of this section.

(2) 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.

(l) Following the initial inspection and monitoring of the cover as required by the applicable provisions of this subpart, subsequent inspection and monitoring may be performed at intervals longer than 1 year under the following special conditions:

(1) 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:

(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 section of this subpart, as frequently as practicable during those times when a worker can safely access the cover.

(2) 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 section, 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.

264.1085 Standards: Surface impoundments

(a) The provisions of this section apply to the control of air pollutant emissions from surface impoundments for which 264.1082(b) of this subpart references the use of this section for such air emission control.

(b) The owner or operator shall control air pollutant emissions from the surface impoundment by installing and operating either of the following:

(1) A floating membrane cover in accordance with the provisions specified in paragraph (c) of this section; or

(2) A cover that is vented through a closed-vent system to a control device in accordance with the provisions specified in paragraph (d) of this section. (11/99)

(c) The owner or operator who controls air pollutant emissions from a surface impoundment using a floating membrane cover shall meet the requirements specified in paragraphs (c)(1) through (c)(3) of this section.

(1) The surface impoundment shall be equipped with a floating membrane cover designed to meet the following specifications:

(i) 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.

(ii) The cover shall be fabricated from a synthetic membrane material that is either:

(A) High density polyethylene (HDPE) with a thickness no less than 2.5 millimeters (mm); or

(B) 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 paragraph (c)(1)(ii)(A) of this section and chemical and physical properties that maintain the material integrity for the intended service life of the material.

(iii) 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.

(iv) Except as provided for in paragraph (c)(1)(v) of this section, 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.

(v) 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.

(vi) 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.

(2) 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:

(i) Opening of closure devices or removal of the cover is allowed at the following times:

(A) 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.

(B) To remove accumulated sludge or other residues from the bottom of surface impoundment.

(ii) Opening of a safety device, as defined in 265.1081, is allowed at any time conditions require doing so to avoid an unsafe condition.

(3) The owner or operator shall inspect the floating membrane cover in accordance with the following procedures:

(i) 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. 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.

(ii) 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 section. Thereafter, the owner or operator shall perform the inspections at least once every year except for the special conditions provided for in paragraph (g) of this section.

(iii) In the event that a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of paragraph (f) of this section.

(iv) The owner or operator shall maintain a record of the inspection in accordance with the requirements specified in 264.1089(c) of this subpart.

(d) 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 in paragraphs (d)(1) through (d)(3) of this section.

(1) 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:

(i) 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.

(ii) 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 264.1083(d) of this subpart.

(iii) 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. (11/99)

(iv) The closed-vent system and control device shall be designed and operated in accordance with the requirements of 264.1087 of this subpart.

(2) 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:

(i) Venting to the control device is not required, and opening of closure devices or removal of the cover is allowed at the following times:

(A) 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.

(B) To remove accumulated sludge or other residues from the bottom of the surface impoundment. (11/99)

(ii) Opening of a safety device, as defined in 265.1081, is allowed at any time conditions require doing so to avoid an unsafe condition.

(3) The owner or operator shall inspect and monitor the air emission control equipment in accordance with the following procedures:

(i) 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.

(ii) The closed-vent system and control device shall be inspected and monitored by the owner or operator in accordance with the procedures specified in 264.1087 of this subpart.

(iii) 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 section. Thereafter, the owner or operator shall perform the inspections at least once every year except for the special conditions provided for in paragraph (g) of this section.

(iv) In the event that a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of paragraph (f) of this section.

(v) The owner or operator shall maintain a record of the inspection in accordance with the requirements specified in 264.1089(c) of this subpart.

(e) The owner or operator shall transfer hazardous waste to a surface impoundment subject to this section in accordance with the following requirements:

(1) Transfer of hazardous waste, except as provided in paragraph (e)(2) of this section, to the surface impoundment from another surface impoundment subject to this section or from a tank subject to 264.1084 of this subpart 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.

(2) The requirements of paragraph (e)(1) of this section do not apply when transferring a hazardous waste to the surface impoundment under either of the following conditions:

(i) The hazardous waste meets the average VO concentration conditions specified in 264.1082(c)(1) of this subpart at the point of waste origination.

(ii) The hazardous waste has been treated by an organic destruction or removal process to meet the requirements in 264.1082(c)(2) of this subpart.

(iii) The hazardous waste meets the requirements of 264.1082(c)(4) of this subpart. (11/99)

(f) The owner or operator shall repair each defect detected during an inspection performed in accordance with the requirements of paragraph (c)(3) or (d)(3) of this section as follows:

(1) The owner or operator shall make first efforts at repair of the defect no later than 5 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 paragraph (f)(2) of this section.

(2) 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 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 surface impoundment stops operation. Repair of the defect shall be completed before the process or unit resumes operation.

(g) Following the initial inspection and monitoring of the cover as required by the applicable provisions of this subpart, subsequent inspection and monitoring may be performed at intervals longer than 1 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:

(1) Prepare a written explanation for the cover stating the reasons why the cover is unsafe to visually inspect or to monitor, if required.

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

264.1086 Standards: Containers

(a) The provisions of this section apply to the control of air pollutant emissions from containers for which 264.1082(b) of this subpart references the use of this section for such air emission control.

(b) General requirements.

(1) The owner or operator shall control air pollutant emissions from each container subject to this section in accordance with the following requirements, as applicable to the container, except when the special provisions for waste stabilization processes specified in paragraph (b)(2) of this section apply to the container.

(i) For a container having a design capacity greater than 0.1 m^3 and less than or equal to 0.46 m^3, the owner or operator shall control air pollutant emissions from the container in accordance with the Container Level 1 standards specified in paragraph (c) of this section.

(ii) For a container having a design capacity greater than 0.46 m^3 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 (c) of this section.

(iii) For a container having a design capacity greater than 0.46 m^3 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 (d) of this section.

(2) When a container having a design capacity greater than 0.1 m^3 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 (e) of this section at those times during the waste stabilization process when the hazardous waste in the container is exposed to the atmosphere.

(c) Container Level 1 standards.

(1) A container using Container Level 1 controls is one of the following:

(i) A container that meets the applicable U.S. Department of Transportation (DOT) regulations on packaging hazardous materials for transportation as specified in paragraph (f) of this section.

(ii) 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).

(iii) 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.

(2) A container used to meet the requirements of paragraph (c)(1)(ii) or (c)(1)(iii) of this section 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 the container 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. (11/99)

(3) 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:

(i) Opening of a closure device or cover is allowed for the purpose of adding hazardous waste or other material to the container as follows:

(A) 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.

(B) 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.

(ii) Opening of a closure device or cover is allowed for the purpose of removing hazardous waste from the container as follows:

(A) For the purpose of meeting the requirements of this section, an empty container as defined in 261.7(b) 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).

(B) 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 261.7(b), 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.

(iii) 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.

(iv) 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 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.

(v) Opening of a safety device, as defined in 265.1081, is allowed at any time conditions require doing so to avoid an unsafe condition.

(4) The owner or operator of containers using Container Level 1 controls shall inspect the containers and their covers and closure devices as follows:

(i) 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 within 24 hours after the container is accepted at the facility (i.e., does not meet the conditions for an empty container as specified in 261.7(b)), 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 subpart CC container standards). 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 the Appendix to part 262 (Forms 8700-22 and 8700-22A), as required under subpart E of this part, at 264.71. If a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of paragraph (c)(4)(iii) of this section. (11/99)

(ii) In the case when a container used for managing hazardous waste remains at the facility for a period of 1 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 paragraph (c)(4)(iii) of this section.

(iii) 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 5 calendar days after detection. If repair of a defect cannot be completed within 5 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) The owner or operator shall maintain at the facility a copy of the procedure used to determine that containers with capacity of 0.46 m^3 or greater, which do not meet applicable DOT regulations as specified in paragraph (f) of this section, are not managing hazardous waste in light material service.

(d) Container Level 2 standards.

(1) A container using Container Level 2 controls is one of the following:

(i) A container that meets the applicable U.S. Department of Transportation (DOT) regulations on packaging hazardous materials for transportation as specified in paragraph (f) of this section.

(ii) A container that operates with no detectable organic emissions as defined in 265.1081 and determined in accordance with the procedure specified in paragraph (g) of this section.

(iii) 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 in accordance with the procedure specified in paragraph (h) of this section.

(2) 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 EPA 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.

(3) 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:

(i) Opening of a closure device or cover is allowed for the purpose of adding hazardous waste or other material to the container as follows:

(A) 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.

(B) 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.

(ii) Opening of a closure device or cover is allowed for the purpose of removing hazardous waste from the container as follows:

(A) For the purpose of meeting the requirements of this section, an empty container as defined in 261.7(b) 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).

(B) 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 261.7(b), 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.

(iii) 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.

(iv) 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.

(v) Opening of a safety device, as defined in 265.1081, is allowed at any time conditions require doing so to avoid an unsafe condition.

(4) The owner or operator of containers using Container Level 2 controls shall inspect the containers and their covers and closure devices as follows:

(i) 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 within 24 hours after the container is accepted at the facility (i.e., does not meet the conditions for an empty container as specified in 261.7(b)), 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 subpart CC container standards). 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 the Appendix to part 262 (EPA Forms 8700-22 and 8700-22A), as required under subpart E of this part, at 264.71. If a defect is detected, the owner or operator shall repair the defect in accordance with the requirements of paragraph (d)(4)(iii) of this section. (8/00)

(ii) In the case when a container used for managing hazardous waste remains at the facility for a period of 1 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 paragraph (d)(4)(iii) of this section.

(iii) 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 5 calendar days after detection. If repair of a defect cannot be completed within 5 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.

(e) Container Level 3 standards.

(1) A container using Container Level 3 controls is one of the following:

(i) A container that is vented directly through a closed-vent system to a control device in accordance with the requirements of paragraph (e)(2)(ii) of this section.

(ii) 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 paragraphs (e)(2)(i) and (e)(2)(ii) of this section.

(2) 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:

(i) 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 Verification of a Permanent or Temporary Total Enclosure" under 40 CFR 52.741, Appendix B. 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.

(ii) The closed-vent system and control device shall be designed and operated in accordance with the requirements of 264.1087 of this subpart.

(3) Safety devices, as defined in 265.1081, may be installed and operated as necessary on any container, enclosure, closed-vent system, or control device used to comply with the requirements of paragraph (e)(1) of this section.

(4) Owners and operators using Container Level 3 controls in accordance with the provisions of this subpart shall inspect and monitor the closed-vent systems and control devices as specified in 264.1087 of this subpart.

(5) Owners and operators that use Container Level 3 controls in accordance with the provisions of this subpart shall prepare and maintain the records specified in 264.1089(d) of this subpart.

(6) 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 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. (8/00)

(f) For the purpose of compliance with paragraph (c)(1)(i) or (d)(1)(i) of this section, containers shall be used that meet the applicable U.S. Department of Transportation (DOT) regulations on packaging hazardous materials for transportation as follows:

(1) The container meets the applicable requirements specified in 49 CFR part 178-Specifications for Packaging or 49 CFR part 179-Specifications for Tank Cars.

(2) 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.

(3) For the purpose of complying with this subpart, no exceptions to the 49 CFR part 178 or part 179 regulations are allowed except as provided for in paragraph (f)(4) of this section.

(4) For a lab pack that is managed in accordance with the requirements of 49 CFR part 178 for the purpose of complying with this subpart, an owner or operator may comply with the exceptions for combination packagings specified in 49 CFR 173.12(b).

(g) To determine compliance with the no detectable organic emissions requirement of paragraph (d)(1)(ii) of this section, the procedure specified in 264.1083(d) of this subpart shall be used. (11/99)

(1) 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.

(2) 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.

(h) Procedure for determining a container to be vapor-tight using Method 27 of 40 CFR part 60, Appendix A for the purpose of complying with paragraph (d)(1)(iii) of this section.

(1) The test shall be performed in accordance with Method 27 of 40 CFR part 60, Appendix A of this chapter.

(2) 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.

(3) If the test results determined by Method 27 indicate that the container sustains a pressure change less than or equal to 750 Pascals within 5 minutes after it is pressurized to a minimum of 4,500 Pascals, then the container is determined to be vapor-tight.

264.1087 Standards: Closed-vent systems and control devices

(a) This section 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 subpart.

(b) The closed-vent system shall meet the following requirements:

(1) 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 (c) of this section.

(2) The closed-vent system shall be designed and operated in accordance with the requirements specified in 264.1033(k) of this part.

(3) 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 paragraph (b)(3)(i) of this section or a seal or locking device as specified in paragraph (b)(3)(ii) of this section. 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.

(i) If a flow indicator is used to comply with paragraph (b)(3) of this section, 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.

(ii) If a seal or locking device is used to comply with paragraph (b)(3) of this section, 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.

(4) The closed-vent system shall be inspected and monitored by the owner or operator in accordance with the procedure specified in 264.1033(l).

(c) The control device shall meet the following requirements:

(1) The control device shall be one of the following devices:

(i) 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;

(ii) An enclosed combustion device designed and operated in accordance with the requirements of 264.1033(c) of this part; or

(iii) A flare designed and operated in accordance with the requirements of 264.1033(d) of this part.

(2) The owner or operator who elects to use a closed-vent system and control device to comply with the requirements of this section shall comply with the requirements specified in paragraphs (c)(2)(i) through (c)(2)(vi) of this section.

(i) Periods of planned routine maintenance of the control device, during which the control device does not meet the specifications of paragraphs (c)(1)(i), (c)(1)(ii), or (c)(1)(iii) of this section, as applicable, shall not exceed 240 hours per year.

(ii) The specifications and requirements in paragraphs (c)(1)(i), (c)(1)(ii), and (c)(1)(iii) of this section for control devices do not apply during periods of planned routine maintenance.

(iii) The specifications and requirements in paragraphs (c)(1)(i), (c)(1)(ii), and (c)(1)(iii) of this section for control devices do not apply during a control device system malfunction.

(iv) The owner or operator shall demonstrate compliance with the requirements of paragraph (c)(2)(i) of this section (i.e., planned routine maintenance of a control device, during which the control device does not meet the specifications of paragraphs (c)(1)(i), (c)(1)(ii), or (c)(1)(iii) of this section, as applicable, shall not exceed 240 hours per year) by recording the information specified in 264.1089(e)(1)(v) of this subpart.

(v) 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.

(vi) The owner or operator shall operate the closed-vent system such that gases, vapors, 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, and/or fumes to avoid an unsafe condition or to implement malfunction corrective actions or planned maintenance actions.

(3) The owner or operator using a carbon adsorption system to comply with paragraph (c)(1) of this section shall operate and maintain the control device in accordance with the following requirements:

(i) 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 264.1033(g) or 264.1033(h) of this part.

(ii) All carbon that is a hazardous waste and that is removed from the control device shall be managed in accordance with the requirements of 264.1033(n), regardless of the average volatile organic concentration of the carbon. (11/99)

(4) 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 paragraph (c)(1) of this section shall operate and maintain the control device in accordance with the requirements of 264.1033(j) of this part.

(5) The owner or operator shall demonstrate that a control device achieves the performance requirements of paragraph (c)(1) of this section as follows:

(i) An owner or operator shall demonstrate using either a performance test as specified in paragraph (c)(5)(iii) of this section or a design analysis as specified in paragraph (c)(5)(iv) of this section the performance of each control device except for the following:

(A) A flare;

(B) A boiler or process heater with a design heat input capacity of 44 megawatts or greater;

(C) A boiler or process heater into which the vent stream is introduced with the primary fuel;

(D) A boiler or industrial furnace burning hazardous waste for which the owner or operator has been issued a final permit under part 270 and has designed and operates the unit in accordance with the requirements of part 266, subpart H; or

(E) 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 part 266, subpart H.

(ii) An owner or operator shall demonstrate the performance of each flare in accordance with the requirements specified in 264.1033(e).

(iii) For a performance test conducted to meet the requirements of paragraph (c)(5)(i) of this section, the owner or operator shall use the test methods and procedures specified in 264.1034(c)(1) through (c)(4).

(iv) For a design analysis conducted to meet the requirements of paragraph (c)(5)(i) of this section, the design analysis shall meet the requirements specified in 264.1035(b)(4)(iii).

(v) The owner or operator shall demonstrate that a carbon adsorption system achieves the performance requirements of paragraph (c)(1) of this section 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.

(6) If the owner or operator and the Department 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 paragraph (c)(5)(iii) of this section. The Department may choose to have an authorized representative observe the performance test.

(7) The closed-vent system and control device shall be inspected and monitored by the owner or operator in accordance with the procedures specified in 264.1033(f)(2) and 264.1033(l). The readings from each monitoring device required by 264.1033(f)(2) 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 section. (11/99)

264.1088 Inspection and monitoring requirements

(a) The owner or operator shall inspect and monitor air emission control equipment used to comply with this subpart in accordance with the applicable requirements specified in 264.1084 through 264.1087 of this subpart.

(b) The owner or operator shall develop and implement a written plan and schedule to perform the inspections and monitoring required by paragraph (a) of this section. The owner or operator shall incorporate this plan and schedule into the facility inspection plan required under 264.15.

264.1089 Recordkeeping requirements

(a) Each owner or operator of a facility subject to requirements of this subpart shall record and maintain the information specified in paragraphs (b) through (j) of this section, as applicable to the facility. Except for air emission control equipment design documentation and information required by paragraphs (i) and (j) of this section, records required by this section shall be maintained in the operating record for a minimum of 3 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 (i) and (j) of this section shall be maintained in the operating record for as long as the waste management unit is not using air emission controls specified in 264.1084 through 264.1087 of this subpart in accordance with the conditions specified in 264.1080(d) or 264.1080(b)(7) of this subpart, respectively. (11/99)

(b) The owner or operator of a tank using air emission controls in accordance with the requirements of 264.1084 of this subpart shall prepare and maintain records for the tank that include the following information:

(1) For each tank using air emission controls in accordance with the requirements of 264.1084 of this subpart, the owner or operator shall record:

(i) A tank identification number (or other unique identification description as selected by the owner or operator).

(ii) A record for each inspection required by 264.1084 of this subpart that includes the following information:

(A) Date inspection was conducted.

(B) 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 requirements of 264.1084 of this subpart, the owner or operator shall also record the reason for the delay and the date that completion of repair of the defect is expected. (11/99)

(2) In addition to the information required by paragraph (b)(1) of this section, the owner or operator shall record the following information, as applicable to the tank:

(i) The owner or operator using a fixed roof to comply with the Tank Level 1 control requirements specified in 264.1084(c) of this subpart 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 264.1084(c) of this subpart. The records shall include the date and time the samples were collected, the analysis method used, and the analysis results.

(ii) The owner or operator using an internal floating roof to comply with the Tank Level 2 control requirements specified in 264.1084(e) of this subpart shall prepare and maintain documentation describing the floating roof design.

(iii) Owners and operators using an external floating roof to comply with the Tank Level 2 control requirements specified in 264.1084(f) of this subpart shall prepare and maintain the following records:

(A) Documentation describing the floating roof design and the dimensions of the tank.

(B) Records for each seal gap inspection required by 264.1084(f)(3) of this subpart 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 264.1084(f)(1) of this subpart, 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.

(iv) Each owner or operator using an enclosure to comply with the Tank Level 2 control requirements specified in 264.1084(i) of this subpart shall prepare and maintain the following records:

(A) 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.

(B) Records required for the closed-vent system and control device in accordance with the requirements of paragraph (e) of this section.

(c) The owner or operator of a surface impoundment using air emission controls in accordance with the requirements of 264.1085 of this subpart shall prepare and maintain records for the surface impoundment that include the following information:

(1) A surface impoundment identification number (or other unique identification description as selected by the owner or operator).

(2) 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 264.1085(c) of this subpart.

(3) A record for each inspection required by 264.1085 of this subpart that includes the following information:

(i) Date inspection was conducted.

(ii) 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 264.1085(f) of this subpart, the owner or operator shall also record the reason for the delay and the date that completion of repair of the defect is expected.

(4) 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 (e) of this section.

(d) The owner or operator of containers using Container Level 3 air emission controls in accordance with the requirements of 264.1086 of this subpart shall prepare and maintain records that include the following information:

(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.

(2) Records required for the closed-vent system and control device in accordance with the requirements of paragraph (e) of this section.

(e) The owner or operator using a closed-vent system and control device in accordance with the requirements of 264.1087 of this subpart shall prepare and maintain records that include the following information:

(1) Documentation for the closed-vent system and control device that includes:

(i) 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 paragraph (e)(1)(ii) of this section or by performance tests as specified in paragraph (e)(1)(iii) of this section when the tank, surface impoundment, or container is or would be operating at capacity or the highest level reasonably expected to occur.

(ii) If a design analysis is used, then design documentation as specified in 264.1035(b)(4). 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 264.1035(b)(4)(iii) and certification by the owner or operator that the control equipment meets the applicable specifications.

(iii) If performance tests are used, then a performance test plan as specified in 264.1035(b)(3) and all test results.

(iv) Information as required by 264.1035(c)(1) and 264.1035(c)(2), as applicable.

(v) An owner or operator shall record, on a semiannual basis, the information specified in paragraphs (e)(1)(v)(A) and (e)(1)(v)(B) of this section for those planned routine maintenance operations that would require the control device not to meet the requirements of 264.1087(c)(1)(i), (c)(1)(ii), or (c)(1)(iii) of this subpart, as applicable.

(A) A description of the planned routine maintenance that is anticipated to be performed for the control device during the next 6-month period. This description shall include the type of maintenance necessary, planned frequency of maintenance, and lengths of maintenance periods.

(B) A description of the planned routine maintenance that was performed for the control device during the previous 6-month period. This description shall include the type of maintenance performed and the total number of hours during those 6 months that the control device did not meet the requirements of 264.1087 (c)(1)(i), (c)(1)(ii), or (c)(1)(iii) of this subpart, as applicable, due to planned routine maintenance.

(vi) An owner or operator shall record the information specified in paragraphs (e)(1)(vi)(A) through (e)(1)(vi)(C) of this section for those unexpected control device system malfunctions that

would require the control device not to meet the requirements of 264.1087 (c)(1)(i), (c)(1)(ii), or (c)(1)(iii) of this subpart, as applicable.

(A) The occurrence and duration of each malfunction of the control device system.

(B) 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.

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

(vii) Records of the management of carbon removed from a carbon adsorption system conducted in accordance with 264.1087(c)(3)(ii) of this subpart.

(f) The owner or operator of a tank, surface impoundment, or container exempted from standards in accordance with the provisions of 264.1082(c) of this subpart shall prepare and maintain the following records, as applicable:

(1) For tanks, surface impoundments, and containers exempted under the hazardous waste organic concentration conditions specified in 264.1082(c)(1) or 264.1082(c)(2)(i) through (c)(2)(vi) of this subpart, 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 applicable requirements of 264.1083 of this subpart. (11/99)

(2) For tanks, surface impoundments, or containers exempted under the provisions of 264.1082(c)(2)(vii) or 264.1082(c)(2)(viii) of this subpart, the owner or operator shall record the identification number for the incinerator, boiler, or industrial furnace in which the hazardous waste is treated.

(g) An owner or operator designating a cover as "unsafe to inspect and monitor" pursuant to 264.1084(l) or 264.1085(g) of this subpart 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.

(h) The owner or operator of a facility that is subject to this subpart and to the control device standards in 40 CFR part 60, subpart VV, or 40 CFR part 61, subpart V, may elect to demonstrate compliance with the applicable sections of this subpart by documentation either pursuant to this subpart, or pursuant to the provisions of 40 CFR part 60, subpart VV or 40 CFR part 61, subpart V, to the extent that the documentation required by 40 CFR parts 60 or 61 duplicates the documentation required by this section.

(i) For each tank or container not using air emission controls specified in 264.1084 through 264.1087 of this subpart in accordance with the conditions specified in 264.1080(d) of this subpart, the owner or operator shall record and maintain the following information:

(1) A list of the individual organic peroxide compounds manufactured at the facility that meet the conditions specified in 264.1080(d)(1).

(2) A description of how the hazardous waste containing the organic peroxide compounds identified in paragraph (i)(1) of this section are managed at the facility in tanks and containers. This description shall include:

(i) 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.

(ii) 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.

(3) An explanation of why managing the hazardous waste containing the organic peroxide compounds identified in paragraph (i)(1) of this section in the tanks and containers as described in paragraph (i)(2) of this section would create an undue safety hazard if the air emission controls, as required under 264.1084 through 264.1087 of this subpart, are installed and operated on these waste management units. This explanation shall include the following information:

(i) 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 subpart, 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.

(ii) 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 subpart, 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.

(j) For each hazardous waste management unit not using air emission controls specified in 264.1084 through 264.1087 of this subpart in accordance with the requirements of 264.1080 (b)(7) of this subpart, the owner and operator shall record and maintain the following information: (11/99)

(1) 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 part 60, part 61, or part 63.

(2) Identification of the specific requirements codified under 40 CFR part 60, part 61, or part 63 with which the waste management unit is in compliance.

264.1090 Reporting requirements

(a) Each owner or operator managing hazardous waste in a tank, surface impoundment, or container exempted from using air emission controls under the provisions of 264.1082(c) of this subpart shall report to the Department each occurrence when hazardous waste is placed in the waste management unit in noncompliance with the conditions specified in 264.1082 (c)(1) or (c)(2) of this subpart, as applicable. Examples of such occurrences include placing in the waste management unit a hazardous waste having an average VO concentration equal to or greater than 500 ppmw at the point of waste origination; or placing in the waste management unit a treated hazardous waste of which the organic content has been reduced by an organic destruction or removal process that fails to achieve the applicable conditions specified in 264.1082 (c)(2)(i) through (c)(2)(vi) of this subpart. The owner or operator shall submit a written report within 15 calendar days of the time that the owner or operator becomes aware of the occurrence. The written report shall contain the EPA identification number, facility name and address, a description of the noncompliance event and the cause, the dates of the noncompliance, and the actions taken to correct the noncompliance and prevent recurrence of the noncompliance. The report shall be signed and dated by an authorized representative of the owner or operator.

(b) Each owner or operator using air emission controls on a tank in accordance with the requirements 264.1084(c) of this subpart shall report to the Department each occurrence when hazardous waste is managed in the tank in noncompliance with the conditions specified in 264.1084(b) of this subpart. The owner or operator shall submit a written report within 15 calendar days of the time that the owner or operator becomes aware of the occurrence. The written report shall contain the EPA identification number, facility name and address, a description of the noncompliance event and the cause, the dates of the noncompliance, and the actions taken to correct the noncompliance and prevent recurrence of the noncompliance. The report shall be signed and dated by an authorized representative of the owner or operator.

(c) Each owner or operator using a control device in accordance with the requirements of 264.1087 of this subpart shall submit a semiannual written report to the Department excepted as provided for in paragraph (d) of this section. The report shall describe each occurrence during the previous 6-month period when either:

(1) A control device is operated continuously for 24 hours or longer in noncompliance with the applicable operating values defined in 264.1035(c)(4); or

(2) A flare is operated with visible emissions for 5 minutes or longer in a two-hour period, as defined in 264.1033(d).

The written report shall include the EPA identification number, facility name and address, and an explanation why the control device could not be returned to compliance within 24 hours, and actions taken to correct the noncompliance. The report shall be signed and dated by an authorized representative of the owner or operator.

(d) A report to the Department in accordance with the requirements of paragraph (c) of this section is not required for a 6-month period during which all control devices subject to this subpart are operated by the owner or operator such that:

(1) During no period of 24 hours or longer did a control device operate continuously in noncompliance with the applicable operating values defined in 264.1035(c)(4); and

(2) No flare was operated with visible emissions for 5 minutes or longer in a two-hour period, as defined in 264.1033(d).

264.1091 [Reserved]

Subpart DD - Containment Buildings (12/93)

264.1100 Applicability

The requirements of this subpart apply to owners or operators who store or treat hazardous waste in units designed and operated under 264.1101 of this subpart. These provisions will become effective on February 18, 1993, although owner or operator may notify the Department of his intent to be bound by this subpart at an earlier time. The owner or operator is not subject to the definition of land disposal in RCRA section 3004(k) provided that the unit:

(a) Is a completely enclosed, self-supporting structure that is designed and constructed of manmade materials of sufficient strength and thickness to support themselves, the waste contents, and any personnel and heavy equipment that operate 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;

(b) Has a primary barrier that is designed to be sufficiently durable to withstand the movement of personnel, wastes, and handling equipment within the unit;

(c) If the unit is used to manage liquids, has:

(1) A primary barrier designed and constructed of materials to prevent migration of hazardous constituents into the barrier;

(2) A liquid collection system designed and constructed of materials to minimize the accumulation of liquid on the primary barrier; and

(3) 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 practicable time, unless the unit has been granted a variance from the secondary containment system requirements under 264.1101(b)(4);

(d) Has controls sufficient to prevent fugitive dust emissions to meet the no visible emission standard in 264.1101(c)(1)(iv); and

(e) Is designed and operated to ensure containment and prevent the tracking of materials from the unit by personnel or equipment.

264.1101 Design and operating standards. (12/93)

(a) All containment buildings must comply with the following design standards:

(1) 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.

(2) The floor and containment walls of the unit, including the secondary containment system if required under paragraph (b) of this section, 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 operate 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. The Department 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:

(i) They provide an effective barrier against fugitive dust emissions under paragraph (c)(1)(iv); and

(ii) The unit is designed and operated in a fashion that assures that wastes will not actually come in contact with these openings.

(3) 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.

(4) 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.

(b) 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:

(1) 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).

(2) A liquid collection and removal system to minimize the accumulation of liquid on the primary barrier of the containment building:

(i) The primary barrier must be sloped to drain liquids to the associated collection system; and

(ii) Liquids and waste must be collected and removed to minimize hydraulic head on the containment system at the earliest practicable time.

(3) 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.

(i) The requirements of the leak detection component of the secondary containment system are satisfied by installation of a system that is, at a minimum:

(A) Constructed with a bottom slope of 1 percent or more; and

(B) Constructed of a granular drainage material with a hydraulic conductivity of $1x10^{-2}$ 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 $3x10^{-5}$ m^2/sec or more.

(ii) 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.

(iii) 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 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 264.193(d)(1). In addition, the containment building must meet the requirements of 264.193(b) and 264.193(c) (1) and (2) to be considered an acceptable secondary containment system for a tank.)

(4) For existing units other than 90-day generator units, the Department may 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 subpart. In making this demonstration, the owner or operator must:

(i) Provide written notice to the Department 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;

(ii) Respond to any comments from the Department on these plans within 30 days; and

(iii) Fulfill the terms of the revised plans, if such plans are approved by the Department.

(c) Owners or operators of all containment buildings must:

(1) Use controls and practices to ensure containment of the hazardous waste within the unit; and, at a minimum:

(i) 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;

(ii) 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;

(iii) 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

(iv) Take measures to control fugitive dust emissions such that any openings (doors, windows, vents, cracks, etc.) exhibit no visible emissions (see 40 CFR part 60, Appendix A, Method 22- Visual Determination of Fugitive Emissions from Material Sources and Smoke Emissions from Flares). In addition, all associated particulate collection devices (e.g., fabric filter, electrostatic precipitator) must be operated and maintained with sound air pollution control practices (see 40 CFR part 60 subpart 292 for guidance). This state of no visible emissions must be maintained effectively at all times during routine operating and maintenance conditions, including when vehicles and personnel are entering and exiting the unit.

(2) Obtain certification by a qualified registered professional engineer that the containment building design meets the requirements of paragraphs (a) through (c) of this section. For units placed into operation prior to February 18, 1993, this certification must be placed in the facility's operating record (on-site files for generators who are not formally required to have operating records) no later than 60 days after the date of initial operation of the unit. After February 18, 1993, PE certification will be required prior to operation of the unit.

(3) 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, must repair the condition promptly, in accordance with the following procedures.

(i) 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:

(A) Enter a record of the discovery in the facility operating record;

(B) Immediately remove the portion of the containment building affected by the condition from service;

(C) 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

(D) Within 7 days after the discovery of the condition, notify the Department of the condition, and within 14 working days, provide a written notice to the Department with a description of the steps taken to repair the containment building, and the schedule for accomplishing the work.

(ii) The Department will review the information submitted, make a determination regarding 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.

(iii) Upon completing all repairs and cleanup the owner or operator must notify the Department in writing and provide a verification, signed by a qualified, registered professional engineer, that the repairs and cleanup have been completed according to the written plan submitted in accordance with paragraph (c)(3)(i)(D) of this section.

(4) 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.

(d) For containment buildings that contain areas both with and without secondary containment, the owner or operator must:

(1) Design and operate each area in accordance with the requirements enumerated in paragraphs (a) through (c) of this section;

(2) Take measures to prevent the release of liquids or wet materials into areas without secondary containment; and

(3) Maintain in the facility's operating log a written description of the operating procedures used to maintain the integrity of areas without secondary containment.

(e) Notwithstanding any other provision of this subpart the Department may waive requirements for secondary containment for a permitted containment building where the owner 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.

264.1102 Closure and post-closure care (12/93)

(a) 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 261.3(d) applies. The closure plan, closure activities, cost estimates for closure, and financial responsibility for containment buildings must meet all of the requirements specified in subparts G and H of this part.

(b) 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 (a) of this section, the owner or operator finds that not all contaminated subsoils can be practicably removed or decontaminated, he must close the facility and perform post-closure care in accordance with the closure and post-closure requirements that apply to landfills (264.310). 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 subparts G and H of this part.

264.1103 - 264.1110 [Reserved]

Subpart EE - Hazardous Waste Munitions and Explosives Storage (9/98)

264.1200 Applicability

The requirements of this subpart apply to owners or operators who store munitions and explosive hazardous wastes, except as 264.1 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 (part 264, subpart DD), tanks (part 264, subpart J), or containers (part 264, subpart I); See 266.205 for storage of waste military munitions).

264.1201 Design and operating standards

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

(1) 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, ground water, surface water, and atmosphere;

(2) Provide a primary barrier, which may be a container (including a shell) or tank, designed to contain the hazardous waste;

(3) For wastes stored outdoors, provide that the waste and containers will not be in standing precipitation;

(4) 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

(5) 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.

(b) Hazardous waste munitions and explosives stored under this subpart may be stored in one of the following:

(1) Earth-covered magazines. Earth-covered magazines must be:

(i) Constructed of waterproofed, reinforced concrete or structural steel arches, with steel doors that are kept closed when not being accessed;

(ii) Designed and constructed:

(A) To be of sufficient strength and thickness to support the weight of any explosives or munitions stored and any equipment used in the unit;

(B) To provide working space for personnel and equipment in the unit; and

(C) To withstand movement activities that occur in the unit; and

(iii) 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.

(2) 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.

(3) 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.

(c) 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 264.14, the preparedness and prevention procedures of 264, subpart C, and the contingency plan and emergency procedures requirements of 264, subpart D, then these procedures will be used to fulfill those requirements.

(d) Hazardous waste munitions and explosives must be packaged to ensure safety in handling and storage.

(e) Hazardous waste munitions and explosives must be inventoried at least annually.

(f) 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.

264.1202 Closure and post-closure care

(a) At closure of a magazine or unit which stored hazardous waste under this subpart, 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 261.3(d) of this chapter 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 subparts G and H of this part, 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.

(b) 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 (a) of this section, 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 (264.310).

Appendix I Recordkeeping Instructions

The recordkeeping provisions of 264.73 specify that an owner or operator must keep a written operating record at his facility. This Appendix provides additional instructions for keeping portions of the operating record. See 264.73(b) for additional recordkeeping requirements.

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

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

(1) A description by its common name and the EPA Hazardous Waste Number(s) from Part 261 of this Chapter 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 Part 261 Subpart D, of this Chapter, the description also must include the process that produced it (for example, solid filter cake from production of --, EPA Hazardous Waste Number WO51).

Each hazardous waste listed in Part 261, Subpart D, of this chapter, and each hazardous waste characteristic defined in Part 261, Subpart C, of this chapter, 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.

(2) The estimated or manifest-reported weight, or volume and density, where applicable, in one of the units of measure specified in Table 1:

Appendix 1 Table 1

Units 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
Metric Tons per Day	S
Pounds per Hour	J
Kilograms per Hour	R
Cubic Yards	Y
Cubic Meters	C
Acres	B
Acre-feet	A
Hectares	Q
Hectare-meter	F
Btu's per Hour	I

[1] Single digit symbols are used here for data processing purposes.

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

Appendix I 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
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
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
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 Tricking filter
T76 Waste stabilization pond
T77 Other (specify)
T78 [Reserved]
T79 [Reserved]

(e) Boilers and Industrial Furnaces
T80 Boiler
T81 Cement Kiln
T82 Lime 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 Devise Used in the Recovery of Sulfur Values from Spent Sulfuric Acid
T92 Halogen Acid Furnaces
T93 Other Industrial Furnaces Listed in 260.10 (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 (Subpart X)
X01 Open Burning/Open Detonation
X02 Mechanical Processing
X03 Thermal Unit
X04 Geologic Repository
X99 Other Subpart X (specify)

Appendix II [Reserved]

Appendix III [Reserved]

Appendix IV Cochran's Approximation to the Behrens-Fisher Students' T-Test

Using all the available background data (n_b readings), calculate the background mean (X_B) and background variance (S_B^2). For the single monitoring well under investigation (n_m reading), calculate the monitoring mean (X_m) and monitoring variance (S_{m2}).

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

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

and the variance is calculated by:

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

where "n" denotes the number of observations in the set of data. The t-test uses these data summary measures to calculate a t-statistic (t^*) and a comparison t-statistic (t_c). The t^* value is compared to the t_c value and a conclusion reached as to whether there has been a statistically significant change in any indicator parameter.
The t-statistic for all parameters except pH and similar monitoring parameters is:

$$t^* = \frac{X_m - \overline{X}_s}{\sqrt{\frac{S_m^2}{n_m} + \frac{S_b^2}{n_b}}}$$

If the value of this t-statistic is negative then there is no significant difference between the monitoring data and background data. It should be noted that significantly small negative values may be indicative of a failure of the assumption made for test validity or errors have been made in collecting the background data.

The t-statistic (t_c), against which t^* will be compared, necessitates finding t_B and t_m from standard (one-tailed) tables where,
t_b = t-tables with (n_b -1) degrees of freedom, at the 0.05 level of significance.
t_m = t-tables with (n_m -1) degrees of freedom, at the 0.05 level of significance.

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

$$W_B = \frac{s_b^2}{n_b} \quad and \quad W_m = \frac{s_m^2}{n_m}$$

and so the comparison t-statistic is:

$$t_c = \frac{W_b t_b + W_m t_m}{W_b + W_m}$$

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

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

If t^* is less than t_c, then conclude that most likely there has not been a change in this specific parameter.

-The t-statistic for testing pH and similar monitoring parameters is constructed in the same manner as previously described except the negative sign (if any) is discarded and the caveat concerning the negative value is ignored. The standard (two-tailed) tables are used in the construction t_c for pH and similar monitoring parameters.

If t^* is equal to or larger than t_c, then conclude that there most likely has been a significant increase (if the initial t^* had been negative, this would imply a significant decrease). If t_* is less than t_c, then conclude that there most likely has been no change.

A further discussion of the test may be found in Statistical Methods (6th Edition, Section 4.14) by G.W. Snedecor and W.G. Cochran, or Principles and Procedures of Statistics (1st Edition, Section 5.8) by R.G. D. Steel and J.H. Torrie

Appendix IV Standard T-Tables 0.05 Level of Significance

Degrees of freedom	t-values (one-tail)	t-values (two-tail)
1	6.314	12.706
2	2.920	4.303
3	2.353	3.182
4	2.132	2.776
5	2.015	2.571
6	1.943	2.447
7	1.895	2.365
8	1.860	2.306
9	1.833	2.262
10	1.812	2.228
11	1.796	2.201
12	1.782	2.179
13	1.771	2.160
14	1.761	2.145
15	1.753	2.131
16	1.746	2.120
17	1.740	2.110
18	1.734	2.101
19	1.729	2.093
20	1.725	2.086
21	1.721	2.080
22	1.717	2.074
23	1.714	2.069
24	1.711	2.064
25	1.708	2.060
30	1.697	2.042
40	1.684	2.021

Adopted from Table III of "Statistical Tables for Biological, Agricultural, and Medical Research" (1947, R.A. Fisher and F. Yates)

Appendix V Examples of Potentially Incompatible Waste

Many hazardous wastes, when mixed with other waste or materials at a hazardous waste facility, can produce effects which are harmful to human health and the environment, such as (1) heat or pressure, (2) fire or explosion, (3) violent reaction, (4) toxic dusts, mists, fumes, or gases, or (5) flammable fumes or gases.

Below are examples of potentially incompatible wastes, waste components, and materials, along with the harmful consequences which result from mixing materials in one group with materials in another group. The list is intended as a guide to owners or operators of treatment, storage, and disposal facilities, and to enforcement and permit granting officials, to indicate the need for special precautions when managing these potentially incompatible waste materials or components.

This list is not intended to be exhaustive. An owner or operator must, as the regulations require, adequately analyze his wastes so that he can avoid creating uncontrolled substances or reactions of the type listed below, whether they are listed below or not.

It is possible for potentially incompatible wastes to be mixed in a way that precludes a reaction (e.g., adding acid to water rather than water to acid) or that neutralizes them (e.g., a strong acid mixed with a strong base), or that controls substances produced (e.g., by generating flammable gases in a closed tank equipped so that ignition cannot occur, and burning the gases in an incinerator).

In the lists below, the mixing of a Group A material with a Group B material may have the potential consequence as noted.

GROUP 1-A
Acetylene sludge
Alkaline caustic liquids
Alkaline cleaner
Alkaline corrosive liquids
Alkaline corrosive battery fluid
Caustic wastewater
Lime sludge and other corrosive alkalies
Lime wastewater
Lime and water
Spent caustic

GROUP 1-B
Acid sludge
Acid and water
Battery acid
Chemical cleaners
Electrolyte, acid

Etching acid liquid or solvent
Pickling liquor and other corrosive acids
Spent acid
Spent mixed acid
Spent sulfuric acid
Potential consequences: heat generation; violent reaction

GROUP 2-A
Aluminum
Beryllium
Calcium
Lithium
Magnesium
Potassium
Sodium
Zinc powder
Other reactive metals and metal hydrides

GROUP 2-B
Any waste in Group 1-A or 1-B
Potential consequences: Fire or explosion; generation of flammable hydrogen gas.

GROUP 3-A
Alcohols
Water

GROUP 3-B (8/00)
Any concentrated waste in Groups 1-A or 1-B
Calcium
Lithium
Metal hydrides
Potassium
SO_2Cl_2, $SOCl_2$, PCl_3, CH_3SiCl_3
Other water-reactive waste
Potential consequences: Fire, explosion, or heat generation; generation of flammable or toxic gases.

GROUP 4-A
Alcohols
Aldehydes
Halogenated hydrocarbons
Nitrated hydrocarbons
Unsaturated hydrocarbons
Other reactive organic compounds and solvents

GROUP 4-B
Concentrated Group 1-A or 1-B wastes
Group 2-A waste
Potential consequences: Fire, explosion, or violent reaction.

GROUP 5-A
Spent cyanide and sulfide solutions

GROUP 5-B
Group 1-B wastes
Potential consequences: Generation of toxic hydrogen cyanide or hydrogen sulfide gas.

GROUP 6-A
Chlorates
Chlorine
Chlorites
Chromic acid
Hypochlorites
Nitrates
Nitric acid, fuming
Perchlorates
Permanganates
Peroxides
Other strong oxidizers

GROUP 6-B
Acetic acid and other organic acids
Concentrated mineral acids
Group 2-A wastesGroup 4-A wastes
Other flammable and combustible wastes
Potential consequences: Fire, explosion, or violent reaction.

Source: "Law, Regulations, and Guidelines for Handling of Hazardous Wastes." California Department of Health, February 1975.

Appendix VI Political Jurisdictions[1] in Which Compliance With 264.18(a) Must be Demonstrated

Alaska
Aleutian Islands
Anchorage
Bethel
Bristol Bay
Cordova Valdez
Fairbanks Fort Yukon
Juneau
KenaiCook Inlet
Ketchikan Prince of Wales
Kodiak
Lynn CanalIcy Straits
Palmer Wasilla Talkeena
Seward
Sitka
Wade Hampton
Wrangell Petersburg
Yukon Kuskokwim

Arizona
Cochise
Graham
Greenlee
Yuma

California
All

Colorado
Archuleta
Conejos
Hinsdale
Mineral
Rio Grande
Saguache

Hawaii

Idaho
Bannock
Bear Lake
Bingham
Bonneville
Caribou
Cassia
Clark
Franklin
Fremont
Jefferson
Madison
Oneida
Power
Teton

Montana
Beaverhead
Broadwater
Cascade
Deer Lodge
Flathead
Gallatin
Granite
Jefferson
Lake
Lewis and Clark
Madison
Meagher
Missoula
Park
Powell
Sanders
Silver Bow
Stillwater
Sweet Grass
Teton
Wheatland

Nevada
All

New Mexico
Bernalillo
Catron
Grant
Hidalgo
Los Alamos
Rio Arriba
Sandoval
Sante Fe
Sierra
Socorro
Taos
Torrance
Valencia

Utah
Beaver
Box Elder
Cache
Carbon
Davis
Duchesne
Emery
Garfield
Iron
Juab
Millard
Morgan
Piute
Rich
Salt Lake
Sanpete
Sevier
Summit
Tooele
Utah
Wasatch
Washington
Wayne
Weber

Washington
Chelan
Clallam
Clark
Cowlitz
Douglas
Ferry
Grant
Grays Harbor
Jefferson
King
Kitsap
Kittitas
Lewis
Mason
Okanogan
Pacific
Pierce
San Juan Islands
Skagit
Skamania
Snohomish
Thurston
Wahkiakum
Whatcom
Yakima

Wyoming
Fremont
Lincoln
Park
Sublette
Teton
Uinta
Yellowstone National Park

[1]These include counties, city-county consolidations, and independent cities. In the case of Alaska, the political jurisdictions are election districts, and, in the case of Hawaii, the political jurisdiction listed is the island of Hawaii.

Appendix VII - VIII [Reserved]

Appendix IX Groundwater Monitoring List[1]

Common name[2]	CAS RN[3]	Chemical abstracts service index name[4]	Suggested methods[5]	PQL (µg/L)[6]
Acenapthene	83-32-9	Acenaphthylene, 1,2-dihydro-	8100 8270	200. 10.
Acenaphthylene	208-96-8	Acenaphthylene	8100 8270	200. 10.
Acetone	67-64-1	2-Propanone	8240	100.
Acetophenone	98-86-2	Ethanone, 1-phenyl-	8270	10.
Acetonitrile; Methyl cyanide	75-05-8	Acetonitrile	8015	100.
2-Acetylamino-fluorene; 2-AAF	53-96-3	Acetamide, N-9H-fluoren-2-yl-	8270	10.
Acrolein	107-02-8	2-Propenal	8030 8240	5. 5.
Acrylonitrile	107-13-1	2-Propenenitrile	8030 8240	5. 5.
Aldrin	309-00-2	1,4:5,8-Dimethano-naphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro- (1α,4α,4aß,5α,8α,8aß)-	8080 8270	0.05 10.
Allyl chloride	107-05-1	1-Propene, 3-chloro-	8010 8240	5. 100.
4-Aminobiphenyl	92-67-1	[1,1'-Biphenyl]-4-amine	8270	10.
Aniline	62-53-3	Benzenamine	8270	10.
Anthracene	120-12-7	Anthracene	8100 8270	200. 10.
Antimony	(Total)	Antimony	6010 7040 7041	300. 2,000. 30.
Aramite	140-57-8	Sulfurous acid, 2-chloroethyl 2-[4-(1,1-dimethylethyl) phenoxy]-1-methylethyl ester	8270	10.
Arsenic	(Total)	Arsenic	6010 7060 7061	500. 10. 20.
Barium	(Total)	Barium	6010 7080	20. 1,000.
Benzene	71-43-2	Benzene	8020 8240	2. 5.
Benzo[a]anthra-cene; Benzanthracene	56-55-3	Benz[a]anthra-cene	8100 8270	200. 10.
Benzo[b]fluoranthene	205-99-2	Benz[e]acephe-nanthrylene	8100 8270	200. 10.
Benzo[k]fluoranthene	207-08-9	Benzo[k] fluoranthene	8100 8270	200. 10.
Benzo[ghi]perylene	191-24-2	Benzo[ghi]perylene	8100 8270	200. 10.
Benzo[a]pyrene	50-32-8	Benzo[a]pyrene	8100 8270	200. 10.
Benzyl alcohol	100-51-6	Benzenemethanol	8270	20.
Beryllium	(Total)	Beryllium	6010 7090 7091	3. 50. 2.
α-BHC	319-84-6	Cyclohexane, 1,2,3,4,5,6-hexachloro-,(1α,2α,3ß,4α,5ß,6ß)-	8080 8250	0.05 10.
ß-BHC	319-85-7	Cyclohexane, 1,2,3,4,5,6-hexachloro-,(1α,2ß,3α,4ß, 5α,6ß)-	8080 8250	0.05 40.
delta-BHC	319-86-8	Cyclohexane, 1,2,3,4,5,6-hexachloro-,(1α,2α,3α,4ß, 5α,6ß)-	8080 8250	0.1 30.
gamma-BHC; Lindane	58-89-9	Cyclohexane, 1,2,3,4,5,6-hexachloro-,(1α,2α,3ß,4α,5α,6ß)-	8080 8250	0.05 10.
Bis(2-chloro-ethoxy)methane	111-91-1	Ethane, 1,1'-[methylenebis (oxy)]bis[2-chloro-	8270	10.
Bis(2-chloro-ethyl)ether	111-44-4	Ethane,1,1'-oxybis[2-chloro-	8270	10.
Bis(2-chloro-1-methylethyl) ether; 2,2'-Di-chlorodiis-opropyl ether	108-60-1	Propane, 2,2'oxybis[1-chloro-	8010 8270	100. 10.

Common name[2]	CAS RN[3]	Chemical abstracts service index name[4]	Suggested methods[5]	PQL (µg/L)[6]
Bis(2-ethyl-hexyl) phthalate	117-81-7	1,2-Benzenedicar-boxylic acid, bis(2-ethyl-hexyl)ester.	8060 8270	20. 10.
Bromodichloro-methane	75-27-4	Methane, bromodichloro-	8010 8240	1. 5.
Bromoform;Tri-bromomethane	75-25-2	Methane, tribromo-	8010 8240	2. 5.
4-Bromophenyl phenyl ether	101-55-3	Benzene, 1-bromo-4-phenoxy-	8270	10.
Butyl benzyl phthalate; Benzyl butyl phthalate	85-68-7	1,2-Benzene-dicarboxylic acid, butyl phenylmethyl ester.	8060 8270	5. 10.
Cadmium	(Total)	Cadmium	6010 7130 7131	40. 50. 1.
Carbon disulfide	75-15-0	Carbon disulfide	8240	5.
Carbon tetrachloride	56-23-5	Methane, tetrachloro-	8010 8240	1. 5.
Chlordane	57-74-9	4,7-Methano-1H-indene, 1,2,4, 5,6,7,8,8-octa-chloro-2,3,3a, 4,7,7a-hexahydro-	8080 8250	0.1 10.
p-Chloroaniline	106-47-8	Benzenamine, 4-chloro-	8270	20.
Chlorobenzene	108-90-7	Benzene, chloro-	8010 8020 8240	2. 2. 5.
Chlorobenzi-late	510-15-6	Benzeneacetic acid, 4-chloro-α-(4-chlorophenyl)-α-hydroxy-,ethyl ester.	8270	10.
p-Chloro-m-cresol	59-50-7	Phenol, 4-chloro-3-methyl-	8040 8270	5. 20.
Chloroethane; Ethyl chloride	75-00-3	Ethane, chloro-	8010 8240	5. 10.
Chloroform	67-66-3	Methane, trichloro-	8010 8240	0.5 5.
2-Chloro-naphthalene	91-58-7	Naphthalene, 2-chloro-	8120 8270	10. 10.
2-Chlorophenol	95-57-8	Phenol, 2-chloro-	8040 8270	5. 10.
4-Chlorophenyl phenyl ether	7005-72-3	Benzene, 1-chloro-4-phenoxy-	8270	10.
Chloroprene	126-99-8	1,3-Butadiene, 2-chloro-	8010 8240	50. 5.
Chromium	(Total)	Chromium	6010 7190 7191	70. 500. 10.
Chrysene	218-01-9	Chrysene	8100 8270	200. 10.
Cobalt	(Total)	Cobalt	6010 7200 7201	70. 500. 10.
Copper	(Total)	Copper	6010 7210	60. 200.
m-Cresol	108-39-4	Phenol, 3-methyl-	8270	10.
o-Cresol	95-48-7	Phenol, 2-methyl-	8270	10.
p-Cresol	106-44-5	Phenol, 4-methyl-	8270	10.
Cyanide	57-12-5	Cyanide	9010	40.
2,4-D; 2,4-Dichlorophenox-yacetic acid	94-75-7	Acetic acid, (2,4-dichloro-phenoxy)-	8150	10.
4,4'-DDD	72-54-8	Benzene 1,1'-(2,2-dichloro-ethylidene)bis[4-chloro-	8080 8270	0.1 10.
4,4'-DDE	72-55-9	Benzene, 1,1'-(-dichloro-eth-enylidene)bis[4-chloro-	8080 8270	0.05 10.
4,4'-DDT	50-29-3	Benzene, 1,1'-(2,2,2-tri-chloroethyl-idene)bis[4-chloro-,	8080 8270	0.1 10.
Diallate	2303-16-4	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3-di-chloro-2-pro-penyl) ester.	8270	10.
Dibenz[a,h]anthracene	53-70-3	Dibenz[a,h]anthracene	8100 8270	200. 10.
Dibenzofuran	132-64-9	Dibenzofuran	8270	10.
Dibromochloro-methane;	124-48-1	Methane, dibromochloro-	8010 8240	1.

Common name[2]	CAS RN[3]	Chemical abstracts service index name[4]	Suggested methods[5]	PQL (µg/L)[6]
Chlorodibromo-methane				5.
1,2-Dibromo-3-chloropropane; DBCP.	96-12-8	Propane, 1,2-dibromo-3-chloro-	8010 8240 8270	100. 5. 10.
1,2-Dibromo-ethane; Ethylene dibromide	106-93-4	Ethane, 1,2-dibromo-	8010 8240	10. 5.
Di-n-butyl phthalate	84-74-2	1,2-Benzene-dicarboxylic acid, dibutyl ester	8060 8270	5. 10.
o-Dichloro-benzene	95-50-1	Benzene, 1,2-dichloro-	8010 8020 8120 8270	2. 5. 10. 10.
m-Dichloro-benzene	541-73-1	Benzene, 1,3-dichloro-	8010 8020 8120 8270	5. 5. 10. 10.
p-Dichloro-benzene	106-46-7	Benzene, 1,4-dichloro-	8010 8020 8120 8270	2. 5. 15. 10.
3,3-Dichloro-benzidine	91-94-1	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dichloro-	8270	20.
trans-1,4-Dichloro-2-butene	110-57-6	2-Butene, 1,4-dichloro-, (E)-	8240	5.
Dichlorodi-fluoromethane	75-71-8	Methane, di-chlorodifluoro-	8010 8240	10. 5.
1,1-Dichloroethane	75-34-3	Ethane, 1,1-dichloro-	8010 8240	1. 5.
1,2-Dichloro-ethane; Ethylene dichloride	107-06-2	Ethane, 1,2-dichloro-	8010 8240	0.5 5.
1,1-Dichloro-ethylene; Vinylidene chloride	75-35-4	Ethene, 1,1-dichloro-	8010 8240	1. 5.
trans-1,2-Dichloro-ethylene	156-60-5	Ethene, 1,2-dichloro-, (E)-	8010 8240	1. 5.
2,4-Dichloro-phenol	120-83-2	Phenol, 2,4-dichloro-	8040 8270	5. 10.
2,6-Dichloro-phenol	87-65-0	Phenol, 2,6-dichloro-	8270	10.
1,2-Dichloro-propane	78-87-5	Propane, 1,2-dichloro-	8010 8240	0.5 5.
cis-1,3-Di-chloropropene	10061-01-5	1-Propene, 1,3-dichloro-, (Z)-	8010 8240	20. 5.
trans-1,3-Dichloro-propene	10061-02-6	1-Propene, 1,3-dichloro-, (E)-	8010 8240	5. 5.
Dieldrin	60-57-1	2,7:3,6-Dimetha-nonaphth[2,3-b] oxirene,3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-,(1aα,2ß,2aα,3ß,6ß,6aα,7ß,7aα)-	8080 8270	0.05 10.
Diethyl phthalate	84-66-2	1,2-Benzene-dicarboxylic acid, diethyl ester	8060 8270	5. 10.
O,O-Diethyl O-2-pyrazinyl phosphorothi-oate;Thionazin	297-97-2	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester.	8270	10.
Dimethoate	60-51-5	Phosphorodithi-oic acid,O,O-dimethyl S-[2-(methylamino)-2-oxoethyl]ester	8270	10.
p-(Dimethylam-ino)azobenzene	60-11-7	Benzenamine, N,N-dimethyl-4-(phenylazo)-	8270	10.
7,12-Dimethyl-benz[a]anthra-cene	57-97-6	Benz[a]anthra-cene, 7,12-dimethyl-	8270	10.
3,3'-Dimethylbenzidine	119-93-7	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-	8270	10.
α, α-Dimethyl-phenethylamine	122-09-8	Benzeneethan-amine, α,α-dimethyl-	8270	10.
2,4-Dimethylphenol	105-67-9	Phenol, 2,4-dimethyl-	8040 8270	5. 10.
Dimethyl phthalate	131-11-3	1,2-Benzene-dicarboxylic acid, dimethyl ester	8060 8270	5. 10.
m-Dinitro-benzene	99-65-0	Benzene, 1,3-dinitro-	8270	10.
4,6-Dinitro-o-cresol	534-52-1	Phenol, 2-methyl-4,6-dinitro	8040 8270	150. 50.
2,4-Dinitro-phenol	51-28-5	Phenol, 2,4-dinitro	8040 8270	150. 50.

Common name[2]	CAS RN[3]	Chemical abstracts service index name[4]	Suggested methods[5]	PQL (µg/L)[6]
2,4-Dinitro-toluene	121-14-2	Benzene, 1-methyl,2,4-dinitro	8090 8270	0.2 10.
2,6-Dinitro-toluene	606-20-2	Benzene, 2-methyl-1,3-dinitro-	8090 8270	0.1 10.
Dinoseb; DNBP; 2-sec-Butyl-4,6-dinitro-phenol	88-85-7	Phenol, 2-(1-methylpropyl)-4,6-dinitro	8150 8270	1. 10.
Di-n-octyl phthalate	117-84-0	1,2-Benzenedicar-boxylic acid, dioctyl ester	8060 8270	30. 10.
1,4-Dioxane	123-91-1	1,4-Dioxane	8015	150.
Diphenylamine	122-39-4	Benzenamine, N-phenyl-	8270	10.
Disulfoton	298-04-4	Phosphorodithi-oic acid, O,O-diethyl S-[2-(ethylthio)ethyl]ester	8140 8270	2. 10.
Endosulfan I	959-98-8	6,9-Methano-2, 4,3-benzodi-oxathiepin,6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-,3-oxide, (3α, 5aß, 6α, 9α, 9aß)-.	8080 8250	0.1 10.
Endosulfan II	33213-65-9	6,9-Methano-2, 4,3-benzodi-oxathiepin,6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-,3-oxide, (3α,5aα, 6ß,9ß,9aα)-.	8080	0.05
Endosulfan sulfate	1031-07-8	6,9-Methano-2,4,3-benzodi-oxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3,3-dioxide	8080 8270	0.5 10.
Endrin	72-20-8	2,7:3,6-Dimethanonaphth [2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-(1aα,2ß,2aß,3α,6α, 6aß,7ß,7aα)-	8080 8250	0.1 10.
Endrin aldehyde	7421-93-4	1,2,4-Methenocy-clopenta[cd]pentalene-5-carbox-aldehyde, 2,2a, 3,3,4,7-hexa-chlorodecahydro-,(1α,2ß,2aß,4ß,4aß,5ß,6aß,6bß,7R*)-	8080 8270	0.2 10.
Ethylbenzene	100-41-4	Benzene, ethyl-	8020 8240	2. 5.
Ethyl methacrylate	97-63-2	2-Propenoic acid, 2-methyl-, ethyl ester	8015 8240 8270	10. 5. 10.
Ethyl methane-sulfonate	62-50-0	Methanesulfonic acid, ethyl ester	8270	10.
Famphur	52-85-7	Phosphorothioic acid, O-[4-[(dimethylamino)sulfonyl]phenyl]-O,O-dimethyl ester	8270	10.
Fluoranthene	206-44-0	Fluoranthene	8100 8270	200. 10.
Fluorene	86-73-7	9H-Fluorene	8100 8270	200. 10.
Heptachlor	76-44-8	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-	8080 8270	0.05 10.
Heptachlor epoxide	1024-57-3	2,5-Methano-2H-indeno[1,2-b]oxirene, 2,3,4,5,6,7,7-heptachloro-1a,1b,5,5a,6,6a-hexahydro-, (1aα,1bß,2α,5α,5aß,6ß,6aα)	8080 8270	1. 10.
Hexachloro-benzene	118-74-1	Benzene, hexachloro-	8120 8270	0.5 10.
Hexachloro-butadiene	87-68-3	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	8120 8270	5. 10.
Hexachlorocy-clopentadiene	77-47-4	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-	8120 8270	5. 10.
Hexachloro-ethane	67-72-1	Ethane, hexachloro-	8120 8270	0.5 10.
Hexachloro-phene	70-30-4	Phenol, 2,2'-methylenebis[3,4,6-trichloro-	8270	10.
Hexachloro-propene	1888-71-7	1-Propene, 1,1,2,3,3,3-hexachloro-	8270	10.
2-Hexanone	591-78-6	2-Hexanone	8240	50.
Indeno(1,2,3-cd)pyrene	193-39-5	Indeno[1,2,3-cd]pyrene	8100 8270	200. 10.
Isobutyl alcohol	78-83-1	1-Propanol, 2-methyl-	8015	50.
Isodrin	465-73-6	1,4,5,8-Dimethanonaph-thalene, 1,2,3, 4,10,10-hexa- chloro-1,4,4a,5, 8,8a hexahydro-(1α,4α,4aß,5ß,8ß,8aß)-	8270	10.
Isophorone	78-59-1	2-Cyclohexen-1-one,3,5,5-trimethyl-	8090 8270	60. 10.
Isosafrole	120-58-1	1,3-Benzodi-oxole, 5-(1-propenyl)-	8270	10.
Kepone	143-50-0	1,3,4-Metheno-2H-cyclobuta-[cd]pentalen-2-one, 1,1a,3,3a, 4,5,5,5a,5b,6-decachloro-octahydro-	8270	10.
Lead	(Total)	Lead	6010 7420 7421	40. 1,000. 10.
Mercury	(Total)	Mercury	7470	2.
Methacrylo-nitrile	126-98-7	2-Propeneni-trile, 2-methyl-	8015 8240	5. 5.
Methapyrilene	91-80-5	1,2,Ethanedia-mine, N,N-di-methyl-N'-2-pyridinyl-N'-(2-thienylmethyl)-	8270	10.
Methoxychlor	72-43-5	Benzene, 1,1'-(2,2,2,tri-chloroethylidene)bis[4-methoxy-	8080	2.

Common name[2]	CAS RN[3]	Chemical abstracts service index name[4]	Suggested methods[5]	PQL (µg/L)[6]
			8270	10.
Methyl bromide; Bromomethane	74-83-9	Methane, bromo-	8010 8240	20. 10.
Methyl chloride; Chloromethane	74-87-3	Methane, chloro-	8010 8240	1. 10.
3-Methylcho-lanthrene	56-49-5	Benz[j]acean-thrylene, 1,2-dihydro-3-methyl-	8270	10.
Methylene bromide; Dibromomethane	74-95-3	Methane, dibromo-	8010 8240	15. 5.
Methylene chloride; Dichloro-methane	75-09-2	Methane, dichloro-	8010 8240	5. 5.
Methyl ethyl ketone (MEK)	78-93-3	2-Butanone	8015 8240	10. 100.
Methyl iodide; Iodomethane	74-88-4	Methane, iodo-	8010 8240	40. 5.
Methyl methacrylate	80-62-6	2-Propenoic acid, 2-methyl-, methyl ester	8015 8240	2. 5.
Methyl methanesul-fonate	66-27-3	Methanesulfonic acid, methyl ester	8270	10.
2-Methylnaph-thalene	91-57-6	Naphthalene, 2-methyl-	8270	10.
Methyl parathion; Parathion methyl	298-00-0	Phosphorothioic acid, O,O-dimethyl O-(4-nitro-phenyl) ester	8140 8270	0.05 10.
4-Methyl-2-pentanone; Methyl isobutyl ketone	108-10-1	2-Pentanone, 4-methyl-	8015 8240	5. 50.
Naphthalene	91-20-3	Naphthalene	8100 8270	200. 10.
1,4-Naphthoquinone	130-15-4	1,4-Naphthalenedione	8270	10.
1-Naphthylamine	134-32-7	1-Naphthalenamine	8270	10.
2-Naphthylamine	91-59-8	2-Naphthalenamine	8270	10.
Nickel	(Total)	Nickel	6010 7520	50. 400.
o-Nitroaniline	88-74-4	Benzenamine, 2-nitro-	8270	50.
m-Nitroaniline	99-09-2	Benzenamine, 3-nitro-	8270	50.
p-Nitroaniline	100-01-6	Benzenamine, 4-nitro-	8270	50.
Nitrobenzene	98-95-3	Benzene, nitro-	8090 8270	40. 10.
o-Nitrophenol	88-75-5	Phenol, 2-nitro-	8040 8270	5. 10.
p-Nitrophenol	100-02-7	Phenol, 4-nitro-	8040 8270	10. 50.
4-Nitroqui-noline 1-oxide	56-57-5	Quinoline, 4-nitro-, 1-oxide	8270	10.
N-Nitrosodi-n-butylamine	924-16-3	1-Butanamine,N-butyl-N-nitroso-	8270	10.
N-Nitrosodi-ethylamine	55-18-5	Ethanamine, N-ethyl-N-nitroso-	8270	10.
N-Nitrosodi-methylamine	62-75-9	Methanamine, N-methyl-N-nitroso-	8270	10.
N-Nitrosodi-phenylamine	86-30-6	Benzenamine, N-nitroso-N-phenyl-	8270	10.
N-Nitrosodi-propylamine; Di-n-propyl-nitrosamine	621-64-7	1-Propanamine, N-nitroso-N-propyl-	8270	10.
N-Nitroso-methylethyl-amine	10595-95-6	Ethanamine, N-methyl-N-nitroso-	8270	10.
N-Nitroso-morpholine	59-89-2	Morpholine, 4-nitroso-	8270	10.
N-Nitroso-piperidine	100-75-4	Piperidine, 1-nitroso-	8270	10.
N-Nitrosopyr-rolidine	930-55-2	Pyrrolidine, 1-nitroso-	8270	10.
5-Nitro-o-toluidine	99-55-8	Benzenamine, 2-methyl-5-nitro-	8270	10.
Parathion	56-38-2	Phosphorothioic acid, O,O-diethyl-O-(4-nitro-phenyl) ester	8270	10.
Polychlorina-ted biphenyls; PCBs	See Note 7	1,1'-Biphenyl, chloro derivatives	8080 8250	50. 100.
Polychlorina-ted dibenzo-p-dioxins; PCDDs	See Note 8	Dibenzo[b,e] [1,4]dioxin, chloro derivatives	8280	0.01
Polychlorina-ted dibenzo-furans; PCDFs	See Note 9	Dibenzofuran, chloro derivatives	8280	0.01
Pentachloro-benzene	608-93-5	Benzene, pentachloro-	8270	10.
Pentachloro-ethane	76-01-7	Ethane, pentachloro-	8240 8270	5. 10.
Pentachloro-nitrobenzene	82-68-8	Benzene, penta-chloronitro-	8270	10.
Pentachloro-phenol	87-86-5	Phenol, pentachloro-	8040 8270	5. 50.
Phenacetin	62-44-2	Acetamide, N-(4-ethoxyphenyl)	8270	10.
Phenanthrene	85-01-8	Phenanthrene	8100 8270	200. 10.

Common name[2]	CAS RN[3]	Chemical abstracts service index name[4]	Suggested methods[5]	PQL (µg/L)[6]
Phenol	108-95-2	Phenol	8040 8270	1. 10.
p-Phenylene-diamine	106-50-3	1,4-Benzenediamine	8270	10.
Phorate	298-02-2	Phosphorodithi-oic acid, O,O-diethyl S-[(ethylthio) methyl]ester	8140 8270	2. 10.
2-Picoline	109-06-8	Pyridine, 2-methyl-	8240 8270	5. 10.
Pronamide	23950-58-5	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-	8270	10.
Propionitrile; Ethyl cyanide	107-12-0	Propanenitrile	8015 8240	60. 5.
Pyrene	129-00-0	Pyrene	8100 8270	200. 10.
Pyridine	110-86-1	Pyridine	8240 8270	5. 10.
Safrole	94-59-7	1,3-Benzodi-oxole, 5-(2-propenyl)-	8270	10.
Selenium	(Total)	Selenium	6010 7740 7741	750. 20. 20.
Silver	(Total)	Silver	6010 7760	70. 100.
Silvex; 2,4,5-TP	93-72-1	Propanoic acid, 2-(2,4,5-tri-chlorophenoxy)-	8150	2.
Styrene	100-42-5	Benzene, ethenyl-	8020 8240	1. 5.
Sulfide	18496-25-8	Sulfide	9030	10,000.
2,4,5-T; 2,4,5-Tri-chlorophenoxy-acetic acid	93-76-5	Acetic acid, (2,4,5-tri-chlorophenoxy),-	8150	2.
2,3,7,8-TCDD;2,3,7,8-Tetrachloro-dibenzo-p-dioxin	1746-01-6	Dibenzo[b,e][1,4]dioxin, 2,3,7,8-tetrachloro-	8280	0.005
1,2,4,5-Tetrachloro-benzene	95-94-3	Benzene,1,2,4,5-tetrachloro-	8270	10.
1,1,1,2-Tetrachloro-ethane	630-20-6	Ethane, 1,1,1,2-tetrachloro-	8010 8240	5. 5.
1,1,2,2-Tetrachloro-ethane	79-34-5	Ethane, 1,1,2,2-tetrachloro-	8010 8240	0.5 5.
Tetrachloro-ethylene; Perchloro-ethylene; Tetrachloro-ethene	127-18-4	Ethene, tetrachloro-	8010 8240	0.5 5.
2,3,4,6-Tetrachloro-phenol	58-90-2	Phenol, 2,3,4,6-tetrachloro-	8270	10.
Tetraethyl dithiopyro-phosphate; Sulfotepp	3689-24-5	Thiodiphosphoric acid ($[HO)_2P(S)]_2O$), tetraethyl ester	8270	10.
Thallium	(Total)	Thallium	6010 7840 7841	400. 1,000. 10.
Tin	(Total)	Tin	7870	8,000.
Toluene	108-88-3	Benzene, methyl-	8020 8240	2. 5.
o-Toluidine	95-53-4	Benzenamine, 2-methyl-	8270	10.
Toxaphene	8001-35-2	Toxaphene	8080 8250	2. 10.
1,2,4-Tri-chlorobenzene	120-82-1	Benzene, 1,2,4-trichloro-	8270	10.
1,1,1-Tri-chloroethane; Methylchloro-form	71-55-6	Ethane, 1,1,1-trichloro-	8240	5.
1,1,2-Trichloro-ethane	79-00-5	Ethane, 1,1,2-trichloro-	8010 8240	0.2 5.
Trichloro-ethylene; Trichloro-ethene	79-01-6	Ethene, trichloro-	8010 8240	1. 5.
Trichloro-fluoromethane	75-69-4	Methane, trichlorofluoro-	8010 8240	10. 5.
2,4,5-Tri-chlorophenol	95-95-4	Phenol, 2,4,5-trichloro-	8270	10.
2,4,6-Tri-chlorophenol	88-06-2	Phenol, 2,4,6-trichloro-	8040 8270	5. 10.
1,2,3-Tri-chloropropane	96-18-4	Propane, 1,2,3-trichloro-	8010 8240	10. 5.
O,O,O,-Triethyl phosphoro-thioate	126-68-1	Phosphorothioic acid, O,O,O-triethyl ester	8270	10.
sym-Trinitro-benzene	99-35-4	Benzene, 1,3,5-trinitro-	8270	10.

Common name[2]	CAS RN[3]	Chemical abstracts service index name[4]	Suggested methods[5]	PQL (µg/L)[6]
Vanadium	(Total)	Vanadium	6010 7910 7911	80. 2,000. 40.
Vinyl acetate	108-05-4	Acetic acid, ethenyl ester	8240	5.
Vinyl chloride	75-01-4	Ethene, chloro-	8010 8240	2. 10.
Xylene (total)	1330-20-7	Benzene, dimethyl-	8020 8240	5. 5.
Zinc	(Total)	Zinc	6010 7950	20. 50.

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

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

[3]Chemical Abstracts Service registry number. Where Total is entered, all species in the groundwater that contain this element are included.

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

[5] Suggested methods refer to analytical procedure numbers used in the EPA publication, SW-846, "Test Methods for Evaluating Solid Waste," Third Edition. Analytical details can be found in SW-846 and in documentation on file at the Agency. The packed column gas chromatography methods 8010, 8020, 8030, 8040, 8060, 8080, 8090, 8110, 8120, 8140, 8150, 8240, and 8250 were promulgated methods through Update IIB of SW-846 and, as of Update III, the Agency has replaced these methods with "capillary column GC methods," as the suggested methods. (9/98)

[6]Practical Quantitation Limits (PQLs) are the lowest concentrations of analytes in groundwaters that can be reliably determined within specified limits of precision and accuracy by the indicated methods under routine laboratory operating conditions. The PQLs listed are generally stated to one significant figure. CAUTION: The PQL values in many cases are based only on a general estimate for the method and not on a determination for individual compounds; PQLs are not a part of the regulation.

[7]Polychlorinated biphenyls (CAS RN 1336-36-3); this category contains congener chemicals, including constituents of Aroclor1016 (CAS RN 12674-11-2), Aroclor1221 (CAS RN 11104-28-2), Aroclor1232 (CAS RN 11141-16-5), Aroclor1242 (CAS RN 53469-21-9), Aroclor1248 (CAS RN 12672-29-6), Aroclor1254 (CAS RN 11097-69-1), and Aroclor1260 (CAS RN 11096-82-5). The PQL shown is an average value for PCB congeners.

[8]This category contains congener chemicals, including tetrachlorodibenzopdioxins (see also 2,3,7,8TCDD), pentachlorodibenzopdioxins, and hexachlorodibenzopdioxins. The PQL shown is an average value for PCDD congeners.

[9]This category contains congener chemicals, including tetrachlorodibenzofurans, pentachlorodibenzofurans, and hexachlorodibenzofurans. The PQL shown is an average value for PCDF congeners