ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT LAND DIVISION - HAZARDOUS WASTE PROGRAM ADMINISTRATIVE CODE

CHAPTER 335-14-5
STANDARDS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES

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335-14-5-.01 General.

(1) Purpose, scope and applicability.

(a) The purpose of 335-14-5 is to establish minimum standards which define the acceptable management of hazardous waste.

(b) The standards in 335-14-5 apply to owners and operators of all facilities which treat, store, or dispose of hazardous waste, except as specifically provided otherwise in 335-14-5 or 335-14-2.

(c) [Reserved]

(d) [Reserved]

(e) [Reserved]

(f) [Reserved]

(g) The requirements of 335-14-5 do not apply to:

1. The owner or operator of a facility permitted 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 335-14-5 by 335-14-3-.01(4);

2. The owner or operator of a facility managing recyclable materials described in 335-14-2-.01(6)(a)2., 3. and 4. (except to the extent that requirements of 335-14-5 are referred to in 335-14-17 or Rules 335-14-7-.03, 335-14-7-.06, 335-14-7-.07 or 335-14-7-.08);

3. A generator accumulating waste on-site in compliance with 335-14-3-.01, 335-14-3-.12 or 335-14-3-.13

4. A farmer disposing of waste pesticides from his own use in compliance with 335-14-3-.07(1);

5. The owner or operator of a totally enclosed treatment facility, as defined in 335-14-1-.02;

6. The owner or operator of an elementary neutralization unit or a wastewater treatment unit as defined in 335-14-1-.02, provided that if the owner or operator is treating hazardous ignitable (D001) wastes [other than the D001 High TOC Subcategory defined in 335-14-9-.04(1), 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 335-14-5-.02(8)(b).

7. [Reserved]

8.(i) Except as provided in 335-14-5-.01(1)(g)8.(ii), a person engaged in treatment or containment activities during immediate response to any of the following situations:

(I) A discharge of a hazardous waste;

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

(III) A discharge of a material which, when discharged, becomes a hazardous waste;

(IV) 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 335-14-1-.02.

(ii) An owner or operator of a facility otherwise regulated by Division 335-14 must comply with all applicable requirements of Rules 335-14-5-.03 and 335-14-5-.04;

(iii) Any person who is covered by 335-14-5-.01(1)(g)8.(i) and who continues or initiates hazardous waste treatment or containment activities after the immediate response is over is subject to all applicable requirements of 335-14-5 and 335-14-8;

(iv) In the case of an explosives or munitions emergency response, if a Federal, State of Alabama, 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 or Alabama Hazardous Waste Transport Permits 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. [Reserved]

10. The addition of sorbent material to waste in a container or the addition of waste to sorbent material in a container, provided that these activities occur at the time waste is first placed in the container, and 335-14-5-.02(8)(b) and 335-14-5-.09(2) and (3) are complied with.

11. A generator treating hazardous wastes, generated on-site, by evaporation in tanks or containers, provided such treatment complies with Rule 335-14-8-.01(1)(c)2.(viii).

12. Reserved

13. Reverse distributors accumulating potentially creditable hazardous waste pharmaceuticals and evaluated hazardous waste pharmaceuticals, as defined in 335-14-1-.02. Reverse distributors are subject to regulation under 335-14-7-.16 in lieu of 335-14-5 for the accumulation of potentially creditable hazardous waste pharmaceuticals and evaluated hazardous waste pharmaceuticals.

(h) The requirements of 335-14-5 apply to owners or operators of all facilities which treat, store, or dispose of hazardous waste referred to in 335-14-9.

(i) 335-14-7-.13(6) identifies when the requirements of 335-14-5-.01 apply to the storage of military munitions classified as solid waste under 335-14-7-.13(3). The treatment and disposal of hazardous waste military munitions are subject to the applicable permitting, procedural, and technical standards in 335-14-1 through 335-14-9.

(j) The requirements of 335-14-5-.02, 335-14-5-.03, 335-14-5-.04 and 335-14-5-.06(12) 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, 335-14-5-.02, 335-14-5-.03, 335-14-5-.04 and 335-14-5-.06(12) do apply to the facility subject to the traditional RCRA permit.) Instead of the requirements of 335-14-5-.02, 335-14-5-.03, and 335-14-5-.04 owners or operators of remediation waste management sites must:

1. Obtain an EPA identification number by applying to ADEM using ADEM Form 8700-12 or an electronic method used by the Department;

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 335-14-5 and 335-14-9, 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 unto the active portion of the remediation waste management site, will not cause a violation of 335-14-5;

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 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 335-14-5, 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 335-14-5-.09 through 335-14-5-.15 and 335-1-5-.24, 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 335-14-5-.02(9)(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 335-14-5-.11(2)(c) and (d), 335-14-5-.12(2)(c) and (d), and 335-14-5-.14(2)(c)and (d) at the remediation waste management site, according to the requirements of 335-14-5-.02(10);

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 in the event of 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. The 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 335-14-5-.01(1)(j)2. through (j)6. and (j)9. through (j)10.; and

13. Maintain records documenting compliance with 335-14-5-.01(1)(j)1. through (j)12.

(2) [Reserved]

(3) Relationship to interim status standards. A facility owner or operator who has fully complied with the requirements for interim status must comply with the Rules specified in 335-14-6 in lieu of the Rules in 335-14-5, until final administrative disposition of his Hazardous Waste Facility Permit is made; except as provided under Rule 335-14-5-.19.

(4) Imminent hazard action. Notwithstanding any other provisions of these Rules, enforcement actions may be brought pursuant to Section 7003 of RCRA and the AHWMMA.
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335-14-5-.02 General Facility Standards.

(1) Applicability.

(a) The requirements of 335-14-5-.02 apply to owners and operators of all hazardous waste facilities, except as provided in 335-14-5-.01(1).

(b) [Reserved]

(2) Identification number. Every facility owner or operator must obtain an EPA identification number by submitting a correct and complete ADEM Form 8700-12 to the Department, along with the appropriate fees specified in Chapter 335-1-6 of the ADEM Administrative Code.

(3) Required notices.

(a) The owner or operator of a facility that is arranging or has arranged to receive hazardous waste subject to 40 CFR 262 subpart H [incorporated by reference in 335-14-3-.09] from a foreign source must submit the following required notices:

1. As per 40 CFR 262.84(b) [incorporated by reference in 335-14-3-.09(5)], or imports where the competent authority of the country of export does not require the foreign exporter to submit to it a notification proposing export and obtain consent from EPA and the competent authorities for the countries of transit, such owner or operator of the facility, if acting as the importer, must provide notification of the proposed transboundary movement in English to EPA using the allowable methods listed in 40 CFR 262.84(b)(1) [incorporated by reference in 335-14-3-.09(5)] at least 60 days before the first shipment is expected to depart the country of export. The notification may cover up to one year of shipments of wastes having similar physical and chemical characteristics, the same United Nations classification, the same RCRA waste codes and OECD waste codes, and being sent from the same foreign exporter.

2. As per 40 CFR 262.84(d)(2)(xv) [incorporated by reference in 335-14-3-.09(5)], a copy of the movement document bearing all required signatures within three (3) working days of receipt of the shipment to the foreign exporter and to the competent authorities of the countries of export and transit that control the shipment as an export and transit shipment of hazardous waste respectively. For shipments received on or after the electronic import-export reporting compliance date, the receiving facility must close out the movement document to confirm receipt within three (3) working days of shipment delivery using the EPA's Waste Import Export Tracking System (WIETS), or its successor system. For shipments sent from a country with which the EPA has established an electronic exchange of movement document tracking data, the receiving facility may use WIETS or

its successor system to send movement document confirmation data back through the electronic exchange to the foreign exporter and the country of export. The original of the signed movement document must be maintained at the facility for at least three (3) years. The owner or operator of a facility may satisfy this recordkeeping requirement by retaining electronically submitted documents in the facility's account on EPA's Waste Import Export Tracking System (WIETS), or its successor system, provided that copies are readily available for viewing and production if requested by any EPA or authorized state inspector. No owner or operator of a facility may be held liable for the inability to produce the documents for inspection under 335-14-5-.02(3) if the owner or operator of a facility can demonstrate that the inability to produce the document is due exclusively to technical difficulty with EPA's Waste Import Export Tracking System (WIETS), or its successor system for which the owner or operator of a facility bears no responsibility.

3. As per 40 CFR 262.84(f)(4) [incorporated by reference in 335-14-3-.09(5)], if the facility has physical control of the waste and it must be sent to an alternate facility or returned to the country of export, such owner or operator of the facility must inform EPA, using the allowable methods listed in 40 CFR 262.84(b)(1) [incorporated by reference in 335-14-.09(5)] of the need to return or arrange alternate management of the shipment.

4. As per 40 CFR 262.84(g) [incorporated by reference in 335-14-3-.09(5)], such owner or operator shall:

(i) Send copies of the signed and dated confirmation of recovery or disposal, as soon as possible, but no later than thirty days after completing recovery or disposal on the waste in the shipment and no later than one calendar year following receipt of the waste, to the foreign exporter, to the competent authority of the country of export that controls the shipment as an export of hazardous waste, and for shipments recycled or disposed of on or after the electronic import-export reporting compliance date, to EPA electronically using EPA's Waste Import Export Tracking System (WIETS), or its successor system. For shipments sent from a country with which the EPA has established an electronic exchange of movement document tracking data, the receiving facility may use WIETS or its successor system to send confirmation of recovery or disposal data back through the electronic exchange to the foreign exporter and the country of export.

(ii) If the facility performed any of recovery operations R12, R13, or RC3, or disposal operations D13 through D15, promptly send copies of the confirmation of recovery or disposal that it receives from the final recovery or disposal facility within one year of shipment delivery to the final recovery or disposal facility that performed one of recovery operations R1 through R11, or RC1, or one of disposal operations D1 through D12, or DC1 to DC2, to the competent authority of the country of export that controls the shipment as an export of hazardous waste, and on or after the electronic import-export reporting compliance date, to EPA electronically using EPA's Waste Import Export Tracking System (WIETS), or its successor system. The recovery and disposal operations in this paragraph are defined in 40 CFR 262.81 [incorporated by reference in 335-14-3-.09(2)]. For shipments sent from a country with which the EPA has established an electronic exchange of movement document tracking data, the receiving facility may use WIETS or its successor system to send confirmation of recovery or disposal data back through the electronic exchange to the country of export.

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

(c) Before transferring ownership or operation of a facility during its operating life, or of a disposal facility during the post-closure care period, the owner or operator must notify the new owner or operator in writing of the requirements of 335-14-5 and 335-14-8. (An owner's or operator's failure to notify the new owner or operator of the requirements of 335-14-5 in no way relieves the new owner or operator of his obligation to comply with all applicable requirements.)

(d)1. A facility owner or operator must submit a correct and complete ADEM Form 8700-12 (including all appropriate attachment pages and fees) reflecting current waste activities to the Department annually. The Department must receive the ADEM Form 8700-12 (including all appropriate attachment pages and fees) no later than the 15th day of the specified month in the specified month schedule located at rule 335-14-1-.02(1)(a).

2. In order to eliminate the need for multiple Notifications during the reporting year, facilities which anticipate periodically switching between generator classifications should notify for the higher classification (i.e., if a facility typically operates as a small quantity generator, but anticipates being a large quantity generator for any period during the year, they should notify as a large quantity generator); and

3. The ADEM Form 8700-12, Notification of Regulated Waste Activity, is not complete without payment of all the appropriate fees specified in Chapter 335-1-6 of the ADEM Administrative Code.

(4) General waste analysis.

(a)1. Before an owner or operator treats, stores, or disposes of any hazardous wastes, or non-hazardous wastes if applicable under 335-14-5-.07(4)(d), he must obtain a detailed chemical and physical analysis of a representative sample of the wastes. At a minimum, this analysis must contain all the information which must be known to treat, store, or dispose of the waste in accordance with the requirements of 335-14-5, 335-14-7, and 335-14-9 and with the conditions of a permit issued under 335-14-8.

2. The analysis may include data developed under 335-14-2 and existing published or documented data on the hazardous waste or on hazardous waste generated from similar processes.

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 non-hazardous wastes if applicable under 335-14-5-.07(4)(d), has changed; and

(ii) For off-site facilities, when the results of the inspection or analysis required in 335-14-5-.02(4)(a)4. indicate that the hazardous waste received at the facility does not match the waste described on the accompanying manifest or shipping paper.

4. The owner or operator of an off-site facility must inspect and 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.

(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 335-14-5-.02(4)(a). He must keep this plan at the facility. At a minimum, the plan must specify:

1. The parameters for which each hazardous waste, or non-hazardous waste if applicable under 335-14-5-.07(4)(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 335-14-5-.02(4)(a));

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 335-14-2 - Appendix I; or

(ii) An equivalent sampling method approved by the Department;

4. The frequency, approved by the Department, 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

5. For off-site facilities, the waste analyses that hazardous waste generators have agreed to supply; and

6. Where applicable, the methods which will be used to meet the additional waste analysis requirements for specific waste management methods as specified in 335-14-5-.02(8), 335-14-5-.14(15), 335-14-5-.15(2), 335-14-5-.27, 335-14-5-.28, 335-14-5-.29, 335-14-7-.08(3), and 335-14-9-.01(7).

7. For surface impoundments exempted from land disposal restrictions under 335-14-9-.01(4), the procedures and schedules for:

(i) The sampling of impoundment contents;

(ii) The analysis of test data; and

(iii) The annual removal of residues which are not delisted under 335-14-1-.03(2) or which exhibit a characteristic of hazardous waste and either:

(I) Do not meet applicable treatment standards of Rule 335-14-9-.04; or

(II) Where no treatment standards have been established; I. Such residues are prohibited from land disposal under 335-14-9-.03(13) or RCRA Section 3004(d); or II. Such residues are prohibited from land disposal under 335-14-9-.03(14).

8. For owners and operators seeking an exemption to the air emission standards of 335-14-5-.29:

(i) The procedures and schedules for waste sampling and analysis, and the analysis of test data to verify the exemption.

(ii) Each generator's notice and certification of the volatile organic concentration in the waste if the waste is received from off site.

(c) For off-site facilities, the waste analysis plan required in 335-14-5-.02(4)(b) must also specify the procedures which will be used to inspect and 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 and justify:

1. The procedures which will be used to determine the identity of each movement of waste managed at the facility and shall include collection of representative samples which will be obtained from each waste stream from each shipment of waste received from each generator and analyzed in accordance with the requirements of 335-14-5-.02(4) to accurately identify each movement of hazardous waste received at the facility;

2. The sampling method and number of samples which will be used to obtain a representative sample of the waste stream to be identified;

3. The method(s) which will be used to analyze the sample(s); and

4. The procedures that the owner or operator of an off-site landfill receiving containerized hazardous waste will use to determine whether a hazardous waste generator or treater has added a biodegradable sorbent to the waste in the container.

(d) For off-site facilities, samples of waste(s) from each generator collected in accordance with the requirements of

335-14-5-.02(4)(c) may be composited prior to analysis provided that:

1. No more than ten individual samples are composited into any one sample for analysis;

2. Only compatible wastes from the same generator and waste stream are composited into any one sample which is to be analyzed; and

3. In the event that the analytical results of sample(s) obtained in compliance with the requirements 335-14-5-.02(4) indicate that the hazardous waste received at the facility does not match the waste described on the accompanying manifest or shipping paper, the facility owner or operator shall:

(i) Collect and analyze a representative sample from each container;

(ii) Identify the container(s) holding the waste(s) which cause the discrepancy to occur; and

(iii) Comply with the requirements of 335-14-5-.05(3)(c).

(e) Upon receipt of a satisfactory demonstration based on the types of waste received and treated, stored or disposed of at the facility, processes utilized to manage the waste, and any other reasonable factors, the Department may grant a partial or full exemption from the requirements for the sampling and analysis of each shipment of waste as required by 335-14-5-.02(4)(c).

[**NOTE:** The term "movement" as used in 335-14-5-.02(4) refers to individual truckloads, batches, shipments, etc., of wastes received at the facility. It is not intended to impose requirements for additional waste analyses for internal movements of wastes within the facility unless otherwise required by Division 335-14.]

(5) Security.

(a) The owner or operator must prevent the unknowing entry, and minimize the possibility for 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 the facility; and

2. Disturbance of the waste or equipment, by the unknowing or unauthorized entry of persons or livestock onto the active portion of the facility, will not cause a violation of 335-14-5.

(b) Unless the owner or operator has made a successful demonstration under 335-14-5-.02(5)(a)1. and (a)2., 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).

(c) Unless the owner or operator has made a successful demonstration under 335-14-5-.02(5)(a)1. and (a)2., a sign with the legend "Danger-Unauthorized Personnel Keep Out" must be posted at each entrance to the active portion of the facility, and at other locations, in sufficient numbers to be seen from any approach to the active portion. The legend must be written in English and in any other language predominant in the workplace and 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.

(6) 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, the 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.

(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 that are important to preventing, detecting, or responding to environmental or health hazards.

2. He must keep the schedule at the facility.

3. The schedule must identify the types of problems which are to be looked for during the inspection.

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 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 335-14-5-.09(5), 335-14-5-.10(4), 335-14-5-.10(6), 335-14-5-.11(7), 335-14-5-.12(5), 335-14-5-.13(9), 335-14-5-.14(4), 335-14-5-.15(8), 335-14-5-.24(3), 335-14-5-.27, 335-14-5-.28, and 335-14-5-.29 where applicable.

(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.

(7) Personnel training.

(a) Facility personnel whose duties have a direct effect on hazardous waste management and/or hazardous waste accumulation, whether by direct contact with the hazardous waste or through hazardous waste management activities, must receive training.

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 335-14-5. The owner or operator must ensure that this program includes all the elements described in the document required under 335-14-5-.02(7)(d)3.

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.

4. For facility employees that receive emergency response training pursuant to Occupational Safety and Health Administration (OSHA) regulations 29 CFR 1910.120(p)(8) and 1910.120(q), the facility is not required to provide separate emergency response training pursuant to 335-14-5-.02(7), provided that the overall facility training meets all the requirements of 335-14-5-.02(7).

(b) Facility personnel must successfully complete the program required in 335-14-5-.02(7)(a) within six months after the effective date of these rules 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 rules must not work in unsupervised positions until they have completed the training requirements of 335-14-5-.02(7)(a).

(c) Facility personnel must take part in an annual review of the initial training required in 335-14-5-.02(7)(a).

(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 335-14-5-.02(7)(d)1. 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 335-14-5-.02(7)(d)1.; and

4. Records that document that the training or job experience required under 335-14-5-.02(7)(a), (b), and (c) 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.

(8) 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.

(b) Where specifically required by other paragraphs of 335-14-5, 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 335-14-5-.02(8)(a) or (b), 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 335-14-5-.02(4)), or the results of the treatment of similar wastes by similar treatment processes and under similar operating conditions.

(9) Location standards.

(a) [Reserved]

(b)1. Floodplains. 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's 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:

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

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

(III) The impact of such concentrations on the current or potential uses of and water quality

standards established for the affected surface waters; and

(IV) 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.

2. As used in 335-14-5-.02(9)(b)1.:

(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.

(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.

(10) 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 335-14-5-.11(2)(c) and (d), 335-14-5-.12(2)(c) and (d), and 335-14-5-.14(2)(b). 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 335-14-5-.02(10)(a) of 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 335-14-5-.02(10)(a)2., 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 335-14-5-.05(4).

(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 335-14-5-.02(10)(a)2.;

(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; and

(iii) Conformity of all materials used with design and other material specifications under 335-14-5-.11(2), 335-14-5-.12(2), and 335-14-5-.14(2).

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 335-14-5-.11(2)(c)1.(i)(II), 335-14-5-.12(2)(c)1.(i)(II), and 335-14-5-.14(2)(b)1.(i)(II) 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 335-14-5-.11(2)(c)1.(i)(II), 335-14-5-.12(2)(c)1.(i)(II), and 335-14-5-.14(2)(b)1.(i)(II) in the field.

(d) Certification. Waste shall not be received in a unit subject to 335-14-5-.02(10) 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 335-14-5-.11(2)(c) or (d), 335-14-5-.12(2)(c) or (d), or 335-14-5-.14(2)(b); and the procedure in 335-14-8-.03(1)(l)2.(ii) has been completed. Documentation supporting the CQA officer's certification must be furnished to the Department upon request.

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335-14-5-.03 Preparedness And Prevention.

(1) Applicability. The requirements of 335-14-5-.03 apply to owners and operators of all hazardous waste facilities except as 335-14-5-.01(1) provides otherwise.

(2) 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 non-sudden release of hazardous waste or hazardous waste constituents to air, soil, groundwater, or surface water which could threaten human health or the environment.

(3) Required equipment. All facilities must be equipped with the following, unless it can be demonstrated to the Department's satisfaction 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, ADEM Field Operations Division 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.

(4) 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. Documentation of testing and maintenance must be recorded in the facility operating record as described in Rule 335-14-5-.05(4).

(5) 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 335-14-5-.03(3).

(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 335-14-5-.03(3).

(6) 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's satisfaction that aisle space is not needed for any of these purposes.

(7) [Reserved]

(8) 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 ADEM Field Operations Division 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 of Alabama or local authorities decline to enter into such arrangements, the owner or operator must document the refusal in the operating record.

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335-14-5-.04 Contingency Plan And Emergency Procedures.

(1) Applicability. The requirements of 335-14-5-.04 apply to owners and operators of all hazardous waste facilities, except as 335-14-5-.01(1) provides otherwise.

(2) 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 non-sudden 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.

(3) Content of contingency plan.

(a) The contingency plan must describe the actions facility personnel must take to comply with 335-14-5-.04(2) and (7) in response to fires, explosions, or any unpermitted sudden or non-sudden 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 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 335-14-5. The owner or operator may develop one contingency plan which meets all regulatory requirements. The Department recommends that the plan be based on the National Response Team's

Integrated Contingency Plan Guidance ("One Plan"). When modifications are made to non-RCRA provisions in an integrated contingency plan, the changes do not trigger the need for a RCRA permit modification.

(c) The plan must describe arrangements agreed to by local Law enforcement, fire departments, hospitals, contractors, and ADEM Field Operations Division and local emergency response teams to coordinate emergency services, pursuant to 335-14-5-.03(8).

(d) The plan must list names, and office and home addresses, and phone numbers of all persons qualified to act as emergency coordinator (see 335-14-5-.04(6)), 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). All evacuation routes should be depicted on a map to be included with the evacuation plan.

(4) Copies of the 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 law enforcement, fire departments, hospitals, and ADEM Field Operations Division and local emergency response teams that may be called upon to provide emergency services. Documentation of compliance with this requirement must be maintained at the facility.

(5) Amendment of contingency plan. The contingency plan must be reviewed, and immediately amended if necessary, whenever:

(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.

(6) 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.

(7) 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 of Alabama 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 run-off 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 (release of hazardous waste or hazardous waste constituents from the active portion of the facility is defined as such a threat), 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 Alabama Emergency Management Agency (800/843-0699, 24 hours a day), the National Response Center (800/424-8802 or 202/267-2675, 24 hours a day), and the Department (334/271-7700 between 8:00 a.m. and 5:00 p.m., Monday through Friday). The report must include:

(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.

(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 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.

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335-14-5-.05 Manifest System, Recordkeeping And Reporting.

(1) Applicability.

(a) The requirements of 335-14-5-.05 apply to owners and operators of both on-site and off-site facilities, except as 335-14-5-.01(1) provides otherwise. 335-14-5-.05(2), (3), and (7) do not apply to owners and operators of on-site facilities that do not receive any hazardous waste from off-site sources, or to owners and operators of off-site facilities with respect to waste military munitions exempted from manifest requirements under 335-14-7-.13(4)(a). 335-14-5-.05(4)(b)9. only applies to permittees who treat, store, or dispose of hazardous wastes on-site where such wastes were generated.

(2) Use of manifest system.

(a) [Reserved].

1. If a facility receives hazardous waste accompanied by a manifest, the owner, operator or his/her agent must sign and date the manifest as indicated in 335-14-5-.05(2)(a)2. to certify that the hazardous waste covered by the manifest was received, that the hazardous waste was received except as noted in the discrepancy space of the manifest, or that the hazardous waste was rejected as noted in the manifest discrepancy space.

2. If the facility receives a hazardous waste shipment accompanied by a manifest, the owner, operator or his agent must:

(i) Sign and date, by hand, each copy of the manifest;

(ii) Note any discrepancies [as defined in 335-14-5-.05(3)(a)] on each copy of the manifest;

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

(iv) [Reserved]

(v) Paper manifest submission requirements are:

(I) [Reserved]

(II) Options for compliance on June 30, 2021. Send to the EPA e-Manifest system an image file of the top copy (Page 1) of the manifest and any continuation sheet, or send to the EPA e-Manifest system both a data file and the image file corresponding to Page 1 of the manifest and any continuation sheet, within 30 days of the date of delivery; and

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

3. The owner or operator of a facility receiving hazardous waste subject to 40 CFR 262, subpart H [incorporated by reference at 335-14-3-.09] from a foreign source must:

(i) Additionally list the relevant waste stream consent number from consent documentation supplied by EPA to the facility for each waste listed on the manifest in the International Shipments block on the Continuation Sheet (EPA Form 8700-22A), matched to the relevant list number for the waste from block 9b. If additional space is needed, the owner or operator should use an additional Continuation Sheet(s) (EPA Form 8700-22A); and

(ii) Send a copy of the manifest within thirty (30) days of delivery to EPA e-Manifest system per 335-14-5-.05(2)(a)2.(v).

(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 335-14-5-.05(3)(a)) in the manifest or shipping paper (if the manifest has not been received) on each copy of the manifest or shipping paper.

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 of the delivery, send a copy (Page 1) of the signed and dated manifest to the EPA e-Manifest system; and

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 applicable requirements of 335-14-3. The provisions of 335-14-3-.01(5), 335-14-2-.01(6), and 335-14-3-.01(7) are applicable to the on-site accumulation of hazardous wastes by generators. Therefore, the provisions of 335-14-3-.01(5), 335-14-2-.01(6), and 335-14-3-.01(7) only apply to owners or operators who are shipping hazardous waste which they generated at that facility or operating as a large quantity generator consolidating hazardous waste from very small quantity generators under 335-14-3-.01(7)(f).

(d) As per 40 CFR 262.84(d)(2)(xv) [incorporated by reference at 335-14-3-.09(5), within three (3) working days of the receipt of a shipment subject to 40 CFR part 262, subpart H [incorporated by reference at 335-14-3-.09], the owner or operator of the facility must provide a copy of the movement document bearing all required signatures to the foreign exporter; to the competent authorities of the countries of export and transit that control the shipment as an export and transit of hazardous waste respectively. For shipments received on or after the electronic import-export reporting compliance date, the receiving facility must close out the movement document to confirm receipt within three working days of shipment delivery using EPA's Waste Import Export Tracking System (WIETS), or its successor system. For shipments sent from a country with which EPA has established an electronic exchange of movement document tracking data, the receiving facility may use WIETS or its successor system to send movement document confirmation data back through the electronic exchange to the foreign exporter and the country of export. The original copy of the movement document must be maintained at the facility for at least three (3) years from the date of signature. The owner or operator of a facility may satisfy this recordkeeping requirement by retaining electronically submitted documents in the facility’s account on WIETS, or its successor system, provided that copies are readily available for viewing and production if requested by any EPA or authorized State inspector. No owner or operator of a facility may be held liable for the inability to produce the documents for inspection under 335-14-5-.05(2) if the owner or operator of a facility can demonstrate that the inability to produce the document is due exclusively to technical

difficulty with WIETS, or its successor system, for which the owner or operator of a facility bears no responsibility.

1. Post-receipt manifest data corrections. After facilities have certified that the manifest is complete, by signing it at the time of submission to the EPA e-Manifest system, any post-receipt data corrections may be submitted at any time by any interested person (e.g., waste handler) named on the manifest. If corrections are requested by the Department for portions of the manifest that a designated facility is required to complete, the facility must make the data correction within 30 days from the date of the request.

(e) A facility must determine whether the consignment state for a shipment regulates any additional wastes (beyond those regulated Federally) as hazardous wastes under its state hazardous waste program. Facilities must also determine whether the consignment state or generator state requires the facility to submit any copies of the manifest to these states.

(f) Legal equivalence to paper manifests. Electronic manifests that are obtained, completed, and transmitted in accordance with 335-14-3-.02(1)(a)3., and used in accordance with 335-14-5-.05(2) in lieu of the paper manifest form are the legal equivalent of paper manifest forms bearing handwritten signatures, and satisfy for all purposes any requirement in these regulations to obtain, complete, sign, provide, use, or retain a manifest.

1. Any requirement for the owner or operator of a facility to sign a manifest or manifest certification by hand, or to obtain a handwritten signature, is satisfied by signing with or obtaining a valid and enforceable electronic signature within the meaning of 40 C.F.R. §262.25(a).

2. Any requirement to give, provide, send, forward, or to return to another person a copy of the manifest is satisfied when a copy of an electronic manifest is transmitted to the other person.

3. Any requirement for a manifest to accompany a hazardous waste shipment is satisfied when a copy of an electronic manifest is accessible during transportation and forwarded to the person or persons who are scheduled to receive delivery of the waste shipment.

4. Any requirement for an owner or operator to keep or retain a copy of each manifest is satisfied by the retention of the facility's electronic manifest copies in its account on the electronic manifest system, provided

that such copies are readily available for viewing and production if requested by EPA or the Department.

5. No owner or operator may be held liable for the inability to produce an electronic manifest for inspection if the owner or operator can demonstrate that the inability to produce the electronic manifest is due exclusively to a technical difficulty with the electronic manifest system for which the owner or operator bears no responsibility.

(g) An owner or operator may participate in the electronic manifest system either by accessing the electronic manifest system from the owner's or operator's electronic equipment, or by accessing the electronic manifest system from portable equipment brought to the owner's or operator's site by the transporter who delivers the waste shipment to the facility.

(h) Special procedures applicable to replacement manifests. If a facility receives hazardous waste that is accompanied by a paper replacement manifest for a manifest that was originated electronically, the following procedures apply to the delivery of the hazardous waste by the final transporter:

1. Upon delivery of the hazardous waste to the designated facility, the owner or operator must sign and date each copy of the paper replacement manifest by hand in Item 20 (Designated Facility Certification of Receipt) and note any discrepancies in Item 18 (Discrepancy Indication Space) of the paper replacement manifest;

2. The owner or operator of the facility must give back to the final transporter one copy of the paper replacement manifest;

3. Within 30 days of delivery of the waste to the designated facility, the owner or operator of the facility must send one signed and dated copy of the paper replacement manifest to the generator, and send an additional signed and dated copy of the paper replacement manifest to the electronic manifest system; and

4. The owner or operator of the facility must retain at the facility one copy of the paper replacement manifest for at least three years from the date of delivery.

(i) Special procedures applicable to electronic signature methods undergoing tests. If an owner or operator using an electronic manifest signs this manifest electronically using an electronic signature method which is undergoing pilot or demonstration tests aimed at demonstrating the practicality or legal dependability of the signature method, then the owner or operator shall also sign with an ink signature the facility's

certification of receipt or discrepancies on the printed copy of the manifest provided by the transporter. Upon executing its ink signature on this printed copy, the owner or operator shall retain this original copy among its records for at least 3 years from the date of delivery of the waste.

(j) Imposition of user fee for manifest submissions.

1. As prescribed in 40 CFR §264.1311, and determined in 40 CFR §264.1312, an owner or operator who is a user of the electronic manifest system shall be assessed a user fee by EPA for the submission and processing of each electronic and paper manifest. EPA shall update the schedule of user fees and publish them to the user community, as provided in 40 CFR §264.1313.

2. An owner or operator subject to user fees under 335-14-5-.05(2) shall make user fee payments in accordance with the requirements of 40 CFR §264.1314, subject to the informal fee dispute resolution process of 40 CFR § 264.1316, and subject to the sanctions for delinquent payments under 40 CFR §264.1315.

(k) Electronic manifest signatures shall meet the criteria described in 40 C.F.R. §262.25(a).

(l) Post-receipt manifest data corrections. After facilities have certified to the receipt of hazardous wastes by signing Item 20 of the manifest, any post-receipt data corrections may be submitted at any time by any interested person (e.g., waste handler) shown on the manifest.

1. Interested persons must make all corrections to manifest data by electronic submission, either by directly entering corrected data to the web based service provided in e-Manifest for such corrections, or by an upload of a data file containing data corrections relating to one or more previously submitted manifests.

2. Each correction submission must include the following information:

(i) The Manifest Tracking Number and date of receipt by the facility of the original manifest(s) for which data are being corrected;

(ii) The item number(s) of the original manifest that is the subject of the submitted correction(s); and

(iii) For each item number with corrected data, the data previously entered and the corresponding data as corrected by the correction submission.

3. Each correction submission shall include a statement that the person submitting the corrections certifies that to the best of his or her knowledge or belief, the corrections that are included in the submission will cause the information reported about the previously received hazardous wastes to be true, accurate, and complete:

(i) The certification statement must be executed with a valid electronic signature; and

(ii) A batch upload of data corrections may be submitted under one certification statement.

4. Upon receipt by the system of any correction submission, other interested persons shown on the manifest will be provided electronic notice of the submitter's corrections.

5. Other interested persons shown on the manifest may respond to the submitter's corrections with comments to the submitter, or by submitting another correction to the system, certified by the respondent as specified in 335-14-5-.05(2)(l)3., and with notice of the corrections to other interested persons shown on the manifest.

(3) Manifest discrepancies.-

(a) Manifest discrepancies are:

1. Significant differences (as defined by 335-14-5-.05(3)(b)) between the quantity or type of hazardous waste designated on the manifest or shipping paper, and the quantity and type of hazardous waste a facility actually receives;

2. Rejected wastes, which may be a full or partial shipment of hazardous waste that the TSDF cannot accept; or

3. Container residues, which are residues that exceed the quantity limits for "empty" containers set forth in 335-14-2-.01(7)(b)and 335-14-7-.16(7).

(b) Significant differences in quantity are: For bulk waste, variations greater than 10 percent by weight; for batch waste, any variation in piece count, such as a discrepancy of one drum in a truckload. Significant differences 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.

(c) Upon discovering a significant difference in quantity or type, 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 20 days after receiving the waste, the owner or operator must:

1. 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.

2. Beginning on December 1, 2025, immediately submit a Discrepancy Report to the EPA e-Manifest system describing the discrepancy and attempts to reconcile it, and a copy of the manifest or shipping paper at issue. Beginning on December 1, 2025, the Department will no longer accept mailed paper Discrepancy Reports from facilities.

(d) Upon rejecting the waste or identifying a container residue that exceeds the quantity limits for "empty" containers set forth in 335-14-2-.01(7)(b), the facility must consult with the generator prior to forwarding the waste to another facility that can manage the waste. If it is impossible to locate an alternative facility that can receive the waste, the facility may return the rejected waste or residue to the generator. The facility must send the waste to the alternative facility or to the generator within 60 days of the rejection or the container residue identification.

1. While the facility is making arrangements for forwarding rejected wastes or residues to another facility under 335-14-5-.05(3), it must ensure that either the delivering transporter retains custody of the waste, or, the facility must provide for secure, temporary custody of the waste, pending delivery of the waste to the first transporter designated on the manifest prepared under 335-14-5-.05(3)(e) or (f).

(e) Except as provided in 335-14-5-.05(3)(e)7, for full or partial load rejections and residues that are to be sent off-site to an alternate facility, the facility is required to prepare a new manifest in accordance with 335-14-3-.02(1)(a) and the following instructions:

1. Write the generator's U.S. EPA ID number in Item 1 of the new manifest. Write the generator's name and mailing address in Item 5 of the new manifest. If the mailing address is different from the generator's site address, then write the generator's site address in the designated space for Item 5.

2. Write the name of the alternate designated facility and facility's U.S. EPA ID number in the designated facility block (Item 8) of the new manifest.

3. Copy the manifest tracking number found in Item 4 of the old manifest to the Special Handling and Additional Information Block of the new manifest, and indicate that the shipment is a residue or rejected waste from the previous shipment.

4. Copy the manifest tracking number found in Item 4 of the new manifest to the manifest reference number line in the Discrepancy Block of the old manifest (Item 18a).

5. Write the DOT description for the rejected load or the residue in Item 9 (U.S. DOT Description) of the new manifest and write the container types, quantity, and volume(s) of waste.

6. Sign the Generator's/Offeror's Certification to certify, as the offeror of the shipment, that the waste has been properly packaged, marked and labeled and is in proper condition for transportation, and mail a signed copy of the manifest to the generator identified in Item 5 of the new manifest.

7. For full load rejections that are made while the transporter remains present at the facility, the facility may forward the rejected shipment to the alternate facility by completing Item 18b of the original manifest and supplying the information on the next destination facility in the Alternate Facility space. The facility must retain a copy of this manifest for its records, and then give the remaining copies of the manifest to the transporter to accompany the shipment. If the original manifest is not used, then the facility must use a new manifest and comply with 335-14-5-.05(3)(e)1-6.

(f) Except as provided by 335-14-5-.05(3)(f)7 of this section, for rejected wastes and residues that must be sent back to the generator, the facility is required to prepare a new manifest in accordance with 335-14-3-.02(1)(a) and the following instructions:

1. Write the facility's U.S. EPA ID number in Item 1 of the new manifest. Write the facility's name and mailing address in Item 5 of the new manifest. If the mailing address is different from the facility's site address, then write the facility's site address in the designated space for Item 5 of the new manifest.

2. Write the name of the initial generator and the generator's U.S. EPA ID number in the designated facility block (Item 8) of the new manifest.

3. Copy the manifest tracking number found in Item 4 of the old manifest to the Special Handling and Additional Information Block of the new manifest, and indicate that the shipment is a residue or rejected waste from the previous shipment.

4. Copy the manifest tracking number found in Item 4 of the new manifest to the manifest reference number line in the Discrepancy Block of the old manifest (Item 18a).

5. Write the DOT description for the rejected load or the residue in Item 9 (U.S. DOT Description) of the new manifest and write the container types, quantity, and volume(s) of waste.

6. Sign the Generator's/Offeror's Certification to certify, as offeror of the shipment, that the waste has been properly packaged, marked and labeled and is in proper condition for transportation.

7. For full load rejections that are made while the transporter remains at the facility, the facility may return the shipment to the generator with the original manifest by completing Item 18a and 18b of the manifest and supplying the generator's information in the Alternate Facility space. The facility must retain a copy for its records and then give the remaining copies of the manifest to the transporter to accompany the shipment. If the original manifest is not used, then the facility must use a new manifest and comply with 335-14-5-.05(3)(f)1-6. and 8.

8. For full or partial load rejections and container residues contained in non-empty containers that are returned to the generator, the facility must also comply with the exception reporting requirements in 335-14-3-.04(3).

(g) If a facility rejects a waste or identifies a container residue that exceeds the quantity limits for "empty" containers set forth in 335-14-2-.01(7)(7) after it has signed, dated, and returned a copy of the manifest to the delivering transporter or to the generator, the facility must amend its copy of the manifest to indicate the rejected wastes or residues in the discrepancy space of the amended manifest. The facility must also copy the manifest tracking number from Item 4 of the new manifest to the Discrepancy space of the amended manifest and must re-sign and date the manifest to certify to the information as amended. The facility must

retain the amended manifest for at least three years from the date of amendment, and must within 30 days, send a copy of the amended manifest to the transporter that received copies prior to their being amended. Facilities are not required to send the amended manifest to any transporter who is registered in the EPA's e-Manifest system. Registered transporters may obtain the signed and dated copy of a completed manifest from the EPA e-Manifest system in lieu of receiving the manifest through U.S. postal mail.

(4) 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 for three years (unless a different retention time is specified below):

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 335-14-5 - Appendix I. This information must be maintained in the operating record until closure of the facility;

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 that shows each cell or disposal area. For all facilities, this information must include cross-references to manifest document numbers if the waste was accompanied by a manifest. This information must be maintained in the operating record until closure of the facility;

3. Records and results of waste analyses performed as specified in 335-14-5-.02(4) and (8), 335-14-5-.14(15), 335-14-5-.15(2), 335-14-5-.27, 335-14-5-.28, 335-14-5-.29, 335-14-9-.01(4), and 335-14-9-.01(7);

4. Summary reports and details of all incidents that require implementing the contingency plan as specified in 335-14-5-.04(7)(i);

5. Records and results of inspections as required by 335-14-5-.02(6)(d) (except these data need be kept only three years);

6. Monitoring, testing, or analytical data, and corrective action where required by 335-14-5-.06, 335-14-5-.02(10), 335-14-5-.10(2), 335-14-5-.10(4), 335-14-5-.10(6), 335-14-5-.11(3), 335-14-5-.11(4),

335-14-5-.11(7), 335-14-5-.12(3), 335-14-5-.12(4), 335-14-5-.12(5), 335-14-5-.13(7), 335-14-5-.13(9), 335-14-5-.13(11), 335-14-5-.14(3), 335-14-5-.14(4), 335-14-5-.14(5), 335-14-5-.14(10), 335-14-5-.24(3), 335-14-5-.27, 335-14-5-.28, and 335-14-5-.29. This information must be maintained in the operating record for three years, except for records and results pertaining to groundwater monitoring and cleanup which must be maintained in the operating record until closure of the facility;

7. For off-site facilities, notices to generators as specified in 335-14-5-.02(3)(b);

8. All closure cost estimates under 335-14-5-.08(3), and, for disposal facilities, all post-closure cost estimates under 335-14-5-.08(5). This information must be maintained in the operating record until closure of the facility;

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 in 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 335-14-9-.01(5), a petition pursuant to 335-14-9-.01(6), or a certification under 335-14-9-.01(8), and the applicable notice required by a generator under 335-14-9-.01(7). This information must be maintained in the operating record until closure of the facility;

11. For an off-site treatment facility, a copy of the notice, and the certification and demonstration, if applicable, required by the generator or the owner or operator under 335-14-9-.01(7) or 335-14-9-.01(8);

12. For an on-site treatment facility, the information contained in the notice (except the manifest number), and the certification and demonstration, if applicable, required by the generator or the owner or operator under 335-14-9-.01(7) or 335-14-9-.01(8);

13. For an off-site land disposal facility, a copy of the notice, and the certification and demonstration, if

applicable, required by the generator or the owner or operator of a treatment facility under 335-14-9-.01(7) and 335-14-9-.01(8), whichever is applicable;

14. For an on-site land disposal facility, the information contained in the notice required by the generator or owner or operator of a treatment facility under 335-14-9-.01(7), except for the manifest number, and the certification and demonstration, if applicable, required under 335-14-9-.01(8), whichever is applicable;

15. For an off-site storage facility, a copy of the notice, and the certification and demonstration, if applicable, required by the generator or the owner or operator under 335-14-9-.01(7) or 335-14-9-.01(8);

16. For an on-site storage facility, the information contained in the notice (except the manifest number), and the certification and demonstration, if applicable, required by the generator or the owner or operator under 335-14-9-.01(7) or 335-14-9-.01(8);

17. Any records required under 335-14-5-.01(1)(j)13;

18. Monitoring, testing or analytical data where required by 335-14-5-.15(8) must be maintained in the operating record for five years; and

19. Certifications as required by 335-14-5-10(7)(f) must be maintained in the operating record until closure of the facility.

(5) Availability, retention, and disposition of records.

(a) All records, including plans, required under 335-14-5 must be furnished upon request, and made available at reasonable times for inspection by any officer, employee, or representative of the Department.

(b) The retention period for all records required under 335-14-5 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 335-14-5-.05(4)(b)2. must be submitted to the Department and local land authority upon closure of the facility.

(6) Biennial report. The owner or operator must prepare and submit a single copy of a biennial report to the Department by March 1 of each even numbered year. The biennial report must be submitted using the method(s) approved by the Department. The owner or

operator must retain copies of each biennial report for, at least, three (3) years from the due date of the report. The report must cover facility activities during the previous calendar year and must include:

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

(b) The calendar year covered by the report;

(c) For off-site facilities, the EPA identification number, name, and location address 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;

(d) A description and the quantity of each hazardous waste the facility received during the year. For off-site facilities, this information must be listed by EPA identification number of each generator;

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

(f) [Reserved];

(g) The most recent closure cost estimate under 335-14-5-.08(3), and, for disposal facilities, the most recent post-closure cost estimate under 335-14-5-.08(5);

(h) For generators who treat, store, or dispose of hazardous waste on-site, a description of the efforts undertaken during the year to reduce the volume and toxicity of waste generated;

(i) For generators who treat, store, or dispose of hazardous waste on-site, a description of the changes in volume and toxicity of waste actually achieved during the year in comparison to previous years to the extent such information is available for the years prior to 1984; and

(j) The certification signed by the owner or operator of the facility or his authorized representative.

(7) Unmanifested waste report.

(a) If a facility accepts for treatment, storage, or disposal any hazardous waste from an off-site source without an accompanying manifest, or without an accompanying shipping paper as described in 335-14-4-.02(1)(e)2., and if the waste is not excluded from the manifest requirement, then the owner or operator must prepare and submit a single copy of a report to the Department within 15 days after receiving the waste. The owner or operator must retain a copy of each unmanifested

waste report for, at least, three (3) years from the due date of the report. Such report must be designated "Unmanifested Waste Report" and include the following information:

1. The EPA identification number, name, and address of the facility;

2. The date the facility received the waste;

3. The EPA identification number, name, and address of the generator and the transporter, if available;

4. A description and the quantity of each unmanifested hazardous waste the facility received;

5. The method of treatment, storage, or disposal for each hazardous waste;

6. The certification signed by the owner or operator of the facility or his authorized representative; and

7. A brief explanation of why the waste was unmanifested, if known.

(b) Beginning on December 1, 2025, if a facility accepts for treatment, storage, or disposal any hazardous waste from an off-site source without an accompanying manifest, or without an accompanying shipping paper as described by § 263.20(e) of this chapter, and if the waste is not excluded from the manifest requirement by this chapter, then the owner or operator must prepare an electronic Unmanifested Waste Report in the EPA e-Manifest system for submission to the EPA within 15 days after receiving the waste. The Unmanifested Waste Report must contain the following information:

1. The EPA identification number, name and address of the facility;

2. The date the facility received the waste;

3. The EPA identification number, name and address of the generator and the transporter, if available;

4. A description and the quantity of each unmanifested hazardous waste the facility received;

5. The method of treatment, storage, or disposal for each hazardous waste;

6. The certification signed by the owner or operator of the facility or his authorized representative; and,

7. A brief explanation of why the waste was unmanifested, if known.

(8) Additional reports. In addition to submitting the biennial reports and unmanifested waste reports described in 335-14-5-.05(6) and (7), the owner or operator must also report to the Department:

(a) Releases, fires, and explosions as specified in 335-14-5-.04(7)(j);

(b) Facility closures as specified in 335-14-5-.07(6); and

(c) As otherwise required by rules 335-14-5-.06, 335-14-5-.11 through 335-14-5-.14, 335-14-5-.27, and 335-14-5-.28.

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335-14-5-.06 Releases From Solid Waste Management Units.

(1) Applicability.

(a)1. Except as provided in 335-14-5-.06(1)(b), the regulations in 335-14-5-.06 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 335-14-5-.06(1)(a)(2) 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.

2. All solid waste management units must comply with the requirements in 335-14-5-.06(12). 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 335-14-5-.06(2) through (11) in lieu of 335-14-5-.06(12) for purposes of detecting, characterizing, and responding to releases to the uppermost aquifer. The financial responsibility requirements of 335-14-5-.06(12) 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 335-14-5-.06 if:

1. The owner or operator is exempted under 335-14-5-.01;

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 run-on and run-off,

(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 post-closure 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 post-closure care period.

3. The Department finds, pursuant to 335-14-5-.13(11)(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 335-14-5-.13(9) has not shown a statistically significant increase in hazardous constituents below the treatment zone during the operating life of the unit. An exemption under 335-14-5-.06(1)(b) can only relieve an owner or operator of responsibility to meet the requirements of 335-14-5-.06 during the post-closure care period;

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 post-closure care period specified under 335-14-5-.07(8). This demonstration must be certified by a licensed professional geologist and/or registered professional 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 335-14-5-.06(1)(b) on assumptions that maximize the rate of liquid migration; or

5. He designs and operates a pile in compliance with 335-14-5-.12(1)(c).

(c) The requirements under 335-14-5-.06 apply during the active life of the regulated unit (including the closure period). After closure of the regulated unit, the requirements of 335-14-5-.06:

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 post-closure care period under 335-14-5-.07(8) if the owner or operator is conducting a detection monitoring program under 335-14-5-.06(9); or

3. Apply during the compliance period under 335-14-5-.06(7) if the owner or operator is conducting a compliance monitoring program under 335-14-5-.06(10) or a corrective action program under 335-14-5-.06(11).

(d) Requirements in 335-14-5-.06 may apply to miscellaneous units when necessary to comply with 335-14-5-.24(2) through (4).

(e) The regulations of 335-14-5-.06 apply to all owners and operators subject to the requirements of 335-14-8-.01(1)(c)7., when the Department issues either a post-closure permit or an enforceable document (as defined in 335-14-8-.01(1)(c)7.) to the facility. When the Department issues an enforceable

document, references in 335-14-5-.06 to "in the permit" mean "in the enforceable document".

(f) The Department may replace all or part of the requirements of 335-14-5-.06(2) through (11) applying to a regulated unit with alternative requirements for groundwater monitoring and corrective action for releases to groundwater set out in the permit [or in an enforceable document as defined in 335-14-8-.01(1)(c)7.] where the Department determines that:

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 335-14-5-.06(2) through (11) because alternative requirements will protect human health and the environment.

(2) Required programs.

(a) Owners and operators subject to 335-14-5-.06 must conduct a monitoring and response program as follows:

1. Whenever hazardous constituents under 335-14-5-.06(4) from a regulated unit are detected at the compliance point under 335-14-5-.06(6), the owner or operator must institute a compliance monitoring program under 335-14-5-.06(10). Detected is defined as statistically significant evidence of contamination as described in 335-14-5-.06(9)(f);

2. Whenever the groundwater protection standard under 335-14-5-.06(3) is exceeded, the owner or operator must institute a corrective action program under 335-14-5-.06(11). Exceeded is defined as statistically significant evidence of increased contamination as described in 335-14-5-.06(10)(d);

3. Whenever hazardous constituents under 335-14-5-.06(4) from a regulated unit exceed concentration limits under 335-14-5-.06(5) in groundwater between the compliance point under 335-14-5-.06(6) and the downgradient facility property boundary, the owner or operator must institute a corrective action program under 335-14-5-.06(11); or

4. In all other cases, the owner or operator must institute a detection monitoring program under 335-14-5-.06(9).

(b) The Department will specify in the facility permit the specific elements of the monitoring and response program. The Department may include one or more of the programs identified in 335-14-5-.06(2)(a) in the facility permit as may be necessary to protect human health and the environment and will specify the circumstances under which each of the programs will be required. In deciding whether to require the owner or operator to be prepared to institute a particular program, the Department will consider the potential adverse effects on human health and the environment that might occur before final administrative action on a permit modification application to incorporate such a program could be undertaken.

(3) 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 335-14-5-.06(4) detected in the groundwater from a regulated unit do not exceed the concentration limits under 335-14-5-.06(5) in the uppermost aquifer underlying the waste management area beyond the point of compliance under 335-14-5-.06(6) during the compliance period under 335-14-5-.06(7). The Department will establish this groundwater protection standard in the facility permit when hazardous constituents have been detected in the groundwater.

(4) Hazardous constituents.

(a) The Department will specify in the facility permit the hazardous constituents to which the groundwater protection standard of 335-14-5-.06(3) applies. Hazardous constituents are constituents identified in 335-14-2 - Appendix VIII 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 excluded them under 335-14-5-.06(4)(b).

(b) The Department will exclude a 335-14-2 - Appendix VIII constituent from the list of hazardous constituents specified in the facility permit if it finds that the constituent is not capable of posing a substantial present or potential hazard to human health or the environment. In deciding whether to grant an exemption, the Department will consider the following:

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 their cumulative impact on surface water quality;

(viii) The potential for health risks caused by human exposure to the 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 335-14-5-.06(4)(b) 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 by the Department.

(5) Concentration limits.

(a) The Department will specify in the facility permit concentration limits in the groundwater for hazardous constituents established under 335-14-5-.06(4). The concentration of a hazardous constituent:

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. Must not exceed the maximum contaminant levels for inorganic and organic chemicals in drinking water listed in 335-7-2-.03(1) or 335-7-2-.04(1) or Table I below, if the background level of the constituent is below the value given in either rule; or

TABLE 1

MAXIMUM CONCENTRATION OF CONSTITUENTS FOR GROUNDWATER PROTECTION

Constituent	**Maximum Concentration**[1]
Silver.....	0.01

[1]Milligrams per liter.

[NOTE: The standard for this parameter has been modified pursuant to the Federal Safe Drinking Water Act; however, this change has not been incorporated by EPA into the federal hazardous waste regulations under RCRA.]

3. Must not exceed an alternate limit established by the Department under 335-14-5-.06(5)(b).

(b) The Department will establish an alternate concentration limit for a hazardous constituent if it finds 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 establishing

alternate concentration limits, the Department will consider the following factors:

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 their 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;

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

(c) In making any determination under 335-14-5-.06(5)(b) about the use of groundwater in the area around the facility the Department will consider any identification of groundwater sources of drinking water and exempted aquifers made by the Department.

(6) Point of compliance.

(a) The Department will specify in the facility permit the point of compliance at which the groundwater protection standard of 335-14-5-.06(3) 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.

(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.

(7) Compliance period.

(a) The Department will specify in the facility permit the compliance period during which the groundwater protection standard of 335-14-5-.06(3) 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).

(b) The compliance period begins when the owner or operator initiates a compliance monitoring program meeting the requirements of 335-14-5-.06(10).

(c) If the owner or operator is engaged in a corrective action program at the end of the compliance period specified in 335-14-5-.06(7)(a), the compliance period is extended until the owner or operator can demonstrate that the groundwater protection standard of 335-14-5-.06(3) has not been exceeded for a period of three consecutive years.

(8) General groundwater monitoring requirements. The owner or operator must comply with the following requirements for any groundwater monitoring program developed to satisfy 335-14-5-.06(9), (10), or (11):

(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 groundwater that has not been affected by leakage from a regulated unit;

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

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

(II) 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; and

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. Monitoring wells must be operated and maintained in a manner to prevent soil, surface water, and/or groundwater contamination. This requirement includes the installation of protective barriers around monitoring wells where necessary to prevent damage to the well from traffic or other causes or as required on a case-by-case basis by the Department. All monitoring wells must have functional key or combination locks on the wellhead covers to prevent unauthorized access. All monitoring wells must be assigned an identifying number by the facility, and such numbers must be permanently affixed to the outer casing of each monitoring well.

(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 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 permit upon approval by the Department. This sampling procedure shall be:

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 permit. The statistical test chosen shall be conducted separately for each hazardous constituent in each well. Where practical quantification limits (pqls) are used in any of the following statistical procedures to comply with 335-14-5-.06(8)(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 335-14-5-.06(8)(i).

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 335-14-5-.06(8)(h) for specification in the permit shall comply with the following performance standards, as appropriate:

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 experiment wise 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 it 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 database, 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 335-14-5-.06(8)(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 335-14-5-.06(8)(g) including actual levels of constituents must be maintained in the facility operating record. The Department will specify in the permit when the data must be submitted for review.

(9) Detection monitoring program. An owner or operator required to establish a detection monitoring program under 335-14-5-.06 must, at a minimum, discharge the following responsibilities:

(a) The owner or operator must monitor for indicator parameters (e.g., pH, 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 Department will specify the parameters or constituents to be monitored in the facility permit, after considering the following factors:

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 335-14-5-.06(6). The groundwater monitoring system must comply with 335-14-5-.06(8)(a)2., (8)(b), and (8)(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 335-14-5-.06(9)(a) in accordance with 335-14-5-.06(8)(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 335-14-5-.06(8)(h).

(d) The Department 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 conditions under 335-14-5-.06(9)(a) in accordance with 335-14-5-.06(8)(g).

(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 or hazardous constituent specified in the permit pursuant to 335-14-5-.06(9)(a) at a frequency specified under 335-14-5-.06(9)(d).

1. In determining whether statistically significant evidence of contamination exists, the owner or operator must use the method(s) specified in the permit under 335-14-5-.06(8)(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 at the compliance point within a reasonable period of time after completion of sampling. The Department will specify in the facility permit 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 335-14-5-.06(9)(f) that there is statistically significant evidence of contamination for chemical parameters or hazardous constituents specified pursuant to 335-14-5-.06(9)(a) 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 335-14-5 - Appendix IX are present, and if so, in what concentration. However, the Department, on a discretionary basis, may allow sampling for a site-specific subset of constituents from the 335-14-5 – Appendix IX list and other representative/related waste constituents.

3. For any 335-14-5 - Appendix IX compounds found in the analysis pursuant to 335-14-5-.06(9)(g)2., the owner or operator may resample within one month or at an alternative site-specific schedule approved by the Director 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 in 335-14-5-.06(9)(g)2., the hazardous constituents found during this initial 335-14-5 - 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 335-14-5-.06(10). The application must include the following information:

(i) An identification of the concentration of any 335-14-5 - 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 335-14-5-.06(10).

(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 335-14-5-.06(10).

(iv) For each hazardous constituent detected at the compliance point, a proposed concentration limit under 335-14-5-.06(5)(a)1. or 2. or a notice of intent to seek an alternate concentration limit under 335-14-5-.06(5)(b).

5. Within 180 days, submit to the Department:

(i) All data necessary to justify an alternate concentration limit sought under 335-14-5-.06(5)(b); and

(ii) An engineering feasibility plan for a corrective action program necessary to meet the requirements of 335-14-5-.06(11), unless:

(I) All hazardous constituents identified under 335-14-5-.06(9)(g)2. are listed in 335-7-2-.03(1), 335-7-2-.04(1), or Table 1 of 335-14-5-.06(5) and their concentrations do not exceed the respective values given in those Tables; or

(II) The owner or operator has sought an alternate concentration limit under 335-14-5-.06(5)(b) for every hazardous constituent identified under 335-14-5-.06(9)(g)2.

6. If the owner or operator determines, pursuant to 335-14-5-.06(9)(f), that there is a statistically significant difference for chemical parameters or hazardous constituents specified pursuant to 335-14-5-.06(9)(a) 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 or operator may make a demonstration under 335-14-5-.06(9)(g) in addition to, or in lieu of, submitting a permit modification application under 335-14-5-.06(9)(g)4.; however, the owner or operator is not relieved of the requirement to submit a permit modification application within the time specified in 335-14-5-.06(9)(g)4. unless the demonstration made under 335-14-5-.06(9)(g) 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 335-14-5-.06(9)(g), the owner or operator must:

(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 335-14-5-.06(9)(g);

(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 335-14-5-.06(9).

(h) If the owner or operator determines that the detection monitoring program no longer satisfies the requirements of 335-14-5-.06(9), he or she must, within 90 days, submit an application for a permit modification to make any appropriate changes to the program.

(10) Compliance monitoring program. An owner or operator required to establish a compliance monitoring program under 335-14-5-.06 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 335-14-5-.06(3). The Department will specify the groundwater protection standard in the facility permit, including:

1. A list of the hazardous constituents identified under 335-14-5-.06(4);

2. Concentration limits under 335-14-5-.06(5) for each of those hazardous constituents;

3. The compliance point under 335-14-5-.06(6); and

4. The compliance period under 335-14-5-.06(7);

(b) The owner or operator must install a groundwater monitoring system at the compliance point as specified under 335-14-5-.06(6). The groundwater monitoring system must comply with 335-14-5-.06(8)(a)2., (8)(b), and (8)(c);

(c) The Department will specify the sampling procedures and statistical methods appropriate for the constituents and the facility, consistent with 335-14-5-.06(8)(g) and (h).

1. The owner or operator must conduct a sampling program for each chemical parameter or hazardous constituent in accordance with 335-14-5-.06(8)(g).

2. The owner or operator must record groundwater analytical data as measured and in form necessary for the determination of statistical significance under 335-14-5- .06(8)(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 335-14-5-.06(10)(a), at a frequency specified under 335-14-5-.06(10)(f).

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 335-14-5-.06(8)(h). The method(s) must compare data collected at the compliance point(s) to a concentration limit developed in accordance with 335-14-5-.06(5).

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 Department 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 Department will specify the frequencies for collecting samples and conducting statistical tests to determine statistically significant evidence of increased contamination in accordance with 335-14-5-.06(8)(g).

(g) Annually, the owner or operator must determine whether additional hazardous constituents from 335-14-5-Appendix IX, which could possibly be present but are not on the detection monitoring list in the permit, are actually present in the uppermost aquifer and, if so, at what concentration, pursuant to procedures in 335-14-5-.06(9)(f). To accomplish this, the owner or operator must consult with the Department to determine on a case-by-case basis: which sample collection event during the year will involve enhanced sampling; the number of monitoring wells at the compliance point to undergo enhanced sampling; the number of samples to be collected from each of these monitoring wells; and the specific constituents from 335-14-5-Appendix IX for which these samples must be analyzed. If the enhanced sampling event indicates that 335-14-5-Appendix IX constituents are present in the groundwater that are not already identified in the permit as monitoring constituents, the owner or operator may resample within one month or at an alternative site-specific schedule approved by the Department, and repeat the 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.

(h) If the owner or operator determines, pursuant to 335-14-5-.06(10)(d) that any concentration limits under 335-14-5-.06(5) are being exceeded at any monitoring well at the point of compliance, he or she must:

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 335-14-5-.06(11) within 180 days, or within 90 days if an engineering feasibility study has been previously submitted to the Department under 335-14-5-.06(9)(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 335-14-5-.06(10)(a); 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 335-14-5-.06(10).

(i) If the owner or operator determines, pursuant to 335-14-5-.06(10)(d), that the groundwater concentration limits under 335-14-5-.06(10) 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 335-14-5-.06(10)(i), the owner or operator must:

1. Notify the Department in writing within seven days that he intends to make a demonstration under 335-14-5-.06(10);

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 335-14-5-.06(10).

(j) If the owner or operator determines that the compliance monitoring program no longer satisfies the requirements of 335-14-5-.06(10), he must, within 90 days, submit an application for a permit modification to make any appropriate changes to the program.

(11) Corrective action program. An owner or operator required to establish a corrective action program under 335-14-5-.06 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 335-14-5-.06(3). The Department will specify the groundwater protection standard in the facility permit, including:

1. A list of the hazardous constituents identified under 335-14-5-.06(4);

2. Concentration limits under 335-14-5-.06(5) for each of those hazardous constituents;

3. The compliance point under 335-14-5-.06(6); and

4. The compliance period under 335-14-5-.06(7).

(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 permit will specify the specific measures that will be taken.

(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 335-14-5-.06(10)(i)2.

(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 335-14-5-.06(10) and must be as effective as that program in determining compliance with the groundwater protection standard under 335-14-5-.06(3) and in determining the success of a corrective action program under 335-14-5-.06(11)(e), where appropriate.

(e) In addition to the other requirements of 335-14-5-.06(11), the owner or operator must conduct a corrective action program to remove or treat in place any hazardous constituents under 335-14-5-.06(4) that exceed concentration limits under 335-14-5-.06(5) in groundwater:

1. Between the compliance point under 335-14-5-.06(6) and the downgradient property boundary;

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 off-site access is denied. On-site measures to address such releases will be determined on a case-by-case basis.

3. Corrective action measures under 335-14-5-.06(11)(e) must be initiated and completed within a reasonable period of time considering the extent of contamination; and

4. Corrective action measures under 335-14-5-.06(11)(e) may be terminated once the concentrations of hazardous constituents under 335-14-5-.06(4) are reduced to levels below their respective concentration limits under 335-14-5-.06(5).

(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 335-14-5-.06(11)(d), that the groundwater protection standard of 335-14-5-.06(3) has not been exceeded for a period of three consecutive years. After such demonstration has been determined adequate by the Department, the owner or operator shall implement a monitoring plan under 335-14-5-.06(9) or (10) as specified by the Department.

(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 annually.

(h) If the owner or operator determines that the corrective action program no longer satisfies the requirements of 335-14-5-.06(11), he must, within 90 days, submit an application for a permit modification to make any appropriate changes to the program.

(i) The owner or operator must provide financial assurance for corrective action in compliance with 335-14-5-.06(12)(e).

(12) Corrective action for solid waste management units.

(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.

(b) Corrective action will be specified in the permit in accordance with 335-14-5-.06 and 335-14-5-.19. The permit will contain schedules of compliance for such corrective action (where such corrective action cannot be completed prior to issuance of the permit) and land use controls as required by 335-14-5-.06(12)(f).

(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 off-site access is denied. On-site measures to address such releases will be determined on a case-by-case basis.

(d) 335-14-5-.06(12) 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.

(e) The owner or operator must maintain a detailed estimate of the cost of corrective action required by Rules 335-14-5-.06(11, 335-14-5-.06(12)(b), and 335-14-5-.06(12)(c). The cost estimate must be in accordance with 335-14-5-.08(10). Financial assurance must be provided in accordance with 335-14-5-.08(11).

(f) Where corrective actions will result in hazardous constituents remaining in place at a facility in concentrations exceeding those appropriate for unrestricted use, the owner or operator must:

1. Establish appropriate land-use controls designed to minimize exposure to hazardous constituents remaining in place and to limit inappropriate uses of the contaminated areas of the facility; and

2. include the following notice in any deed, mortgage, deed to secure debt, lease, rental agreement, or other instrument given or caused to be given by the owner or operator which creates an interest in the facility or the contaminated area of the facility: "This property has been cleaned up to standards less stringent than those required for unrestricted use due to the presence of substances regulated under state law. Certain uses of this property may require additional cleanup. Contact the property owner or the Alabama Department of Environmental Management for further information concerning this property"; and

3. submit documentation of compliance with the requirements of the Uniform Environmental Covenants Program in ADEM Admin. Code div. 335-5.

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335-14-5-.07 Closure And Post-Closure.

(1) Applicability. Except as 335-14-5-.01(1) provides otherwise:

(a) 335-14-5-.07(2) through (6) (which concern closure) apply to the owners and operators of all hazardous waste management facilities and CAMUs; and

(b) 335-14-5-.07(7) through (11) (which concern post-closure care) apply to the owners and operators of:

1. All hazardous waste disposal facilities;

2. Waste piles, surface impoundments, and drip pads from which the owner or operator intends to remove the wastes at closure to the extent that these paragraphs are made applicable to such facilities in 335-14-5-.12(9), 335-14-5-.11(9), or 335-14-5-.23(6);

3. Tank systems that are required under 335-14-5-.10(8) to meet the requirements for landfills;

4. Containment buildings that are required under 335-14-5-.30(3) to meet the requirements for landfills;

5. Corrective action management units in which wastes remain after closure; and

6. Other hazardous waste management units which are unable to demonstrate closure by removal.

(c) The Department may replace all or part of the requirements of 335-14-5-.07 (and the unit-specific standards referenced in 335-14-5-.07(2)(c) applying to a regulated unit, with alternative requirements set out in a permit or in an enforceable document (as defined in 335-14-8-.01(1)(c)7.), where the Department determines that:

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 to closure requirements of 335-14-5-.07 (and those referenced herein) because the alternative requirements will protect human health and the environment and will satisfy the closure performance standard of 335-14-5-.07(2)(a) and (b).

(2) Closure performance standards. 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, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the ground or surface waters or to the atmosphere; and

(c) Complies with the closure requirements of 335-14-5-.07, including, but not limited to, the requirements of 335-14-5-.09(9), 335-14-5-.10(8), 335-14-5-.11(9), 335-14-5-.12(9), 335-14-5-.13(11), 335-14-5-.14(11), 335-14-5-.15(12), 335-14-5-.19(1) through (3), 335-14-5-.23(6), 335-14-5-.24(2) through (4), 335-15-5-.30(3), and 335-14-7-.08(3) [40 CFR 266.102(e)(11)].

(3) 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, waste piles, and drip pads from which the owner or operator intends to remove or decontaminate the hazardous waste at partial or final closure are required by 335-14-5-.11(9)(c)1.(i), 335-14-5-.12(9)(c)1.(i), and 335-14-5-.23(6)(c)1.(i) to have contingent closure plans. The plan must be submitted with the permit application, in accordance with 335-14-8-.02(5)(b)13., and approved by the Director as part of the permit issuance procedures. In accordance with 335-14-8-.03(3), the approved closure plan will become a condition of any AHWMMA permit.

2. The Director's approval of the plan must ensure that the approved closure plan is consistent with 335-14-5-.07(2) through (6) and the applicable requirements of 335-14-5-.06(1) et seq., 335-14-5-.09(9), 335-14-5-.10(8), 335-14-5-.11(9), 335-14-5-.12(9), 335-14-5-.13(11), 335-14-5-.14(11), 335-14-5-.15(12), 335-14-5-.19(1) through (3), 335-14-5-.23(6), 335-14-5-.24(2), 335-14-5-.30(3) and 335-14-7-.08(3) [40 CFR 266.102(e)(11)]. Until final closure is completed and certified in

accordance with 335-14-5-.07(6), a copy of the approved plan and all approved revisions must be furnished to the Director upon request, including requests by mail.

(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 335-14-5-.07(2);

2. A description of how final closure of the facility will be conducted in accordance with 335-14-5-.07(2). The description must identify the maximum extent of the operations which will be unclosed during the active life of the facility;

3. An estimate of the maximum inventory of hazardous wastes ever on-site 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 off-site 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;

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 run-on and run-off control; and

6. A schedule for closure for 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 335-14-5-.08(4) and (6) 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 335-14-5-.06(1)(f), 335-14-5-.07(1)(c), and/or 335-14-5-.08(1)(e), either the alternative requirements applying to the regulated unit, or a reference to the enforceable document containing those alternative requirements.

(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 procedures in 335-14-8. The written request must include a copy of the amended closure plan for review or approval by the Director.

1. The owner or operator may submit a written request to the Director 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 335-14-5-.06(1)(f), 335-14-5-.07(1)(c), and/or 335-14-5-.08(1)(e).

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, waste pile, or drip pad that intends to remove all hazardous waste at closure and is not otherwise required to prepare a contingent closure plan under 335-14-5-.11(9)(c)1.(i), 335-14-5-.12(9)(c)1 .(i), or 335-14-5-.23(6)(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 Director determines that the hazardous waste management unit must be closed as a landfill, subject to the requirements of 335-14-5-.14(11), 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 335-14-8. In accordance with 335-14-8-.03(3), the approved closure plan will become a condition of any AHWMMA permit issued.

4. The Department may request modifications to the plan under the conditions described in 335-14-5-.07(3)(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 335-14-8.

(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:

(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 waste. 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 335-14-5-.07(4)(d), no later than 30 days after the date on which the hazardous waste management unit receives the known final volume of non-hazardous wastes, or if there is a reasonable possibility that the hazardous waste management unit will receive additional non-hazardous wastes, no later than one year after the date on which the unit received the most recent volume of non-hazardous wastes. If the owner or operator can demonstrate to the Department that the hazardous waste management unit has the capacity to receive additional non-hazardous 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 under Section 3008 of RCRA, to cease receiving hazardous wastes or to close, then the requirements of 335-14-5-.07(3) do not apply. However, the owner or operator must close the facility in accordance with the deadlines established in 335-14-5-.07(4).

(e) Nothing in 335-14-5-.07 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.

(4) Closure: time allowed for closure.

(a) Within 90 days after receiving the final volume of hazardous wastes, or the final volume of non-hazardous wastes if the owner or operator complies with all applicable requirements in 335-14-5-.07(4)(d) and (e), at a hazardous waste management unit or facility, the owner or operator must

treat, remove from the unit or facility, or dispose of on-site, 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:

1.(i) The activities required to comply with 335-14-5-.07(4) will, of necessity, take longer than 90 days to complete; or

(ii)(I) The hazardous waste management unit or facility has the capacity to receive additional hazardous wastes, or has the capacity to receive non-hazardous wastes if the owner or operator complies with 335-14-5-.07(4)(d) and (e);

(II) 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

(III) 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 non-hazardous wastes if the owner or operator complies with all applicable requirements in 335-14-5-.07(4)(d) and (e), at the hazardous waste management unit or facility. The Director 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:

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

(ii)(I) The hazardous waste management unit or facility has the capacity to receive additional hazardous wastes, or has the capacity to receive non-hazardous wastes if the owner or operator complies with 335-14-5-.07(4)(d) and (e);

(II) There is reasonable likelihood that he or another person will recommence operation of the

hazardous waste management unit or the facility within one year; and

(III) 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 335-14-5-.07(4)(a)1. and (b)1. must be made as follows:

1. The demonstrations in 335-14-5-.07(4)(a)1. must be made at least 30 days prior to the expiration of the 90-day period in 335-14-5-.07(4)(a); and

2. The demonstration in 335-14-5-.07(4)(b)1. must be made at least 30 days prior to the expiration of the 180-day period in 335-14-5-.07(4)(b), unless the owner or operator is otherwise subject to the deadlines in 335-14-5-.07(4)(d).

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

1. The owner or operator requests a permit modification in compliance with all applicable requirements in 335-14-8 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 non-hazardous wastes; and

(ii) There is a reasonable likelihood that the owner or operator or another person will receive non-hazardous wastes in the unit within one year after the final receipt of hazardous wastes; and

(iii) The non-hazardous 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 closure and post-closure plans, and updated cost estimates and demonstrations of financial assurance for closure and post-closure care as necessary and appropriate, to reflect any changes due to the presence of hazardous constituents in the non-hazardous wastes, and changes in closure activities, including the expected year of closure if applicable under 335-14-5-.07(3)(b)7., as a result of the receipt of non-hazardous wastes following the final receipt of hazardous wastes; 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 non-hazardous wastes following receipt of the final volume of hazardous wastes; and

4. The request to modify the permit and the demonstrations referred to in 335-14-5-.07(4)(d)1. and (d)2. are submitted to the Director 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 335-14-5-.07, whichever is later.

(e) In addition to the requirements in 335-14-5-.07(4)(d), 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) and 3005(j)(1) or 42 U.S.C. 3004(o)(2) or (3) or 3005(j)(2), (3), (4), or (13) must:

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 335-14-5-.06(10); and

(ii) A plan for removing hazardous wastes in compliance with 335-14-5-.07(4)(e)2.; 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 Director 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 Rule 335-14-5-.06, the owner or operator of the unit:

(i) Must implement corrective measures in accordance with the approved contingent corrective measures plan required by 335-14-5-.07(4)(e)1. 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 Director 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 annual reports to the Director describing the progress of the corrective action program, compile all groundwater monitoring data, and evaluate the effect of the continued receipt of non-hazardous wastes on the effectiveness of the corrective action.

6. The Director 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 335-14-5-.

07(4)(e)4., 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 335-14-5-.07(4)(e)4. if the Director determines that substantial progress has not been made pursuant to 335-14-5-.07(4)(e)6., he shall:

(i) Notify the owner or operator in writing that the owner or operator must begin closure in accordance with the deadlines in 335-14-5-.07(4)(a) and (b) and provide a detailed statement of reasons for this determination.

(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 Director receives no written comments, the decision will become final five days after the close of the comment period. The Director 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 335-14-5-.07(4)(a) and (b).

(iv) If the Director 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 Director determines that substantial progress has not been made, closure must be initiated in accordance with the deadlines in 335-14-5-.07(4)(a) and (b).

(v) The final determinations made by the Director under 335-14-5-.07(4)(e)7.(iii) and (iv) are not subject to administrative appeal.

(5) 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 335-14-5-.09(9), 335-14-5-.10(8), 335-14-5-.11(9), 335-14-5-.12(9), 335-14-5-.13(11), 335-14-5-.14(11), 335-14-5-.19(1) through (3), 335-14-5-.23(6), 335-14-5-.24, or 335-14-5-.30(3). 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 335-14-3.

(6) 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 Director, 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 professional engineer's certification must be furnished to the Director upon request until he releases the owner or operator from the financial assurance requirements for closure under 335-14-5-.08(4)(i).

(7) Survey plat.

(a) 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 Director, a survey plat indicating the location and dimensions of landfill cells or other hazardous waste disposal units with respect to permanently surveyed benchmarks. This plat must be prepared and certified by a professional land surveyor. 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 requirements of 335-14-5-.07; and

(b) Where closure does not achieve the standard of unrestricted use, the owner or operator or other responsible person must provide documentation of compliance with the requirements of the Uniform Environmental Covenants Program in ADEM Admin. Code div. 335-5.

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

(a)1. Post-closure care for each hazardous waste management unit subject to the requirements of 335-14-5-.07(8) through (11) must begin after completion of closure of the unit and continue for 30 years after that date, or for 30 years after the date of issuance of a post-closure permit or in an enforceable document (as defined in 335-14-8-.01(1)(c)7.), whichever is later. Post-closure care must consist of at least the following:

(i) Monitoring and reporting in accordance with the requirements of 335-14-5-.06, .11, .12, .13, .14, .23, and .24; and

(ii) Maintenance and monitoring of waste containment systems in accordance with the requirements of 335-14-5-.06, .11, .12, .13, .14, .23, and .24.

2. Any time preceding partial closure of a hazardous waste management unit subject to post-closure care requirements or final closure, or any time during the post-closure period for a particular unit, the Department may, in accordance with the permit modification procedures in 335-14-8:

(i) Shorten the post-closure 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 post-closure 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).

(iii) The post-closure care period automatically extends through any time during which hazardous wastes remains in a hazardous waste management unit unless the owner/operator is able to demonstrate closure by removal in accordance with 335-14-8-.01(1)c)5.

(b) The Department may require, at partial and final closure, continuation of any of the security requirements of 335-14-5-.02(5) during part or all of the post-closure care 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) Post-closure use of property on or in which hazardous wastes remain after partial or final closure must never be allowed to disturb the integrity of the final cover, 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:

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 post-closure care activities must be in accordance with the provisions of the approved post-closure plan as specified in 335-14-5-.07(9).

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

(a) Written plan. The owner or operator of a hazardous waste disposal unit must have a written post-closure plan. In addition, certain surface impoundments, waste piles, and drip pads from which the owner or operator intends to remove or decontaminate the hazardous wastes at partial or final closure are required by 335-14-5-.11(9)(c)1.(ii), 335-14-5-.12(9)(c)1.(ii), and 335-14-5-.23(6)(c)1.(ii) to have contingent post-closure plans. Owners or operators of surface impoundments, waste piles, and drip pads not otherwise required to prepare contingent post-closure plans under 335-14-5-.11(9)(c)1.(ii), 335-14-5-.12(9)(c)1.(ii), and 335-14-5-.23(6)(c)1.(ii) and other hazardous waste management units and CAMUs which cannot demonstrate closure by removal must submit a post-closure plan to the Director within 90 days from the date that the owner or operator or Director determines that the hazardous waste management unit must be closed as a landfill, subject to the requirements of Rules 335-14-5-.07(8) through (11). The plan must be submitted with the permit application, in accordance with 335-14-8-.02(5)(b)13. and approved by the Director as part of the permit issuance procedures under 335-14-8. In accordance with 335-14-8-.03(3), the approved post-closure plan will become a condition of any AHWMMA permit issued.

(b) For each hazardous waste management unit subject to the requirements of 335-14-5-.07, the post-closure plan must identify the activities that will be carried on after closure of each disposal unit and the frequency of these activities, and include at least:

1. A description of the planned monitoring activities and frequencies at which they will be performed to comply with Rules 335-14-5-.06, .09, .10, .11, .12, .13, .14, .

19, .23, .24, and .30 during the post-closure care period; and

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

(i) The integrity of the cap and final cover or other containment systems in accordance with the requirements of 335-14-5-.06, .09, .10, .11, .12, .13, .14, .19, .23, .24, and .30; and

(ii) The function of the monitoring equipment in accordance with the requirements of 335-14-5-.06, .09, .10, .11, .12, .13, .14, .19, .23, .24, and .30; and

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

4. For facilities where the Department has applied alternative requirements at a regulated unit under 335-14-5-.06(1)(f), 335-14-5-.07(1)(c), and/or 335-14-.08(1)(e), either the alternative requirements that apply to the regulated unit, or a reference to the enforceable document containing those requirements.

(c) Until final closure of the facility, a copy of the approved post-closure 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 335-14-5-.07(9)(b)3. must keep the approved post-closure plan during the remainder of the post-closure 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 post-closure plan in accordance with the applicable requirements of 335-14-8. The written request must include a copy of the amended post-closure plan for review or approval by the Department.

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

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

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

(iv) The owner or operator requests the Department to apply alternative requirements to a regulated unit under 335-14-5-.06(1)(f), 335-14-5-.07(1)(c), and/or 335-14-5-.08(1)(e).

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 post-closure plan. An owner or operator of a surface impoundment, waste pile or drip pad that intends to remove all hazardous waste at closure and is not otherwise required to submit a contingent post-closure plan under 335-14-5-.11(9)(c)1.(ii), 335-14-5-.12(9)(c)1.(ii), and 335-14-5-.23(6)(c)1.(ii) must submit a post-closure plan to the Department no later than 90 days after 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 Rule 335-14-5-.14(11). The Department will approve, disapprove, or modify this plan in accordance with the procedures in 335-14-8. In accordance with 335-14-8-.03(3), the approved post-closure plan will become a permit condition.

4. The Department may request modifications to the plan under the conditions described in 335-14-5-.07(9)(d)2. The owner or operator must submit the modified plan no later than 60 days after the Department's request, or no later than 90 days if the unit is a surface impoundment, waste pile, or drip pad not previously required to prepare a contingent post-closure plan. Any modifications requested by the Department will be approved, disapproved, or modified in accordance with the procedures in 335-14-8.

(10) Post-closure 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.

(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 of Alabama 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 Rule 335-14-5-.07; 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 335-14-5-.07(7) and 335-14-5-.07(10)(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 335-14-5-.07(10)(b)1., 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 post-closure permit in accordance with the applicable requirements in 335-14-8. The owner or operator must demonstrate that the removal of hazardous wastes will satisfy the criteria of 335-14-5-.07(8)(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 Division 335-14. If he is granted a permit modification or otherwise granted approval to conduct such removal activities, the owner or operator may request that the Director 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.

(11) Certification of completion of post-closure care. No later than 60 days after completion of the established post-closure care period for each hazardous waste disposal unit, the owner or operator must submit to the Department, by registered mail, a certification that the post-closure care period for the hazardous waste disposal unit was performed in accordance with the specifications in the approved post-closure plan. The certification must be signed by the owner or operator and an independent registered professional engineer. Documentation supporting the professional engineer's certification must be furnished to the Department upon request until the Director releases the owner or operator from the financial assurance requirements for post-closure care under 335-14-5-.08(6)(i).
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335-14-5-.08 Financial Requirements.

(1) Applicability.

(a) The requirements of 335-14-5-.08(3), (4), and (8) through (12) apply to owners and operators of all hazardous waste facilities and CAMUs, except as provided otherwise in 335-14-5-.08(1) or 335-14-5-.01(1).

(b) The requirements of 335-14-5-.08(5), (6), and (7) 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 wastes at closure, to the extent that these paragraphs are made applicable to such facilities in 335-14-5-.11(9) and 335-14-5-.12(9);

3. Tank systems that are required under 335-14-5-.10(8) to meet the requirements for landfills;

4. Containment buildings that are required under 335-14-5-.30(3) to meet the requirements for landfills;

5. Corrective action management units in which wastes remain after closure; and

6. Other hazardous waste management units which are unable to demonstrate closure by removal.

(c) The requirements of 335-14-5-.08(10) and (11) apply to owners and operators of all facilities required to perform corrective actions pursuant to 335-14-5-.06(11) or (12), section 3008(h) or RCRA, as applicable.

(d) Except for the requirements to provide and update cost estimates, as described in 335-14-5-.08(3), 335-14-5-.08(5), and 335-14-5-.08(10), the State of Alabama and the Federal government are exempt from the requirements of 335-14-5-.08.

(e) The Department may replace all or part of the requirements of 335-14-5-.08 applying to a regulated unit with alternative requirements for financial assurance set out in the permit or in an enforceable document [as defined in 335-14-8-.01(1)(c)7.], where the Department:

1. Prescribes alternative requirements for the regulated unit under 335-14-5-.06(1)(f) and/or 335-14-5-.07(1)(c); and

2. Determines that it is not necessary to apply the requirements of 335-14-5-.08 because the alternative financial assurance requirements will protect human health and the environment.

(2) [Reserved]

(3) Cost estimate for closure.

(a) The owner or operator must have a detailed written estimate, in a format specified by the Department, in current dollars, of the cost of closing the facility in accordance with the requirements in 335-14-5-.07(2) through (6) and applicable closure requirements in 335-14-5-.09(9), 335-14-5-.

10(8), 335-14-5-.11(9), 335-14-5-.12(9), 335-14-5-.13(11), 335-14-5-.14(11), 335-14-5-.15(12), 335-14-5-.19(1) through (3), 335-14-5-.23(6), 335-14-5-.24(2) through (4), and 335-14-5-.30(3).

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; and

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 335-14-1-.02.) The owner or operator may use costs for on-site disposal if he can demonstrate that on-site disposal capacity will exist at all times over the life of the facility.

3. The closure-cost estimate may not incorporate any salvage value that may be realized with the sale of hazardous wastes, or non-hazardous wastes if applicable under 335-14-5-.07(4)(d), facility structures or equipment, land, or other assets associated with the facility at the time of partial or final closure.

4. The owner or operator may not incorporate a zero cost for hazardous wastes, or non-hazardous wastes if applicable under 335-14-5-.07(4)(d), that might have economic value.

(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 335-14-5-.08(4). 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 335-14-5-.08(4)(f)5. 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 335-14-5-.08(3)(b)1. and 2. 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 revised closure-cost estimate must be adjusted for inflation as specified in 335-14-5-.08(3).

(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 335-14-5-.08(3)(a) and (3)(c) and, when this estimate has been adjusted in accordance with 335-14-5-.08(3)(b), the latest adjusted closure cost estimate.

(4) 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 335-14-5-.08(4)(a) through (f).

(a) Closure trust fund.

1. An owner or operator may satisfy the requirements of 335-14-5-.08(4) by establishing a closure trust fund which conforms to the requirements of 335-14-5-.08(4)(a) 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 335-14-5-.08(12)(a)1. and the trust agreement must be accompanied by a formal certification of acknowledgment (for example, see 335-14-5-.08(12)(a)2.). Schedule A of the trust agreement must be updated and an originally signed duplicate must be submitted to the Department, within 60 days after a change in the amount of the current closure cost estimate covered by the agreement.

3. Payments into the trust fund must be made annually by the owner or operator over the term of the initial Hazardous Waste Facility Permit, over the remaining operating life of the facility as estimated in the

closure plan, or eight years, whichever period is shorter. The payments into the closure trust fund must be made as follows:

(i) For a new facility, the first payment must be made before the initial receipt of hazardous waste for treatment, storage, or disposal. A receipt from the trustee for this payment must be submitted by the owner or operator to the Department before the initial receipt of hazardous waste. Subsequent payments must be made no later than 30 days after the anniversary date of the first payment. Payments must be made according to the following schedule:

(I) If the initial permit is for a term of one year, 100% of the current closure cost estimate must be paid initially;

(II) If the initial permit is for a term of two years, 50% of the current closure cost estimate must be paid each of the two years;

(III) If the initial permit is for a term of three years, 34% of the current closure cost estimate must be paid initially and 33% of the current closure cost estimate must be paid each of the two subsequent years;

(IV) If the initial permit is for a term of four years, 25% of the current closure cost estimate must be paid each of the four years;

(V) If the initial permit is for a term of five years, 20% of the current closure cost estimate must be paid each of the five years;

(VI) If the initial permit is for a term of six years, 20% of the current closure cost estimate must be paid each of the first four years and 10% of the current closure cost estimate must be paid each of the two subsequent years;

(VII) If the initial permit is for a term of seven years, 20% of the current closure cost estimate must be paid each of the first three years and 10% of the current closure cost estimate must be paid each of the four subsequent years; and

(VIII) If the initial permit is for a term of eight years or longer, 20% of the current closure cost estimate must be paid each of the first two years and 10% of the current closure cost

estimate must be paid each of the six subsequent years;

(ii) Following the initial payment, all subsequent annual payments must reconcile any difference between the actual value of the trust fund and the required value of the trust fund. The required value of the trust fund accounts for adjustments to the closure-cost estimate made in accordance with 335-14-5-.08(3), and may be calculated by determining the value of the trust fund if the current payment and all previous payments were made using the current closure-cost estimate.

(iii) If an owner or operator of an existing facility establishes a trust fund as specified in 335-14-6-.08(4)(a), and the value of the trust fund is less than the current closure cost estimate when a permit is issued for the facility, the amount of the current closure cost estimate still to be paid into the trust fund must be paid according to the schedule set out in 335-14-5-.08(4)(a)3.(i).

4. The owner or operator may accelerate payments into the trust fund or he may deposit the full amount of the current closure cost estimate at the time the fund is established. However, he must maintain the value of the fund at no less than the value that the fund would have if annual payments were made as specified in 335-14-5-.08(4)(a)3.

5. If the owner or operator establishes a closure trust fund after having used one or more alternate mechanisms specified in 335-14-5-.08(4) or 335-14-6-.08(4), his first payment must be in at least the amount that the fund would contain if the trust fund were established initially and annual payments made according to specifications of 335-14-5-.08(4)(a) and 335-14-6-.08(4)(a), as applicable.

6. After the pay-in period is completed, 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 335-14-5-.08(4) 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 335-14-5-.08(4) 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 335-14-5-.08(4)(a)7. or (a)8., 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, he may withhold reimbursements of such amounts as he deems prudent until he determines, in accordance with 335-14-5-.08(4)(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, he 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 335-14-5-.08(4); or

(ii) The Department releases the owner or operator from the requirements of 335-14-5-.08(4) in accordance with 335-14-5-.08(4)(i).

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

1. An owner or operator may satisfy the requirements of 335-14-5-.08(4) by obtaining a surety bond which conforms to the requirements of 335-14-5-.08(4)(b) 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 335-14-5-.08(12)(b).

3. The owner or operator who uses a surety bond to satisfy the requirements of 335-14-5-.08(4) 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 335-14-5-.08(4)(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 335-14-5-.08(4), the following are not required by these regulations:

(I) Payments into the trust fund as specified in 335-14-5-.08(4)(a);

(II) Updating of Schedule A of the trust agreement (see 335-14-5-.08(12)(a)) to show current closure cost estimates;

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

(IV) 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

(iii) Provide alternate financial assurance as specified in 335-14-5-.08(4) 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 335-14-5-.08(4)(g).

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 335-14-5-.08(4) 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 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 335-14-5-.08(4); or

(ii) The Department releases the owner or operator from the requirements of 335-14-5-.08(4) in accordance with 335-14-5-.08(4)(i).

(c) Surety bond guaranteeing performance of closure.

1. An owner or operator may satisfy the requirements of 335-14-5-.08(4) by obtaining a surety bond which conforms to the requirements of 335-14-5-.08(4)(c) 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 335-14-5-.08(12)(c).

3. The owner or operator who uses a surety bond to satisfy the requirements of 335-14-5-.08(4) 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 335-14-5-.08(4)(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 335-14-5-.08, the following are not required by these regulations:

(I) Payments into the trust fund as specified in 335-14-5-.08(4)(a);

(II) Updating of Schedule A of the trust agreement (see 335-14-5-.08(12)(a)) to show current closure cost estimates;

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

(IV) 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 335-14-5-.08, 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 Sections 22-30-19 and 22-22A-7, Code of Alabama 1975, 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 335-14-5-.08(4). 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 335-14-5-.08(4); or

(ii) The Department releases the owner or operator from the requirements of 335-14-5-.08(4) in accordance with 335-14-5-.08(4)(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 335-14-5-.08(4) in accordance with 335-14-5-.08(4)(i).

(d) Closure letter of credit.

1. An owner or operator may satisfy the requirements of 335-14-5-.08(4) by obtaining an irrevocable standby letter of credit which conforms to the requirements of 335-14-5-.08(4)(d) 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 335-14-5-.08(12)(d).

3. An owner or operator who uses a letter of credit to satisfy the requirements of 335-14-5-.08(4) 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 335-14-5-.08(4)(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 335-14-5-.08(4), the following are not required by these regulations:

(I) Payments into the trust fund as specified in 335-14-5-.08(4)(a);

(II) Updating of Schedule A of the trust agreement (see 335-14-5-.08(12)(a)) to show current closure cost estimates;

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

(IV) 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 one year. The letter of credit must provide that the expiration date will be automatically extended for a period of at least one year unless, at least 120 days before the current expiration date, the issuing institution notifies both the owner or operator and the 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 335-14-5-.08(4)(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 335-14-5-.08(4) 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 Sections 22-30-19 and 22-22A-7, Code of Alabama 1975, 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.

9. If the owner or operator does not establish alternate financial assurance as specified in 335-14-5-.08(4) 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 335-14-5-.08(4) 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 335-14-5-.08(4); or

(ii) The Department releases the owner or operator from the requirements of 335-14-5-.08(4) in accordance with 335-14-5-.08(4)(i).

(e) Closure insurance.

1. An owner or operator may satisfy the requirements of 335-14-5-.08(4) by obtaining closure insurance which conforms to the requirements of 335-14-5-.08(4)(e) and submitting an originally signed 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 the State of Alabama, and must not be captive insurance as defined in 335-14-51-.02

unless the requirements of 335-14-5-.08(4)(e)1.(ii) are met.

(i) The use of insurance to demonstrate financial assurance for closure and post-closure care pertains exclusively to those insurance policies underwritten by commercial property and casualty insurers (primary or excess and surplus lines), through which, in the insurance contract, the financial burden for closure and post-closure care is transferred to the third-party insurer. Except as provided in 335-14-5-.08(4)(e)1.(ii), the third-party insurer must assume financial responsibility for this accepted risk, using its own pool of resources that is independent, separate, and unrelated to that of the insured (owner or operator). The use of insurance policies underwritten by captive insurers therefore is prohibited unless the owner/operator can demonstrate compliance with condition 335-14-5-.08(4)(e)1.(ii) for each year captive insurance is used.

(ii) Captive insurance may be used for closure insurance only when the facility provides annual documentation to the Department that the owner or operator is in compliance with the requirements of Rule 335-14-5-.08(4)(f).

2. The wording of the certificate of insurance must be identical to the wording specified in 335-14-5-.08(12)(e).

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 335-14-5-.08(4)(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, he may withhold reimbursements of such amounts as he deems prudent until he determines, in accordance with 335-14-5-.08(4)(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, he 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 335-14-5-.08(4)10. Failure to pay the premium, without substitution of alternate financial assurance as specified in 335-14-5-.08(4), 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 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 335-14-5-.08(4) 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 it may terminate the insurance policy when:

(i) An owner or operator substitutes alternate financial assurance as specified in 335-14-5-.08(4); or

(ii) The Department releases the owner or operator from the requirements of 335-14-5-.08(4) in accordance with 335-14-5-.08(4)(i).

(f) Financial test and corporate guarantee for closure.

1. An owner or operator may satisfy the requirements of 335-14-5-.08(4) by demonstrating that he passes a financial test as specified in 335-14-5-.08(4). To pass this test the owner or operator must meet the criteria of either 335-14-5-.08(4)(f)1.(i) or (f)1.(ii):

(i) The owner or operator must have:

(I) 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

(II) Net working capital and tangible net worth each at least six times the sum of the current closure and post-closure cost estimates; and

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

(IV) Assets located in the United States amounting to at least 90 percent of total assets or at least six times the sum of the current closure and post-closure cost estimates.

(ii) The owner or operator must have:

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

(II) Tangible net worth at least six times the sum of the current closure and post-closure cost estimates; and

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

(IV) Assets located in the United States amounting to at least 90 percent of total assets or at least six times the sum of the current closure and post-closure cost estimates.

2. The phrase “current closure and post-closure cost estimates” as used in 335-14-5-.08(4)(f)1. refers to the cost estimates required to be shown in paragraphs 1-4 of the letter from the owner's or operator's chief financial officer (335-14-5-.08(12)).

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 335-14-5-.08(12)(f);

(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:

(I) 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

(II) 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 335-14-5-.08(4)(f)3. 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 335-14-5-.08(4)(f)3., 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 335-14-5-.08(4)(f)3.

6. If the owner or operator no longer meets the requirements of 335-14-5-.08(4)(f)1., he must send notice to the Department of intent to establish alternate financial assurance as specified in 335-14-5-.08(4). 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 335-14-5-.08(4)(f)1., require reports of financial condition at any time from the owner or operator in addition to those specified in 335-14-5-.08(4)(f)3. If the Department finds, on the basis of such reports or other information, that the owner or operator no longer meets the requirements of 335-14-5-.08(4)(f)1., the owner or operator must provide alternate financial assurance as

specified in 335-14-5-.08(4) 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 335-14-5-.08(4)(f)3.(ii)). An adverse opinion or a disclaimer of opinion will be caused for disallowance. The Department will evaluate other qualifications on an individual basis. The owner or operator must provide alternate financial assurance as specified in 335-14-5-.08(4) within 30 days after notification of the disallowance.

9. The owner or operator is no longer required to submit the items specified in 335-14-5-.08(4)(f)3. when:

(i) An owner or operator substitutes alternate financial assurance as specified in 335-14-5-.08(4); or

(ii) The Department releases the owner or operator from the requirements of 335-14-5-.08(4) in accordance with 335-14-5-.08(4)(i).

10. An owner or operator may meet the requirements of 335-14-5-.08(4) by obtaining a written guarantee, hereinafter referred to as “corporate 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 335-14-5-.08(4)(f)1. through 8. and must comply with the terms of the guarantee. The wording of the guarantee must be identical to the wording specified in 335-14-5-.08(12)(h). The certified copy of the guarantee must accompany the items sent to the Department as specified in 335-14-5-.08(4)(f)3. One of these items must be the letter from the guarantor's chief financial officer. If the guarantor's parent corporation is also the parent corporation of the owner or operator, the letter must describe the value received in consideration of the guarantee. If the guarantor is a firm with a “substantial business relationship” with the owner or operator, this letter must describe this “substantial business relationship” and the value received in consideration of the guarantee. The terms of the guarantee must provide that:

(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 335-14-5-.08(4)(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 335-14-5-.08(4) 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 335-14-5-.08(4) by establishing more than one financial mechanism per facility. These mechanisms are limited to trust funds, surety bonds guaranteeing payment into a trust fund, letters of credit, and insurance. The mechanisms must be as specified in 335-14-5-.08(4)(a), (b), (d), and (e), respectively, 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. If an owner or operator uses a trust fund in combination with a surety bond or a letter of credit, he may use the trust fund as the standby trust fund for the other mechanisms. 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.

(h) Use of a financial mechanism for multiple facilities. An owner or operator may use a financial assurance mechanism specified in 335-14-5-.08(4) to meet the requirements of 335-14-5-.08(4) for more than one facility. Evidence of financial assurance submitted to the Department must include a list showing, for each facility, the EPA or Alabama Identification Number, name, address, and the amount of funds for closure assured by the mechanism. The amount of funds available through the mechanism must be no less than the sum

of funds that would be available if a separate mechanism had been established and maintained for each facility. In directing funds available through the mechanism for closure of any of the facilities covered by the mechanism, the 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 335-14-5-.08(4). 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 335-14-5-.08(4) 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.

(5) Cost estimate for post-closure care.

(a) The owner or operator of a disposal surface impoundment, disposal miscellaneous unit, land treatment unit, landfill unit, other hazardous waste management unit or CAMU which cannot demonstrate closure by removal, or surface impoundment or waste pile required under Rules 335-14-5-.11(9) and 335-14-5-.12(9) to prepare a contingent closure and post-closure plan must have a detailed written estimate in a format specified by the Department, in current dollars, of the annual cost of post-closure monitoring and maintenance of the facility in accordance with the applicable post-closure requirements in 335-14-5-.07(8) through (11), 335-14-5-.11(9), 335-14-5-.12(9), 335-14-5-.13(11), 335-14-5-.14(11), and 335-14-5-.24(4).

1. The post-closure cost estimate must be based on the costs to the owner or operator of hiring a third party to conduct post-closure care activities. A third party is a party who is neither a parent nor a subsidiary of the owner or operator. (See definition of parent corporation in 335-14-1-.02.)

2. The post-closure cost estimate is calculated by multiplying the annual post-closure cost estimate by the number of years of post-closure care required under 335-14-5-.07(8). Unless expressly extended or shortened by the Department in writing, the post-closure care period shall be assumed to be thirty years for the purposes of calculating the post-closure cost estimate.

(b) During the active life of the facility and the post-closure care period, the owner or operator must adjust the post-closure cost estimate for inflation within 60 days prior to the anniversary date of the establishment of the financial instrument(s) used to comply with 335-14-5-.08(6). For owners or operators using the financial test or corporate guarantee, the post-closure 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 335-14-5-.08(6)(f)5. The adjustment may be made by recalculating the post-closure cost estimate in current dollars or by using an inflation factor derived from the most recent Implicit Price Deflator for Gross National Product published by the U.S. Department of Commerce in its Survey of Current Business as specified in 335-14-5-.08(5)(b)1. and 2. 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 post-closure cost estimate by the inflation factor. The result is the adjusted post-closure cost estimate.

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

(c) During the active life of the facility and the post-closure care period, the owner or operator must revise the post-closure cost estimate within 30 days after the Department has approved the request to modify the post-closure plan, if the change in the post- closure plan increases the cost of the post-closure care. The revised post-closure cost estimate must be adjusted for inflation as specified in 335-14-5-.08(5)(b).

(d) The owner or operator must keep the following at the facility during the operating life of the facility and throughout the post-closure care period: the latest post-closure cost estimate prepared in accordance with 335-14-5-.08(5)(a) and (5)(c) and, when this estimate has been adjusted in accordance with 335-14-5-.08(5)(b), the latest adjusted post-closure cost estimate.

(6) Financial assurance for post-closure. The owner or operator of a hazardous waste management unit subject to the requirements of 335-14-5-.08(5) must establish financial assurance for post-closure care in accordance with the approved post-closure plan for the facility 60 days prior to the initial receipt of hazardous waste or the effective date of the requirement, whichever is later. He must choose from the following options:

(a) Post-closure trust fund.

1. An owner or operator may satisfy the requirements of 335-14-5-.08(6) by establishing a post-closure trust fund which conforms to the requirements of 335-14-5-.08(6)(a) 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 335-14-5-.08(12)(a)1. and the trust agreement must be accompanied by a formal certification of acknowledgment (for example, see 335-14-5-.08(12)(a)2.). Schedule A of the trust agreement must be updated, and an originally signed duplicate must be submitted to the Department, within 60 days after a change in the amount of the current post-closure cost estimate covered by the agreement.

3. The owner or operator of an operating facility must make annual payments into the fund over the term of the initial Hazardous Waste Facility Permit, over the remaining operating life of the facility as estimated in the closure plan, or eight years, whichever period is shorter. The owner or operator of a post-closure or SWMU corrective action facility must make payments into the fund over a term of eight years beginning on the effective date of the initial post-closure permit or enforceable document (as defined in 335-14-8-.01(1)(c)7.). The payments into the post-closure trust fund must be made as follows:

(i) For a new or existing operating facility, the first payment must be made before the initial receipt of hazardous waste for treatment, storage or disposal. A receipt from the trustee for this payment must be submitted by the owner or operator to the Department before the initial receipt of hazardous waste. For a post-closure facility or SWMU CA facility, the first payment must be made no later than 60 days following the effective date of the initial post-closure permit. A receipt from the trustee for this payment must be submitted by the owner or operator to the Department no later than 30 days following the payment date. Subsequent payments must be made no later than 30 days after the anniversary date of the first payment. Payments must be made according to the following schedule:

(I) If the initial permit is for a term of one year, 100% of the current post-closure cost estimate must be paid initially;

(II) If the initial permit is for a term of two years, 50% of the current post-closure cost estimate must be paid each of the two years;

(III) If the initial permit is for a term of three years, 34% of the current post-closure cost estimate must be paid initially and 33% of the current post-closure cost estimate must be paid each of the two subsequent years.

(IV) If the initial permit is for a term of four years, 25% of the current post-closure cost estimate must be paid each of the four years;

(V) If the initial permit is for a term of five years, 20% of the current post-closure cost estimate must be paid each of the five years;

(VI) If the initial permit is for a term of six years, 20% of the current post-closure cost estimate must be paid each of the first four years and 10% of the current cost estimate must be paid each of the two subsequent years;

(VII) If the initial permit is for a term of seven years, 20% of the current post-closure cost estimate must be paid each of the first three years and 10% of the current post-closure cost estimate must be paid each of the four subsequent years; and

(VIII) If the initial permit is for a term of eight years or longer, 20% of the current post-closure cost estimate must be paid each of the first two years and 10% of the current post-closure cost estimate must be paid each of the six subsequent years;

(ii) Following the initial payment, all subsequent annual payments must reconcile any difference between the actual value of the trust fund and the required value of the trust fund. The required value of the trust fund accounts for adjustments to the post-closure cost estimate made in accordance with 335-14-5-.08(5), and may be calculated by determining the value of the trust fund if the current payment and all previous payments were made using the current post-closure cost estimate.

(iii) If an owner or operator of an existing facility establishes a trust fund as specified in 335-14-6-.08(6)(a), and the value of the trust fund is less than the current post-closure cost estimate when a permit is issued for the facility, the amount of the current post-closure cost estimate still to be paid into the trust fund must be paid according to the schedule set out in 335-14-5-.08(6)3.(i).

4. The owner or operator may accelerate payments into the trust fund or he may deposit the full amount of the current post-closure cost estimate at the time the fund is established. However he must maintain the value of the fund at no less than the value that the fund would have if annual payments were made as specified in 335-14-5-.08(6)(a)3.

5. If the owner or operator establishes a post-closure trust fund after having used one or more alternate mechanisms specified in 335-14-5-.08(6) or in 335-14-6-.08(6), his first payment must be in at least the amount that the fund would contain if the trust fund were established initially and annual payments made according to specifications of 335-14-5-.08(6)(a) and 335-14-6-.08(6)(a), as applicable.

6. After the pay-in period is completed, whenever the current post-closure cost estimate changes during the operating life of the facility and the post-closure care period, the owner or operator must compare the new estimate with the trustee's most recent annual valuation of the trust fund. If the value of the fund is less than the amount of the new estimate, the owner or operator, within 60 days after the change in the cost estimate, must either deposit an amount into the fund so that its value after this deposit at least equals the amount of the current post-closure cost estimate, or obtain other financial assurance as specified in 335-14-5-.08(6) to cover the difference.

7. During the operating life of the facility and throughout the post-closure care period, if the value of the trust fund is greater than the total amount of the current post-closure cost estimate, the owner or operator may submit a written request to the Department for release of the amount in excess of the current post-closure cost estimate.

8. If an owner or operator substitutes other financial assurance as specified in 335-14-5-.08(6) for all or part of the trust fund, the owner or operator may submit a written request to the Department for release of the

amount in excess of the current post-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 335-14-5-.08(6)(a)7. or (a)8., the Department will approve or disapprove the request for release. If the Department approves the owner or operator's request for release, the Department will instruct the trustee to release to the owner or operator such funds as the Department specifies in writing.

10. Following the completion of the pay-in-period, 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 post-closure care.

11. Following the completion of the pay-in-period, an owner or operator or any other person authorized to conduct post-closure care may request reimbursements for post-closure care expenditures by submitting itemized bills to the Department. Within 60 days after receiving bills for post-closure 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 post-closure care expenditures are in accordance with the approved post-closure 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 335-14-5-.08(6) and approve by the Department; or

(ii) The Department releases the owner or operator from the requirements of 335-14-5-.08(6) in accordance with 335-14-5-.08(6)(i).

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

1. An owner or operator may satisfy the requirements of 335-14-5-.08(6) by obtaining a surety bond which conforms to the requirements of 335-14-5-.08(6)(b) 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.

2. The wording of the surety bond must be identical to the wording specified in 335-14-5-.08(12)(b).

3. The owner or operator who uses a surety bond to satisfy the requirements of 335-14-5-.08(6) 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 335-14-5-.08(6)(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 335-14-5-.08(6), the following are not required by these regulations:

(I) Payments into the trust fund as specified in 335-14-5-.08(6)(a);

(II) Updating of Schedule A of the trust agreement (see 335-14-5-.08(12)(a)) to show current post-closure cost estimates;

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

(IV) 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

(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 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 post-closure cost estimate except as provided in 335-14-5-.08(6)(g).

7. Whenever the current post-closure cost estimate increases to an amount greater than the penal sum, the owner or operator, within 60 days after the increase, must either cause the penal sum to be increased to an amount at least equal to the current post-closure cost estimate and submit evidence of such increase to the Department, or obtain other financial assurance as specified in 335-14-5-.08(6) to cover the increase. Whenever the current post-closure cost estimate decreases, the penal sum may be reduced to the amount of the current post-closure cost estimate following written approval by the 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 335-14-5-.08(6); or

(ii) The Department releases the owner or operator from the requirements of 335-14-5-.08(6) in accordance with 335-14-5-.08(6)(i).

(c) Surety bond guaranteeing performance of post-closure care and/or corrective action.

1. An owner or operator may satisfy the requirements of 335-14-5-.08(6) and 335-14-5-.08(11) by obtaining a

surety bond which conforms to the requirements of 335-14-5-.08(6)(c) and submitting the bond to the Department. An owner or operator of a new or existing operating 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 owner or operator of a post-closure or SWMU corrective action facility must submit the bond to the Department at least 60 days following the issuance to the initial post-closure permit or enforceable document (as defined in 335-14-8-.01(1)(c)7.). 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 335-14-5-.08(12)(c).

3. The owner or operator who uses a surety bond to satisfy the requirements of 335-14-5-.08(6) 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 335-14-5-.08(6)(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 335-14-5-.08(6), the following are not required by these regulations:

(I) Payments into the trust fund as specified in 335-14-5-.08(6)(a);

(II) Updating of Schedule A of the trust agreement (see 335-14-5-.08(12)(a)) to show current post-closure cost estimates;

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

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

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

(i) Perform post-closure care and/or corrective action in accordance with the post-closure plan, corrective action plan, and other requirements of the permit for the facility; or

(ii) Provide alternate financial assurance as specified in 335-14-5-.08(6), 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 Sections 22-30-19 and 22-22A-7, Code of Alabama 1975, that the owner or operator has failed to perform post-closure care and/or corrective action in accordance with the approved post-closure plan, corrective action plan, and other permit or enforceable document (as defined in 335-14-8-.01(1)(c)7.) requirements under the terms of the bond the surety will perform post-closure care and/or corrective action in accordance with the post-closure plan, corrective action plan, and other permit or enforceable document (as defined in 335-14-8-.01(1)(c)7.) requirements 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 post-closure and/or corrective action cost estimate.

7. Whenever the current post-closure and/or corrective action cost estimate increases to an amount greater than the penal sum during the operating life of the facility or the post-closure care period, the owner or operator, within 60 days after the increase, must either cause the penal sum to be increased to an amount at least equal to the current post-closure and/or corrective action cost estimate and submit evidence of such increase to the Department, or obtain other financial assurance as specified in 335-14-5-.08(6). Whenever the current post-closure and/or corrective action cost estimate decreases during the operating life of the facility or the post-closure care period, the penal sum may be reduced to the amount of the current post-closure and/or corrective action cost estimate following written approval by the Department.

8. During the period of post-closure care and/or corrective action, 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 post-closure care and/or corrective action.

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 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 335-14-5-.08(6) and approved by the Department; or

(ii) The Department releases the owner or operator from the requirements of 335-14-5-.08(6) in accordance with 335-14-5-.08(6)(i) or 335-14-5-.08(11).

11. The surety will not be liable for deficiencies in the performance of post-closure care by the owner or operator after the Department releases the owner or operator from the requirements of 335-14-5-.08(6) in accordance with 335-14-5-.08(6)(i) or 335-14-5-.08(11)(f).

(d) Post-closure and/or corrective action letter of credit.

1. An owner or operator may satisfy the requirements of 335-14-5-.08(6) and 335-14-5-.08(11) by obtaining an irrevocable standby letter of credit which conforms to the requirements of 335-14-5-.08(6)(d) 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 owner or operator of a post-closure or SWMU corrective action facility must submit the letter of credit to the Department at least 60 days following the issuance to the initial post-closure permit or enforceable document (as defined in 335-14-8-.01(1)(c)7.). 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 335-14-5-.08(12)(d).

3. An owner or operator who uses a letter of credit to satisfy the requirements of 335-14-5-.08(6) 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 335-14-5-.08(6)(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 335-14-5-.08(6), the following are not required by these regulations:

(I) Payments into the trust fund as required in 335-14-5-.08(6)(a);

(II) Updating of Schedule A of the trust agreement (see 335-14-5-.08(12)(a)) to show current post-closure and/or corrective action cost estimates;

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

(IV) 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 post-closure care and/or corrective action of the facility by the letter of credit.

5. The letter of credit must be irrevocable and issued for a period of at least one year. The letter of credit must provide that the expiration date will be automatically extended for a period of at least one year unless, at least 120 days before the current expiration date, the issuing institution notifies both the owner or operator and the 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 post-closure and/or corrective action cost estimate, except as provided in 335-14-5-.08(6)(g).

7. Whenever the current post-closure and/or corrective action cost estimate increases to an amount greater than the amount of the credit during the operating life of the facility or the post-closure care period, the owner or operator, within 60 days after the increase, must either cause the amount of the credit to be increased so that it at least equals the current post-closure and/or corrective action cost estimate and submit evidence of such increase to the Department, or obtain other financial assurance as specified in 335-14-5-.08(6) or 335-14-5-.08(11) to cover the increase. Whenever the current post-closure and/or corrective action cost estimate decreases during the operating life of the facility or the post-closure care period, the amount of the credit may be reduced to the amount of the current post-closure and/or corrective action cost estimate following written approval by the Department.

8. During the period of post-closure care and/or corrective action, 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 post-closure care and/or corrective action.

9. Following a final administrative determination pursuant to Sections 22-30-19 and 22-22A-7, Code of Alabama 1975, that the owner or operator has failed to perform post-closure care and/or corrective action in accordance with the approved post-closure plan and other permit or correction action order requirements, the Department may draw on the letter of credit.

10. If the owner or operator does not establish alternate financial assurance as specified in 335-14-5-.08(6) 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 335-14-5-.08(6) 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 335-14-5-.08(6) and approved by the Department; or

(ii) The Department releases the owner or operator from the requirements of 335-14-5-.08(6) in accordance with 335-14-5-.08(6)(i) or 335-14-5-.08(11)(f).

(e) Post-closure insurance.

1. An owner or operator may satisfy the requirements of 335-14-5-.08(6) by obtaining post-closure insurance which conforms to the requirements of 335-14-5-.08(6)(e) and submitting an originally signed 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. The insurer must be licensed to transact the business of insurance, or eligible to provide insurance as an excess of surplus lines insurer in the State of Alabama, and must not be captive insurance as defined in 335-14-1-.02 unless the requirements of 335-14-5-.08(6)(e)1.(ii) are met.

(i) The use of insurance to demonstrate financial assurance for closure and post-closure care pertains exclusively to those insurance policies underwritten by commercial property and casualty insurers (primary or excess and surplus lines), through which, in the insurance contract, the financial burden for closure and post-closure care is transferred to the third-party insurer. Except as provided in 335-14-5-.08(6)(e)1.(ii), the third-party insurer must assume financial responsibility for this accepted risk, using its own pool of resources that is independent, separate, and unrelated to that of the insured (owner or operator). The use of insurance policies underwritten by captive insurers therefore is prohibited unless the owner/operator can demonstrate compliance with condition 335-14-5-.08(6)(e)1.(ii) for each year captive insurance is used.

(ii) Captive insurance may be used for post-closure insurance only when the facility provides annual documentation to the Department that the owner or operator is in compliance with the requirements of Rule 335-14-5-.08(6)(f).

2. The wording of the certificate of insurance must be identical to the wording specified in 335-14-5-.08(12)(e).

3. The post-closure insurance policy must be issued for a face amount at least equal to the current post-closure cost estimate, except as provided in 335-14-5-.08(6)(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 post-closure insurance policy must guarantee that funds will be available to provide post-closure care of the facility whenever the post-closure period begins. The policy must also guarantee that once post-closure care begins, the insurer will be responsible for paying out funds, up to an amount equal to the 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 post-closure care may request reimbursements for post-closure care expenditures by submitting itemized bills to the Department. Within 60 days after receiving bills for post-closure 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 post-closure care expenditures are in accordance with the approved post-closure plan or otherwise justified. If the Department does not instruct the insurer to make such reimbursements, he 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 335-14-5-.08(6)(e)11. Failure to pay the premium, without substitution of alternate financial assurance as specified in 335-14-5-.08(6), 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 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 post-closure cost estimate increases to an amount greater than the face amount of the policy during the operating life of the facility or the post-closure care period, 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 post-closure cost estimate and submit evidence of such increase to the Department, or obtain other financial assurance as specified in 335-14-5-.08(6) to cover the increase. Whenever the current post-closure cost estimate decreases during the operating life of the facility or the post-closure care period, the face amount may be reduced to the amount of the current post-closure 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, 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 335-14-5-.08(6); or

(ii) The Department releases the owner or operator from the requirements of 335-14-5-.08(6) in accordance with 335-14-5-.08(6)(i).

(f) Financial test and corporate guarantee for post-closure care.

1. An owner or operator may satisfy the requirements of 335-14-5-.08(6) by demonstrating that he passes a financial test as specified in 335-14-5-.08(6)(f). To pass this test the owner or operator must meet the criteria of either 335-14-5-.08(6)(f)1.(i) or (f)1.(ii):

(i) The owner or operator must have:

(I) 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

(II) Net working capital and tangible net worth each at least six times the sum of the current closure and post-closure cost estimates; and

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

(IV) 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 post-closure cost estimates.

(ii) The owner or operator must have:

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

(II) Tangible net worth at least six times the sum of the current closure and post-closure cost estimates; and

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

(IV) 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 post-closure cost estimates.

2. The phrase "current closure and post-closure cost estimates" as used in 335-14-5-.08(6)(f)1. refers to the cost estimates required to be shown in paragraphs 1-4 of the letter from the owner's or operator's chief financial officer (335-14-5-.08(12)(f)).

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 335-14-5-.08(12)(f); and

(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:

(I) 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

(II) 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 335-14-5-.08(6)(f)3. 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 335-14-5-.08(6)(f)3., 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 335-14-5-.08(6)(f)3.

6. If the owner or operator no longer meets the requirements of 335-14-5-.08(6)(f)1., he must send notice to the Department of intent to establish alternate financial assurance as specified in 335-14-5-.08(6). 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 335-14-5-.08(6)(f)1., require reports of financial condition at any time from the owner or operator in addition to those specified in 335-14-5-.08(6)(f)3. If the Department finds, on the basis of such reports or other information, that the owner or operator no longer meets the requirements of 335-14-5-.08(6)(f)1., the owner or operator must provide alternate financial assurance as specified in 335-14-5-.08(6) 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 335-14-5-.08(6)(f)3.(ii)]. 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 335-14-5-.08(6) within 30 days after notification of the disallowance.

9. During the period of post-closure care, the Department may approve a decrease in the current post-closure cost estimate for which this test demonstrates financial assurance if the owner or operator demonstrates to the Department that the amount of the cost estimate exceeds the remaining cost of post-closure care.

10. The owner or operator is no longer required to submit the items specified in 335-14-5-.08(6)(f)3. of when:

(i) An owner or operator substitutes alternate financial assurance as specified in 335-14-5-.08(6); or

(ii) The Department releases the owner or operator from the requirements of 335-14-5-.08(6) in accordance with 335-14-5-.08(6)(i).

11. An owner or operator may meet the requirements of 335-14-5-.08(6) by obtaining a written guarantee, hereinafter referred to as "corporate 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 335-14-5-.08(6)(f)1. through 9. and must comply with the terms of the guarantee. The wording of the guarantee must be identical to the wording specified in 335-14-5-.08(12)(h). A certified copy of the guarantee must accompany the items sent to the Department as specified in 335-14-5-.08(6)(f)3. One of these items must be the letter from the guarantor's chief financial officer. If the guarantor's parent corporation is also the parent corporation of the owner or operator, the letter must describe the value received in consideration of the guarantee. If the guarantor is a firm with a "substantial business relationship" with the owner or operator, this letter must describe this "substantial business relationship" and the value received in consideration of the guarantee. The terms of the guarantee must provide that:

(i) If the owner or operator fails to perform post-closure care of a facility covered by the corporate guarantee in accordance with the post-closure plan and other permit requirements whenever required to do so, the guarantor will do so or establish a trust fund as specified in 335-14-5-.08(6)(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 335-14-5-.08(6) 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 335-14-5-.08(6) by establishing more than one financial mechanism per facility. These mechanisms are limited to trust funds, surety bonds guaranteeing payment into a trust fund, letters of credit, and insurance. The mechanisms must be as specified in 335-14-5-.08(6)(a), (b), (d), and (e), respectively, except that it is the combination of mechanisms, rather than the single mechanism, which must provide financial assurance for an amount at least equal to the current post-closure cost estimate. If an owner or operator uses a trust fund in combination with a surety bond or a letter of credit, he may use the trust fund as the standby trust fund for the other mechanisms. 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 post-closure care of the facility.

(h) Use of a financial mechanism for multiple facilities. An owner or operator may use a financial assurance mechanism specified in 335-14-5-.08(6) to meet the requirements of 335-14-5-.08(6) for more than one facility. Evidence of financial assurance submitted to the Department must include a list showing, for each facility, the EPA or Alabama Identification Number, name, address, and the amount of funds for post-closure care assured by the mechanism. The amount of funds available through the mechanism must be no less than the sum of funds that would be available if a separate mechanism had been established and maintained for each facility. In directing funds available through the mechanism for post-closure care of any of the facilities covered by the mechanism, the 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 335-14-5-.08(6). Within 60 days after receiving certifications from the owner or operator and an independent registered professional engineer that the post-closure care period has been completed 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 post-closure of that unit, unless the Department has reason to believe that post-closure care has not been in accordance with the approved post-closure

plan. The Department shall provide the owner or operator a detailed written statement of any such reason to believe that post-closure care has not been in accordance with the approved post-closure plan.

(7) Use of a mechanism for multiple financial responsibilities. An owner or operator may satisfy the requirements for financial assurance for both closure and post-closure care for one or more facilities by using a trust fund, surety bond, letter of credit, insurance, financial test, or corporate guarantee that meets the specifications for the mechanism in both 335-14-5-.08(4) and (6). For corrective action at one or more facilities, an owner or operator may satisfy the requirements for financial assurance by using a trust fund, surety bond, or letter of credit that meets the specifications of the mechanism in 335-14-5-.08(11). 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, post-closure care, and corrective action.

(8) 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 335-14-5-.08(8)(a)1., 2., 3., 4., 5., or 6.:

1. An owner or operator may demonstrate the required liability coverage by having liability insurance as specified in 335-14-5-.08(8)(a).

(i) Each insurance policy must be amended by attachment of the Hazardous Waste Facility Liability Endorsement or evidence by a Certificate of Liability Insurance. The wording of the endorsement must be identical to the wording specified in 335-14-5-.08(12)(i). The wording of the certificate of insurance must be identical to the wording specified in 335-14-5-.08(12)(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 is licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer in the State of Alabama.

2. An owner or operator may meet the requirements of 335-14-5-.08(8) by passing a financial test or using the guarantee for liability coverage as specified in 335-14-5-.08(8)(f) and (g).

3. An owner or operator may meet the requirements of 335-14-5-.08(8) by obtaining a letter of credit for liability coverage as specified in 335-14-5-.08(8)(h).

4. An owner or operator may meet the requirements of 335-14-5-.08(8) by obtaining a surety bond for liability coverage as specified in 335-14-5-.08(8)(i).

5. An owner or operator may meet the requirements of 335-14-5-.08(8) by obtaining a trust fund for liability coverage as specified in 335-14-5-.08(8)(j).

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 335-14-5-.08(8). If the owner or operator demonstrates the required coverage through the use of a combination of financial assurances under 335-14-5-.08(8)(a), the owner or operator shall specify at least one such assurance as “primary” coverage and shall specify other assurance as “excess” coverage.

7. An owner or operator shall notify the Department in writing within 30 days whenever:

(i) A Claim results in a reduction in the amount of financial assurance for liability coverage provided

by a financial instrument authorized in 335-14-5-.08(8)(a)1. through (a)6.; 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 335-14-5-.08(8)(a)1. through (a)6.; 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 335-14-5-.08(8)(a)1. through (a)6.

(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 335-14-5-.08(8) 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 335-14-5-.08(8)(b)1., 2., 3., 4., 5., or 6.:

1. An owner or operator may demonstrate the required liability coverage by having liability insurance as specified in 335-14-5-.08(8)(b).

(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

335-14-5-.08(12)(i). The wording of the certificate of insurance must be identical to the wording specified in 335-14-5-.08(12)(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 is licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer in the State of Alabama.

2. An owner or operator may meet the requirements of 335-14-5-.08(8) by passing a financial test or using the guarantee for liability coverage as specified in 335-14-5-.08(8)(f) and (g).

3. An owner or operator may meet the requirements of 335-14-5-.08(8) by obtaining a letter of credit for liability coverage as specified in 335-14-5-.08(8)(h).

4. An owner or operator may meet the requirements of 335-14-5-.08(8) by obtaining a surety bond for liability coverage as specified in 335-14-5-.08(8)(i).

5. An owner or operator may meet the requirements of 335-14-5-.08(8) by obtaining a trust fund for liability coverage as specified in 335-14-5-.08(8)(j).

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 335-14-5-.08(8). If the owner or operator demonstrates the required coverage through the use of a combination of financial assurances under 335-14-5-.08(8)(b), the owner or

operator shall specify at least one such assurance as "primary" coverage and shall specify other assurance as "excess" coverage.

7. An owner or operator shall notify the Department in writing within 30 days whenever:

(i) A Claim results in a reduction in the amount of financial assurance for liability coverage provided by a financial instrument authorized in 335-14-5-.08(8)(b)1. through (b)6.; 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 335-14-5-.08(8)(b)1. through (b)6.; 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 335-14-5-.08(8)(b)1. through (b)6.

(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 335-14-5-.08(8)(a) or (b) 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 335-14-8-.02(5) for a facility that does not have a permit, or pursuant to the procedures for permit modification under 335-14-8-.08(3) 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 335-14-5-.08(8)(a) or (b). Any request for a variance for a permitted facility will be treated as a request for a permit modification under 335-14-8-.04(2)(a)5. and 335-14-8-.08(3).

(d) Adjustments by the Department. If the Department determines that the levels of financial responsibility required by 335-14-5-.08(8)(a) or (b) 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 335-14-5-.08(8)(a) or (b) 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 335-14-5-.08(8)(b). 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 335-14-8-.04(2)(a)5. and 335-14-8-.08(3).

(e) Period of coverage. Within 60 days after receiving certifications from the owner or operator and a qualified 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 335-14-5-.08(8) 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 335-14-5-.08(8) by demonstrating that he passes a financial test as specified in 335-14-5-.08(8)(f). To pass this test the owner or operator must meet the criteria of 335-14-5-.08(8)(f)1.(i) or (ii):

(i) The owner or operator must have:

(I) Net working capital and tangible net worth each at least six times the amount of liability coverage to be demonstrated by this test; and

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

(III) Assets in the United States amounting to either: I. at least 90 percent of his total assets; or II. at least six times the amount of liability coverage to be demonstrated by this test.

(ii) The owner or operator must have:

(I) 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

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

(III) Tangible net worth at least six times the amount of liability coverage to be demonstrated by this test; and

(IV) Assets in the United States amounting to either:

I. at least 90 percent of his total assets; or

II. 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 335-14-5-.08(8)(f)1. refers to the annual aggregate amounts for which coverage is required under 335-14-5-.08(8)(a) and (b).

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 335-14-5-.08(12)(g). If an owner or operator is using the financial test to demonstrate both assurance for closure or post-closure care, as specified by 335-14-5-.08(4)(f) and 335-14-5-.08(6)(f), and liability coverage, he must submit the letter specified in 335-14-5-.08(12)(g) to cover both forms of financial responsibility; a separate letter as specified in 335-14-5-.08(12)(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:

(I) He has compared the data which the letter from the chief financial officer specified 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

(II) 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 335-14-5-.08(8)(f)3. 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 335-14-5-.08(8)(f)3., 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 335-14-5-.08(8)(f)3.

6. The Department may, based on a reasonable belief that the owner or operator may no longer meet the requirements of 335-14-5-.08(8)(f)1., require from the owner or operator at any time current updates of reports of financial condition specified in 335-14-5-.08(8)(f)3.

7. If the owner or operator no longer meets the requirements of 335-14-5-.08(8)(f)1., 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 335-14-5-.08(8). 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.

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 335-14-5-.08(8)(f)3.(ii)). 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.

1. Subject to 335-14-5-.08(8)(g)2., an owner or operator may meet the requirements of 335-14-5-.08(8) 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 335-14-5-.08(8)(f)1. through (f)7. The wording of the guarantee must be identical to the wording specified in 335-14-5-.08(12)(h)2. A certified copy of the guarantee must accompany the items sent to the Department as specified in 335-14-5-.08(8)(f)3. 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.

(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 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]

2.(i) In the case of corporations incorporated in the United States, a guarantee may be used to satisfy the requirements of 335-14-5-.08(8) only if the Attorneys General or Insurance Commissioners of

(I) the State in which the guarantor is incorporated, and

(II) 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 335-14-5-.08(8) and 335-14-5-.08(12)(h)2. is a legally valid and enforceable obligation in that State.

(ii) In the case of corporations incorporated outside the United States, a guarantee may be used to satisfy the requirements of 335-14-5-.08(8) only if

(I) 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

(II) 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 335-14-5-.08(8), and 335-14-5-.08(12)(h)2. is a legally valid and enforceable obligation in that State.

(h) Letter of credit for liability coverage.

1. An owner or operator may satisfy the requirements of 335-14-5-.08(8) by obtaining an irrevocable standby letter of credit that conforms to the requirements of 335-14-5-.08(8)(h) and submitting a copy of the letter of credit to the Department.

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.

3. The wording of the letter of credit must be identical to the wording specified in 335-14-5-.08(12)(k).

4. An owner or operator who uses a letter of credit to satisfy the requirements of 335-14-5-.08(8) may also establish a standby trust fund. Under the terms of such a letter of credit, all amounts paid pursuant to a draft by the trustee of the standby trust will be deposited by the issuing institution into the standby trust in accordance with instructions from the trustee. The trustee of the standby trust fund must be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a Federal or State agency.

5. The wording of the standby trust fund must be identical to the wording specified in 335-14-5-.08(12)(n).

(i) Surety bond for liability coverage

1. An owner or operator may satisfy the requirements of 335-14-5-.08(8) by obtaining a surety bond that conforms to the requirements of 335-14-5-.08(8)(i) 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 335-14-5-.08(12)(l).

4. A surety bond may be used to satisfy the requirements of 335-14-5-.08(8) 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 335-14-5-.08(8)(i) and 335-14-5-.08(12)(l) is a legally valid and enforceable obligation in that State.

(j) Trust fund for liability coverage.

1. An owner or operator may satisfy the requirements of 335-14-5-.08(8) by establishing a trust fund that conforms to the requirements of 335-14-5-.08(8)(j) 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 335-14-5-.08(8). 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 335-14-5-.08(8) to cover the difference. For purposes of 335-14-5-.08(8)(j), "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 335-14-5-.08(8), 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.

4. The wording of the trust fund must be identical to the wording specified in 335-14-5-.08(12)(m).

(k) [Reserved]

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

(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 335-14-5-.08(4)(f) and 335-14-5-.08(6)(f) must make such a notification if he is named as debtor, as required under the terms of the corporate guarantee (335-14-5-.08(12)(h)).

(b) An owner or operator who fulfills the requirements of 335-14-5-.08(4), (6), and (8) 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 or of the 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.

(10) Cost estimate for corrective action.

(a) The owner or operator of a facility at which corrective action is required pursuant to 335-14-5-.06(11 or (12) must have a detailed written estimate in a format specified by the Department, in current dollars, of the annual cost of corrective action.

1. The corrective action cost estimate must be based on the cost to the owner or operator of hiring a third party

to conduct all corrective actions required by the facility permit or enforceable document (as defined in 335-14-8-.01(1)(c)7.), the corrective action plan, the corrective action order, and the applicable requirements of 335-14-5-.06(11 and (12). 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 335-14-1-.02).

2. The corrective action cost estimate is calculated by multiplying the annual corrective action cost estimate by the total number of years in the corrective action period. Estimation of the required corrective action period shall be made on case-by-case basis, shall be based on the corrective action methods specified in the corrective action plan, and shall be certified by an independent registered professional engineer and/or independent licensed professional geologist.

3. The corrective action cost estimate may not incorporate any salvage value that may be realized with the sale of hazardous wastes, non-hazardous wastes, facility structures or equipment, land, or other assets associated with the facility at the time of partial or final closure.

4. The owner or operator may not incorporate a zero cost for hazardous wastes, or non-hazardous wastes that might have economic value.

(b) During the corrective action period, the owner or operator must adjust the corrective action cost estimate for inflation within 60 days prior to the anniversary date of the establishment of the financial instrument(s) used to comply with 335-14-5-.08(11). The adjustment may be made by recalculating the corrective action 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 335-14-5-.08(10)(b)1. and 2. 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 corrective action cost estimate by the inflation factor. The result is the adjusted corrective action cost estimate.

2. Subsequent adjustments are made by multiplying the latest adjusted corrective action cost estimate by the latest inflation factor.

(c) During the corrective action period, the owner or operator must revise the corrective action cost estimate within 30 days after the Department has approved a request to modify the corrective action plan, if the change in the corrective action plan increases the cost of the corrective action. The revised corrective action cost estimate must be adjusted for inflation as specified in 335-14-5-.08(10)(b).

(d) The owner or operator must keep the following at the facility during the operating life of the facility and throughout the post-closure care period: The latest corrective action cost estimate prepared in accordance with 335-14-5-.08(10)(a) and (10)(c) and, when this estimate has been adjusted in accordance with 335-14-5-.08(10)(b), the latest adjusted corrective action cost estimate.

(11) Financial assurance for corrective action. The owner or operator of a facility at which corrective action is required pursuant to 335-14-5-.06(11) or (12) must establish financial assurance for corrective action in accordance with the approved corrective action plan for the facility 60 days following the specification of the corrective actions in the facility permit or enforceable document (as defined in 335-14-8-.01(1)(c)7.). He must choose from the following options:

(a) Corrective action trust fund.

1. An owner or operator may specify the requirements of 335-14-5-.08(11) by establishing a corrective action trust fund which conforms to the requirements of 335-14-5-.08(11)(a) 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 no later than 30 days following establishment of the trust fund. 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 335-14-5-.08(12)(a)1. and the trust agreement must be accompanied by a formal certification of acknowledgment (for example, see 335-14-5-.08(12)(a)2.). Schedule A of the trust agreement must be updated, and an originally signed duplicate must be submitted to the Department, within 60 days after a change in the amount of the current corrective action cost estimate covered by the agreement.

3. Payments into the fund must be made annually by the owner or operator over the pay-in-period, which is the term equal to one-half of the estimated corrective action

period. The first payment must be made at the time the trust fund is established. A receipt from the trustee for this payment must be submitted by the owner or operator of the Department no later than 30 days following the payment date. Subsequent payments must be made no later than 30 days after the anniversary date of the first payment. The amount of each payment shall be determined by the following formula:

$$\text{Payment amount} = \frac{CE - CV}{y}$$

where

CE is the most recent corrective action cost estimate in accordance with 335-14-5-.08(10), at the time of the payment;

CV is the current value of the trust fund, at the time of the payment; and

Y is the number of remaining years in the pay-in-period, at the time of the payment.

4. The owner or operator may accelerate payments into the trust fund or he may deposit the full amount of the current corrective action cost estimate at the time the fund is established. However he must maintain the value of the fund at no less than the value that the fund would have if annual payments were made as specified in 335-14-5-.08(11)(a)3.

5. If the owner or operator establishes a corrective action trust fund after having used one or more alternate mechanisms specified in 335-14-5-.08(11), his first payment must be in at least the amount that the fund would contain if the trust fund were established initially and annual payments made according to specifications of 335-14-5-.08(11)(a), as applicable.

6. After the pay-in period is completed, whenever the current corrective action cost estimate changes during the operating life of the facility, the post-closure care period, or the corrective action period, 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 and amount into the fund so that its value after this deposit at least equals the amount of the current corrective action cost estimate, or obtain other financial assurance as specified in 335-14-5-.08(11) to cover the difference.

7. During the corrective action period, if the value of the trust fund is greater than the total amount of the current corrective action cost estimate, the owner or operator may submit a written request to the Department for release of the amount in excess of the current corrective action cost estimate.

8. If an owner or operator substitutes other financial assurance as specified in 335-14-5-.08(11) 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 corrective action 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 335-14-5-.08(11)(a)7. or (a)8., the Department shall approve or disapprove the request for release. If the Department approves the owner or operator's request for release the Department will instruct the trustee to release to the owner or operator such funds as the Department specifies in writing.

10. After the pay-in-period is completed, the Department may approve a release of funds during the corrective action period, if the owner or operator demonstrates to the Department that the value of the trust fund exceeds the remaining cost of corrective action.

11. After the pay-in-period is completed, an owner or operator or any other person authorized to conduct corrective action may request reimbursements for corrective action expenditures by submitting itemized bills to the Department. Within 60 days after receiving bills for corrective action 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 corrective action expenditures are in accordance with the approved corrective action plan or otherwise justified. If the Department does not instruct the trustee to make such reimbursements, he 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) The owner or operator substitutes alternate financial assurance as specified in 335-14-5-.08(11) and approved by the Department; or

(ii) The Department releases the owner or operator from the requirements of 335-14-5-.08(11) in accordance with 335-14-5-.08(11)(f).

(b) Surety bond guaranteeing performance of corrective action. An owner or operator may satisfy the requirements of 335-14-5-.08(11) by obtaining a surety bond which conforms to the requirements of 335-14-5-.08(6)(c) and submitting the bond to the Department.

(c) Corrective action letter of credit. An owner or operator may satisfy the requirements of 335-14-5-.08(11) by obtaining an irrevocable standby letter of credit which conforms to the requirements of 335-14-5-.08(6)(d) and submitting the letter to the Department.

(d) Use of multiple financial mechanisms. An owner or operator may satisfy the requirements of 335-14-5-.08(11) by establishing more than one financial mechanism per facility. These mechanisms are limited to trust funds, surety bonds guaranteeing performance of corrective action, and letters of credit. The mechanisms must be as specified in 335-14-5-.08(11)(a), (b), and (c), respectively, 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 corrective action cost estimate. If an owner or operator uses a trust fund in combination with a surety bond or a letter of credit, he may use the trust fund as the standby trust fund for the other mechanisms. 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 corrective action of the facility.

(e) Use of a financial mechanism for multiple facilities. An owner or operator may use a financial assurance mechanism specified in 335-14-5-.08(11) to meet the requirements of 35-14-5-.08(11) for more than one facility. Evidence of financial assurance submitted to the Department must include a list showing, for each facility, the EPA or Alabama Identification Number, name, address, and the amount of funds for corrective action 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 corrective action 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.

(f) Release of the owner or operator from the requirements of 335-14-5-.08(11). Within 60 days after receiving certifications from the owner or operator and an independent

registered professional engineer that corrective action has been completed for a hazardous waste disposal unit or solid waste management units 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 corrective action of that unit, unless the Department has reason to believe that corrective action has not been in accordance with the approved plan, permit, or corrective action order requirements. The Department shall provide the owner or operator with a detailed written statement of any such reason to believe that corrective action has not been in accordance with the approved plan, permit, or order

(12) Wording of the instruments.

(a)1. A Trust agreement for a trust fund, as specified in 335-14-5-.08(4)(a), 335-14-5-.08(6)(a), or 335-14-5-.08(11)(a), or 335-14-6-.08(4)(a) or 335-14-6-.08(6)(a), must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

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 Alabama Department of Environmental Management (the "Department") an agency of the State of Alabama, 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, and/or corrective action 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, post-closure, and/or corrective action 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, post-closure, and/or corrective action 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 or 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 the 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 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 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 or his designee, 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 his designee, or by the Trustee and the Department or his designee, 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 Alabama.

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 ADEM Administrative Code subparagraph 335-14-5-.08(12)(a)1. as such rules were constituted on the date first above written.

[Signature of Grantor]

[Title]

Attest:

[Title]

[Seal]

[Signature of Trustee]

Attest:

[Title]

[Seal]

2. The following is an example of the certification of acknowledgment which must accompany the trust agreement for a trust fund as specified in 335-14-5-.08(4)(a) and (6)(a) or 335-14-6-.08(4)(a) and (6)(a).

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]

(b) A surety bond guaranteeing payment into a trust fund, as specified in 335-14-5-.08(4)(b) or 335-14-5-.08(6)(b) or 335-14-6-.08(4)(b) or 335-14-6-.08(6)(b), must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

FINANCIAL GUARANTEE BOND

Date bond executed: _____

Effective date: _____

Principal: _____

[legal name and business address of owner or operator]

Type or 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, post-closure, and/or corrective action amounts(s) for each facility guaranteed by this bond [indicate closure and post-closure 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 Alabama Department of Environmental Management (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 Alabama Hazardous Wastes Management and Minimization Act of 1978 (AHWMMA), as amended, 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 post-closure 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 a U.S. district court or other court of competent jurisdiction,

Or, if the Principal shall provide alternate financial assurance, as specified in ADEM Administrative Code rule 335-14-5-.08 or 335-14-6-.08, 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.

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, post-closure, and/or corrective action 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 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 ADEM Administrative Code subparagraph 335-14-5-.08(12)(b) as such rules 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: $_____

(c) A surety bond guaranteeing performance closure, post-closure, and/or corrective action, as specified in 335-14-5-.08(4)(c), 335-14-5-.08(6)(c), or 335-14-5-.08(11)(b) must be worded as follows, except that the instructions in brackets are to be replaced with the relevant information and the brackets deleted:

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 and address, and closure, post-closure, and/or corrective action amount(s) for each facility guaranteed by this bond [indicate closure, post-closure and corrective action 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 Alabama Department of Environmental Management (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 joining action or actions against any or all of us, and for all other purposes each 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 Alabama Hazardous Wastes Management and Minimization Act of 1978 (AHWMMA), as amended, 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 post-closure 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 post-closure care of each facility for which this bond guarantees post-closure care, in accordance with the post-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 corrective action at each facility for which this bond guarantees corrective action, in accordance with the corrective action plan and other requirements of the permit or correction action order, as such plan, permit, and/or order 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 ADEM Administrative Code Rule 335-14-5-.08, 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 ADEM Administrative Code 335-14-5, 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 post-closure requirements of ADEM Administrative Code 335-14-5, for a facility for which this bond guarantees performance of post-closure care, the Surety(ies) shall either perform post-closure care in accordance with the post-closure plan and other permit requirements or place the post-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 failed to provide alternate financial assurance as specified in ADEM Administrative Code 335-14-5-.08, 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.

Upon notification by the Department that the Principal has been found in violation of the corrective action requirements of ADEM Administrative Code 335-14-5, for a facility for which the bond guarantees performance of corrective action, the Surety(ies) shall either perform corrective action in accordance with the corrective action plan and other permit or corrective action order requirements or place the corrective action amount guaranteed for the facility into the standby trust fund as directed by the Department.

The surety(ies) hereby waive(s) notification of amendments to closure, post-closure, and/or corrective action plans, permits, orders, 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 from 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, post-closure, and/or corrective action 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 ADEM Administrative Code 335-14-5-.08(12)(c) as such rule was 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: $_____

(d) A letter of credit, as specified in 335-14-5-.08(4)(d), 335-14-5-.08(6)(d), or 335-14-5-.08(11)(c) or 335-14-6-.08(4)(c) or 335-14-6-.08(6)(c), must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

IRREVOCABLE STANDBY LETTER OF CREDIT

Director

Alabama Department of Environmental Management 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 Alabama Hazardous Wastes Management Act of 1978, as amended."

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 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 ADEM Administrative Code subparagraph 335-14-5-.08(12)(d) as such rules 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"].

(e) A certificate of insurance as specified in 335-14-5-.08(4)(e), 335-14-5-.08(6)(e) or 335-14-6-.08(4)(d) or 335-14-6-.08(6)(d), must be worded as follows, except that the instructions in brackets are to be replaced with the relevant information and the brackets deleted:

CERTIFICATE OF INSURANCE FOR CLOSURE OR POST-CLOSURE 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: The EPA Identification Number, name, address, and the amount of insurance for closure and/or the amount for post-closure care (these amounts for all facilities covered must total the face amount shown 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 post-closure care" or "post-closure care"] for the facilities identified above. The Insurer further warrants that such policy conforms in all respects with the requirements of ADEM Admin. Code subparagraphs 335-14-5-.08(4)(e), 335-14-5-.08(6)(e), 335-14-6-.08(4)(d), and 335-14-6-.08(6)(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.

Whenever requested by the Department, the Insurer agrees to furnish to the Department a duplicate original of the policy listed above, including all endorsements thereon.

I hereby certify that the wording of this certificate is identical to the wording specified in ADEM Admin. Code subparagraphs 335-14-5-.08(12)(e) as such rules 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]

(f) A letter from the chief financial officer, as specified in 335-14-5-.08(4)(f) or 335-14-5-.08(6)(f) or 335-14-6-.08(4)(e) or 335-14-6-.08(6)(e), must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

LETTER FROM THE CHIEF FINANCIAL OFFICER

[Address to the Director, Alabama Department of Environmental Management, P.O. Box 301463, Montgomery, Alabama 36130-1463.]

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, as specified in ADEM Admin. Code R. 335-14-5-.08 and 335-14-6-.08. [Fill out the following five 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 cost estimates. Identify each cost estimate as to whether it is for one or more of the following: closure, post-closure, and plugging and abandonment.]

1. This firm is the owner or operator of the following facilities for which financial assurance for [identify one or more of the following: closure, and post-closure] care is demonstrated through the financial test specified in ADEM Admin. Code R. 335-14-5-.08 and 335-14-6-.08. The current closure, and post-closure cost estimates covered by the test are shown for each facility: _____.

2. This firm guarantees, through the corporate guarantee specified in ADEM Admin. Code R. 335-14-5-.08 and 335-14-6-.08, the [identify one or more of the following: closure, and post-closure] cost(s) at the following facilities owned or operated by subsidiaries of this firm. The current cost estimates for the care so guaranteed are shown for each facility: _____

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 Alabama, where U.S. EPA or some designated authority is administering financial responsibility requirements, this firm, as owner or operator or guarantor, is demonstrating financial assurance for the [identify one or more of the following: closure, post-closure, and plugging and abandonment] cost(s) at the following facilities through a financial test and/or corporate guarantee substantially equivalent to the ones specified in ADEM Admin. Code R. 335-14-5-.08 and 335-14-6-.08. The current cost estimates covered by such a test or guarantee are shown for each facility: _____

4. This firm is the owner or operator of the following hazardous waste management facilities for which financial assurance for [identify one or more of the following: closure, post-closure, and plugging and abandonment] cost(s) is not demonstrated to the state through the financial test or any other financial assurance mechanism specified in ADEM Admin. Code R. 335-14-5-.08 and 335-14-6-.08 or equivalent or substantially equivalent Federal or State mechanism. The current cost estimates not covered by such financial assurance are shown for each facility: _____

5. This firm is the owner or operator of the following UIC facilities for which financial assurance for plugging and abandonment is required under Part 144. The current closure cost estimates as required by 40 CFR 144.62 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 335-14-5-.08(4)(f)1.(i) or (6)(f)1.(i) of or 335-14-5-.08(4)(e)1.(i) or (6)(e)1.(i) are used. Fill in Alternative II if the criteria of 335-14-5-.08(4)(f)1.(ii) or (6)(f)1.(ii) or 335-14-6-.08(4)(e)1.(ii) or (6)(e)1.(ii) are used.]

ALTERNATIVE I

1. Sum of current cost estimates [total of all cost estimates shown in the five paragraphs above]
$_____

*2. Total liabilities [if any portion of the 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.) $_____

_____

10. Is line 3 at least $10 million? _____ Yes ____ No

11. Is line 3 at least 6 times line 1? ____Yes ____ No

12. Is line 7 at least 6 times line 1? ____Yes ____ No

*13. Are at least 90% of firm's assets located in the U.S.? If not, complete line 14 ____Yes ____ No

14. Is line 9 at least 6 times line 1? ____Yes ____ No

15. Is line 2 divided by line 4 less than 2.0? ____Yes ____ No

16. Is line 8 divided by line 2 greater than 0.1? ____Yes ____ No

17. Is line 5 divided by line 6 greater than 1.5? ____Yes ____ No

_____

ALTERNATIVE II

1. Sum of current cost estimates [total of all cost estimates shown in the five 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 cost estimates is included in "total liabilities" on your firm's 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 firm's assets are located in the U.S.) $_____

_____

7. Is line 5 at least $10 million? ____Yes ____ No

8. Is line 5 at least 6 times line 1? ____Yes ____ No

*9. Are at least 90% of the firm's assets located in the U.S? If not, complete line 10. ____Yes ____ No

10. Is line 6 at least 6 times line 1? ____Yes ____ No

_____

I hereby certify that the wording of this letter is identical to the wording specified in ADEM Admin. Code subparagraph 335-14-5-.08(12)(f) as such rules were constituted on the date shown immediately below.

[Signature]

_____

[Name] _____

[Title]

_____

[Date]

(g) A letter from the chief financial officer, as specified in 335-14-5-.08(8)(f) or 335-14-6-.08(8)(f), must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

LETTER FROM THE CHIEF FINANCIAL OFFICER

[Address to the Director, Alabama Department of Environmental Management, P.O. Box 301463, Montgomery, Alabama 36130-1463]

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 post-closure care" if applicable] as specified in ADEM Admin. Code R. 335-14-5-.08 and 335-14-6-.08.

[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 ADEM Admin. Code R. 335-14-5-.08 and 335-14-6-.08:

_____

The firm identified above guarantees, through the guarantee specified in ADEM Admin. Code R. 335-14-5-.08 and 335-14-6-.08, 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 post-closure care, fill in the following five paragraphs regarding facilities and associated closure and post-closure 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 post-closure cost estimates. Identify each cost estimate as to whether it is for closure or post-closure care.]

1. The firm identified above owns or operates the following facilities for which financial assurance for closure or post-closure care or liability coverage is demonstrated through the financial test specified in ADEM Admin. Code R. 335-14-5-.08 and 335-14-6-.08. The current closure, and/or post-closure cost estimate covered by the test are shown for each facility: _____.

2. The firm identified above guarantees, through the guarantee specified in ADEM Admin. Code R. 335-14-5-.08 and 335-14-6-.08, the closure and post-closure care or liability coverage of the following facilities owned or operated by the guaranteed party. The current cost estimates for the closure or post-closure care so guaranteed are shown for each facility: _____.

3. In States outside of Alabama, where the U.S. EPA or some designated authority is administering the financial requirements, this firm is demonstrating financial assurance for the closure or post-closure care of the following facilities through the use of a test equivalent or substantially equivalent to the financial test specified in ADEM Admin. Code R. 335-14-5-.08 and 335-14-6-.08. The current closure or post-closure cost estimates covered by such a test are shown for each facility: _____.

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, post-closure care, is not demonstrated to the state through the financial

test or any other financial assurance mechanisms specified in ADEM Admin. Code R. 335-14-5-.08 and 335-14-6-.08 or equivalent or substantially equivalent Federal or State mechanisms. The current closure, and/or post-closure cost estimates not covered by such financial assurance are shown for each facility:

5. This firm is the owner or operator or guarantor of the following UIC facilities for which financial assurance for plugging and abandonment is required under Part 144 and is assured through a financial test. The current closure cost estimates as required by 40 CFR 144.62 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 335-14-5-.08(8)(f)1.(i) 335-14-6-.08(8)(f)1.(i) of the Department Administrative Code are used. Fill in Alternative II if the criteria of 335-14-5-.08(8)(f)1.(ii) or 335-14-6-.08(8)(f)1.(ii) of the Department Administrative Code 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., give total U.S. assets $_____

_____

7. Is line 5 at least $10 million? ____Yes ____ No

8. Is line 4 at least 6 times line 1? ____Yes ____ No

9. Is line 5 at least 6 times line 1? ____Yes ____ No

*10. Are at least 90% of assets located in the U.S.? If not, complete line 11 ____Yes ____ No

11. Is line 6 at least 6 times line 1? ____Yes ____ No

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. $_____

---

7. Is line 5 at least $10 million? _____Yes _____ No

8. Is line 5 at least 6 times line 1? _____Yes _____ No

*9. Are at least 90% of assets located in the U.S.? If not, complete line 10 _____Yes _____ No

10. Is line 6 at least 6 times line 1? _____Yes _____ No

[Fill in Part B if you are using the financial test to demonstrate assurance of both liability coverage and closure or post-closure care.]

Part B. Closure or Post-Closure Care and Liability Coverage

[Fill in Alternative I if the criteria of 335-14-5-.08(4)(f)1.(i) or 335-14-5-.08(6)(f)1.(i) and 335-14-5-.08(8)(f)1.(i) are used or if the criteria of 335-14-6-.08(4)(e)1.(i) or 335-14-6-.08(6)(e)1.(i) and 335-14-6-.08(8)(f)1.(i) are used. Fill in Alternative II if the criteria of 335-14-5-.08(4)(f)1.(ii) or 335-14-5-.08(6)(f)1.(ii) and 335-14-5-.08(8)(f)1.(ii) are used or if the criteria of 335-14-6-.08(4)(e)1.(ii) or 335-14-6-.08(6)(e)1.(ii) and 335-14-6-.08(8)(f)1.(ii) are used.]

ALTERNATIVE I

1. Sum of current closure and post-closure 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 post-closure 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.) $_____

_____

12. Is line 5 at least $10 million? _____Yes _____ No

13. Is line 5 at least 6 times line 3? _____Yes _____ No

14. Is line 9 at least 6 times line 3? _____Yes _____ No

*15. Are at least 90% of assets located in the U.S.? If not, complete line 16. _____Yes _____ No

16. Is line 11 at least 6 times line 3?. _____Yes _____ No

17. Is line 4 divided by line 6 less than 2.0? _____Yes _____ No

18. Is line 10 divided by line 4 greater than 0.1?. _____Yes _____ No

19. Is line 7 divided by line 8 greater than 1.5? _____Yes _____ No

_____

ALTERNATIVE II

1. Sum of current closure and post-closure 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 post-closure cost estimates is included in "total liabilities" on your financial statements you may add that portion to this line) $_____

*8. Total assets in the U.S. (required only if less than 90% of assets are located in the U.S.) $_____

_____

9. Is line 7 at least $10 million?. _____Yes _____ No

10. Is line 7 at least 6 times line 3? _____Yes _____ No

*11. Are at least 90% of assets located in the U.S.? If not, complete line 12. _____Yes _____ No

12. Is line 8 at least 6 times line 3? _____Yes _____ No

_____

I hereby certify that the wording of this letter is identical to the wording specified in ADEM Admin. Code subparagraph 335-14-5-.08(12)(g) as such rules were constituted on the date shown immediately below.

[Signature]

_____

[Name]

_____

[Title]

_____

[Date]

_____

(h)1. A corporate guarantee, as specified in 335-14-5-.08(4)(f) or 335-14-5-.08(6)(f) or 335-14-6-.08(4)(e) or 335-14-6-.08(6)(e),

must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

CORPORATE GUARANTEE FOR CLOSURE OR POST-CLOSURE CARE

Guarantee made this [date] by [name of guaranteeing entity], a business corporation organized under the laws of the State of [insert name of State], 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 335-14-1-.02 to the Alabama Department of Environmental Management (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 ADEM Admin. Code subparagraphs 335-14-5-.08(4)(f), 335-14-5-.08(6)(f), 335-14-6-.08(4)(e) and 335-14-6-.08(6)(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, post-closure care, or both.]

3. "Closure plans" and "post-closure plans" as used below refer to the plans maintained as required by ADEM Admin. Code R. 335-14-5-.08 and 335-14-6-.08 for the closure and post-closure 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," "post-closure" or "closure and post-closure care"] of the above facility(ies) in accordance with the closure or post-closure plans and other permit requirements whenever required to do so, the guarantor shall do so or establish a trust fund as specified in ADEM Admin. Code R. 335-14-5-.08 or 335-14-6-.08, as applicable, in the name of the [owner or operator] in the amount of the current closure or post-closure cost estimates as specified in ADEM Admin. Code R. 335-14-5-.08 or 335-14-6-.08.

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 financial assurance as specified in ADEM Admin. Code R. 335-14-5-.08 or 335-14-6-.08, 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.

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 post-closure care, he shall establish alternate financial assurance as specified in ADEM Admin. Code R. 335-14-5-.08 or 335-14-6-.08, 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 post-closure plan, amendment or modification of the permit, the extension or reduction of the time of performance of closure or post-closure, or any other modification or alteration of an obligation of the owner or operator pursuant to ADEM Admin. Code 335-14-5 or 335-14-6.

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 ADEM Admin. Code R. 335-14-5-. 08 and 335-335-14-6-.08 for the above-1isted facilities, 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 approves, alternate closure, and/or post-closure care coverage complying with ADEM Admin. Code paragraphs 335-14-5-.08 and/or 335-14-6-.08.

[Insert the following language if the guarantor is a firm qualifying as a guarantor due to its “substantial business relationship” with its owner or operator]: Guarantor may terminate this guarantee 120 days following the receipt of notification, through certified mail, by the Department and by [the owner or operator].

11. Guarantor agrees that if [owner or operator] fails to provide alternate financial assurance as specified in ADEM Admin. Code R.

335-14-5-.08 or 335-14-6-.08, 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].

12. Guarantor expressly waives notice of acceptance of this guarantee by the Department or by [owner of operator]. Guarantor also expressly waives notice of amendments or modifications of the closure, and/or post-closure 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 ADEM Admin. Code subparagraph 335-14-5-.08(12)(h) as such rules 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:

_____

2. A guarantee, as specified in 335-14-5-.08(8)(g) or 335-14-6-.08(8)(g), must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

Guarantee for Liability Coverage

Guarantee made this [date] by [name of guaranteeing entity], a business corporation organized under the laws of [if incorporated within the United States insert "the State of _____" and insert name of State; if incorporated outside the United States, insert the name of the country in which incorporated, the principal place of business within the United States, and the name and address of the registered agent in the State of the principal place of business], 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 [335-14-1-.02]", 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 ADEM Admin. Code R. 335-14-5-.08(8)(g) and 335-14-6-.08(8)(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 the ADEM Administrative Code 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 Alabama Department of Environmental Management (“the Department”) and to [owner or operator] that he intends to provide alternate liability coverage as specified in

ADEM Admin. Code paragraphs 335-14-5-.08(8) and 335-14-6-.08(8), 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 ADEM Admin. Code paragraph 335-14-5-.08(8) or 335-14-6-.08(8), 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 ADEM Admin. Code paragraphs 335-14-5-.08(8) and 335-14-6-.08(8), provided that such modification shall become effective only if 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 ADEM Admin. Code paragraphs 335-14-5-.08(8) and 335-14-6-.08(8) for the above-1isted 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 approves alternate liability coverage complying with ADEM Admin. Code paragraphs 335-14-5-.08(8) and/or 335-14-6-.08(8). [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 the guarantee is identical to the wording specified in 335-14-5-.08(12)(h)2. as such Rules 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: _____

(i) A hazardous waste facility liability endorsement as required in 335-14-5-.08(8) or 335-14-6-.08(8) must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

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 ADEM Admin. Code paragraph 335-14-5-.08(8) or 335-14-6-.08(8). 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 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 ADEM Admin. Code subparagraph 335-14-5-.08(8)(f) or 335-14-6-.08(8)(f).

(c) Whenever requested by the Alabama Department of Environmental Management (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 sixty (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 20____. The effective date of said policy is _____ day of _____ 20_____.

I hereby certify that the wording of this endorsement is identical to the wording specified in ADEM Admin. Code subparagraph 335-14-5-.08(12)(i) as such rule 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 the State of Alabama.

[Signature of Authorized Representative of Insurer]

[Type name]

[Title], Authorized Representative of [name of Insurer]

[Address of Representative]

(j) A certificate of liability insurance as required in 335-14-5-.08(8) or 335-14-6-.08(8) must be worded as follows, except that the instructions in brackets are to be replaced with the relevant information and the brackets deleted:

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 the insured's obligation to demonstrate financial responsibility under ADEM Admin. Code paragraph 335-14-5-.08(8) or 335-14-6-.08(8). 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 ADEM Admin. Code subparagraph 335-14-5-.08(8)(f) or 335-14-6-.08(8)(f).

(c) Whenever requested by the Alabama Department of Environmental Management ("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 sixty (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 ADEM Admin. Code subparagraph 335-14-5-.08(12)(j) as such rule 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 the State of Alabama.

[Signature of authorized representative of Insurer]

[Type name]

[Title], Authorized Representative of [name of Insurer]

[Address of Representative]

(k) A letter of credit, as specified in 335-14-5-.08(8)(h), or 335-14-6-.08(8)(h), must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

Irrevocable Standby Letter of Credit

Name and address of Issuing Institution

Department

Alabama Department of Environmental Management

Dear Sir or Madam: We hereby establish our Irrevocable 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's or operator's name and address] for third-party liability awards or settlements up to [in words] U.S. dollars $ per occurrences 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 amounts 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 (1) a signed certificate reading as follows:

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 operations of [grantor'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 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 principal] 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 principal] 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.

[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 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 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 335-14-5-.08(12)(k) as such Rules 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"].

(l) A surety bond, as specified in 335-14-5-.08(8)(i) or 335-14-6-.08(8)(i) must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

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 occurances	**Nonsudden accidental occurances**
Penal Sum Per Occurance	(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) Section 22-30-16 of the Alabama Hazardous Wastes Management and Minimization Act of 1978, as amended.

(2) Rules of the Alabama Department of Environmental Management Administrative Code, Division 335-14, particularly Rules 335-14-5-.08(8) and 335-14-6-.08(8), 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 335-14-5-.08(12)(l), as such Rules 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: $_____

(m)1. A trust agreement, as specified in 335-14-5-.08(12)(j) or 335-14-6-.08(12)(j) must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

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 Alabama Department of Environmental Management (the "Department") has established certain Rules 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.

(c) 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 [Grantor's] hazardous waste treatment, storage, or disposal facility should be paid in the amount of $[ ].

[Signatures]

Grantor

[Signature(s)]

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 Grantor's 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:

(a) 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;

(b) 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

(c) 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 trust 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 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 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 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 amendments 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. 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 [enter name of State].

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 335-14-5-.08(12)(m) as such Rules were constituted on the date first above written.

[Signature of Grantor]

[Title]

Attest:

[Title]

[Seal]

[Signature of Trustee]

Attest:

[Title]

[Seal]

2. The following is an example of the certification of acknowledgment which must accompany the trust agreement for a trust fund as specified in 335-14-5-.08(8)(j) Rule or 335-14-6-.08(8)(j).

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]

(n)1. A standby trust agreement as specified in 335-14-5-.08(8)(h) or 335-14-6-.08(8)(h) must be worded as follows,

except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

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 Alabama Department of Environmental Management (the "Department"), 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 $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 by [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 [Grantor's] 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 Grantor's 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 335-14-5-.08(12)(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:

(a) 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;

(b) 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

(c) 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 institutions 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 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 of the Alabama Department of Environmental Management 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 Grantor's order, 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 Director 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, 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 reasonably 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 Alabama.

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 ADEM Admin. Code subparagraph 335-14-5-.08(12)(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]

2. The following is an example of the certification of acknowledgment which must accompany the trust agreement for a standby trust fund as specified in 335-14-5-.08(8)(h) or 335-14-6-.08(8)(h). State requirements may differ on the proper content of this acknowledgment.

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]

Author: Stephen C. Maurer; Vernon C. Crockett; Amy P. Zachry; Justin Martindale; C. Edwin Johnston; James L. Bryant; Vernon H. Crockett, Bradley N. Curvin, Theresa A. Maines; Brian C. Espy; Heather M. Jones; Gary L. Ellis; Sonja B. Favors; Brent A. Wilson; Jonah L. Harris

Statutory Authority: Code of Ala. 1975, §§22-30-11, 22-30-12, 22-30-16.

History: February 9, 1983. **Amended**: April 9, 1986; September 29, 1986; February 15, 1988; August 24, 1989; December 6, 1990; January 25, 1992. **Amended**: Filed November 30, 1994; effective January 5, 1995. **Amended**: Filed February 21, 1997; effective March 28, 1997. **Amended**: Filed February 20, 1998; effective March 27, 1998. **Amended**: Filed February 26, 1999; effective April 2, 1999. **Amended**: Filed February 25, 2000; effective March 31, 2000. **Amended**: Filed March 9, 2001; effective April 13, 2001. **Amended**: Filed February 8, 2002; effective March 15, 2002. **Amended**: Filed March 13, 2003; effective April 17, 2003. **Amended**: Filed April 22, 2004; effective May 27, 2004. **Amended**: Filed February 24, 2005; effective March 31, 2005. **Amended**: Filed February 27, 2007; effective April 3, 2007. **Amended**: Filed February 24, 2009; effective March 31, 2009. **Amended**: Filed

February 23, 2010; effective March 30, 2010. **Amended:** Filed February 19, 2013; effective March 26, 2013. **Amended:** Filed February 14, 2017; effective March 31, 2017. **Amended:** Filed February 20, 2018; effective April 7, 2018. **Amended:** Published April 28, 2023; effective June 12, 2023. **Amended:** Published December 31, 2025; effective February 14, 2026.

335-14-5-.09 Use And Management Of Containers.

(1) Applicability. The regulations in 335-14-5-.09 apply to owners and operators of all hazardous waste facilities that store containers of hazardous waste, except as Rule 335-14-5-.019(l) provides otherwise.

[Comment: Under 335-14-2-.01(7) and 335-14-2-.04(4), 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 335-14-2-.01(7). In that event, management of the container is exempt from the requirements of this 335-14-5-.09(1).]

(2) Condition of containers. If a container holding a 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 335-14-5.

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

(4) Management of containers.

(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) Containers having a capacity greater than 30 gallons must not be stacked over two containers high.

(5) 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. The owner or operator

must also note the number and capacity of hazardous waste containers present. These inspections must be documented in accordance with Rule 335-14-5-.02(6)(d). See 335-14-5-.02(6)(c) and 335-14-5-.09(2) for remedial action required if deterioration or leaks are detected.]

(6) Containment.

(a) Container storage areas must have a containment system that is designed and operated in accordance with 335-14-5-.09(6)(b), except as otherwise provided by 335-14-5-.09(6)(c).

(b) A containment system must be designed and operated as follows:

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. Run-on into the containment system must be prevented unless the collection system has sufficient excess capacity in addition to that required in 335-14-5-.09(6)(b)3. to contain any run-on which might enter the system; and

5. Spilled or leaked waste must be removed from the sump or collection area in a timely manner not to exceed 24 hours after detection. Accumulated precipitation must be removed in as timely a manner necessary to prevent overflow of the collection system.

(c) Storage areas that store containers holding only wastes that do not contain free liquids need not have a containment system defined by 335-14-5-.09(6)(b), except as provided by 335-14-5-.09(6)(d) 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 335-14-5-.09(6)(b):

1. F020, F021, F022, F023, F026, and F027;

2. [Reserved]

(7) Special requirements for ignitable or reactive waste. Containers holding ignitable or reactive waste must be located at least 15 meters (50 feet) from the facility's property line.

(8) Special requirements for incompatible wastes.

(a) Incompatible wastes, or incompatible wastes and materials (see 335-14-5 - Appendix V for examples), must not be placed in the same container unless 335-14-5-.02(8)(b) is complied with.

(b) Hazardous waste must not be placed in an unwashed container that previously held an incompatible waste or material.

(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.

(9) Closure and post-closure care.

(a) 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.

(b) If the owner or operator cannot remove or decontaminate all waste required by Rule 335-14-5-.09(9)(a), then the owner or operator must close the container storage area and perform post-closure care in accordance with the closure and post-closure care requirements that apply to landfills [Rule 335-14-5-.14(11)].

(10) Air Emission Standards. The owner or operator shall manage all hazardous waste placed in a container in accordance with the applicable requirements of 335-14-5-.27, 335-14-5-.28, and 335-14-5-.29.

Author: Stephen C. Maurer, James W. Hathcock, C. Edwin Johnston, Michael B. Champion, Theresa A. Maines, Heather M. Jones; Vernon H. Crockett, Sonja B. Favors, Brent A. Watson, Jonah L. Harris. **Statutory Authority:** Code of Ala. 1975, §§22-30-11, 22-30-16. **History:** July 19, 1982. **Amended:** April 9, 1986; February 15, 1988; August 24, 1989; December 6, 1990. **Amended:** Filed November 30, 1994; effective January 5, 1995. **Amended:** Filed February 20, 1998; effective March 27, 1998. **Amended:** Filed March 9, 2001; effective April 13, 2001. **Amended:** Filed February 8, 2002; effective March 15, 2002. **Amended:** Filed February 27, 2007; effective April 3, 2007. **Amended:** Filed April 22, 2008; effective May 27, 2008. **Amended (Title Only):** Filed February 20, 2018; effective April 7, 2018. **Amended:** Published February 28, 2020; effective April 13, 2020. **Amended:** Published April 28, 2023; effective June 12, 2023.

335-14-5-.10 Tank Systems.

(1) Applicability. The requirements of 335-14-5-.10 apply to owners and operators of facilities that use tank systems for storing or treating hazardous waste except as otherwise provided in 335-14-5-.10(1)(a), (b), and (c) or in Rule 335-14-5-.01.

(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 335-14-5-.10(4). To demonstrate the absence or presence of free liquids in the stored/treated 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 No. SW-846, as incorporated by reference in rule 335-14-1-.02(2).

(b) Tank systems, including sumps, as defined in rule 335-14-1-.02, that serve as part of a secondary containment system to collect or contain releases of hazardous wastes are exempted from the requirements in 335-14-5-.10(4)(a).

(c) Tanks, sumps, and other such collection devices or systems used in conjunction with drip pads, as defined in 335-14-1-.02 and regulated under Rule 335-14-5-.23, must meet the requirements of 335-14-5-.10.

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

(a) For each existing tank system that does not have secondary containment meeting the requirements of 335-14-5-.10(4), the owner or operator must determine that the tank system is not leaking or is fit for use. Except as provided in 335-14-5-.10(2)(c), the owner or operator must obtain and keep on file at the facility a written assessment reviewed and certified by

a qualified professional engineer, in accordance with 335-14-8-.02(2)(d), that attests to the tank system's integrity by January 12, 1988.

(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 a qualified professional engineer in accordance with 335-14-8-.02(2)(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.]

(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 s335-14-5-.10(2)(a), a tank system is found to be leaking

or unfit for use, the owner or operator must comply with the requirements of 335-14-5-.10(7).

(3) 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 a qualified professional engineer, in accordance with 335-14-8-.02(2)(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:

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:

(I) Soil moisture content;

(II) Soil pH;

(III) Soil sulfides level;

(IV) Soil resistivity;

(V) Structure to soil potential;

(VI) Influence of nearby underground metal structures (e.g., piping);

(VII) Existence of stray electric current;

(VIII) 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:

(I) Corrosion-resistant materials of construction such as special alloys, fiberglass reinforced plastic, etc;

(II) Corrosion-resistant coating (such as epoxy, fiberglass, etc.) with cathodic protection (e.g., impressed current or sacrificial anodes); and

(III) Electrical isolation devices such as insulating joints, flanges, etc.

[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.]

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

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; 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 a qualified 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.]

(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 335-14-5-. 10(3)(a)3. 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 335-14-5-.10(3)(b) through (f) that attest that the tank system was properly designed and installed and that repairs, pursuant to 335-14-5-.10(3)(b) and (d) were performed. These written statements must also include the certification statement as required in 335-14-8-.02(2)(d).

(4) 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 335-14-5-.10(4) must be provided (except as provided in 335-14-5-.10(4)(f) and (g)):

1. For all new and exciting tank systems or components, prior to their being put into service;

2. For tank systems that store or treat materials that become hazardous wastes, within two years of the hazardous waste listing, or when the tank system has reached 15 years of age, whichever comes later.

(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 335-14-5-.10(4)(b), 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 335-14-2, it is subject to management as a hazardous waste in accordance with all applicable requirements of Chapters 335-14-3 through 335-14-6. If the collected material is discharged through a point source to waters of the United States, it is subject to the requirements of 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 requirements of Section 307 of the Clean Water Act, as amended. If the collected material is released to the environment, it may be subject to the reporting requirements of 40 CFR Part 302.]

(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 335-14-5-.10(4)(b), (c), and (d), 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 run-on or infiltration of precipitation into the secondary containment system unless the collection system has sufficient excess capacity to contain run-on or infiltration. Such additional capacity must be sufficient to contain precipitation from a 25-year, 24-hour rainfall event.

(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).

(v) Provided with an impermeable interior coating or lining if a concrete liner is used. The interior coating or lining must be compatible with the stored waste and prevent migration of the waste into the concrete.

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 run-on or infiltration of precipitation into the secondary containment system unless the collection system has sufficient excess capacity to contain run-on or infiltration. Such additional capacity must be sufficient to contain precipitation from a 25-year, 24-hour rainfall event;

(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:

(I) Meets the definition of ignitable waste under 335-14-2-.03(2); or

(II) Meets the definition of reactive waste under 335-14-2-.03(4) and may form an ignitable or explosive vapor; and

(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 Institute's (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.]

(f) Ancillary equipment must be provided with secondary containment (e.g., trench, jacketing, doublewalled piping) that meets the requirements of 335-14-5-.10(4)(b) and

(c) except for:

1. Aboveground 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

4. Pressurized aboveground piping systems with automatic shut off devices (e.g., excess flow check valves, flow metering shutdown devices, loss of pressure actuated shut-off devices) that are visually inspected for leaks on a daily basis.

(g) The owner or operator may obtain a variance from the requirements of 335-14-5-.10(4) 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 335-14-5-.10(4)(g)2., be exempted from the secondary containment requirements of 335-14-5-.10(4).

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:

(I) The physical and chemical characteristics of the waste in the tank system, including its potential for migration,

(II) The hydrogeological characteristics of the facility and surrounding land,

(III) The potential for health risks caused by human exposure to waste constituents,

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

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

(ii) The potential adverse effects of a release on groundwater quality, taking into account:

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

(II) The proximity and withdrawal rates of groundwater users,

(III) The current and future uses of groundwater in the area, and

(IV) 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:

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

(II) The patterns of rainfall in the region,

(III) The proximity of the tank system to surface waters,

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

(V) 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:

(I) The patterns of rainfall in the region, and

(II) 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 335-14-5-.10(4)(g)1., 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 335-14-5-.10(7), except 335-14-5-.10(7)(d), and

(ii) Decontaminate or remove contaminated soil to the extent necessary to:

(I) 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

(II) 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 335-14-5-.10(4)(g)3.(ii), comply with the requirements of 335-14-5-.10(8)(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 335-14-5-.10(4)(g)1., 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 335-14-5-.10(7)(a), (b), (c), and (d);

(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 335-14-5-.10(8)(b); and

(iii) If repairing, replacing, or reinstalling the tank system, provide secondary containment in accordance with the requirements of 335-14-5-.10(4)(a) through (f) or reapply for a variance from secondary containment and meet the requirements for new tank systems in 335-14-5-.10(3) 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 335-14-5-.10(4)(g) according to the following schedule:

(i) For existing tank systems, at least 24 months prior to the date that secondary containment must be provided in accordance with 335-14-5-.10(4)(a).

(ii) For new tank systems, at least 30 days prior to entering into a contract for installation.

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 335-14-5-.10(4)(g)1. or 335-14-5-.10(4)(g)2.

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 335-14-5-.10(4)(h), 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 335-14-5-.10(4) is provided, must comply with the following:

1. For non-enterable underground tanks, a leak test that meets the requirements of 335-14-5-.10(2)(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 335-14-5-.10(4)(i)1. or develop a schedule and procedure for an assessment of the overall condition of the tank system by a qualified 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.]

4. The owner or operator must maintain on file at the facility a record of the results of the assessments conducted in accordance with 335-14-5-.10(4)(i)1. through (i)3.

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 335-14-5-.10(4)(i)1. through (i)3., the owner or operator must comply with the requirements of 335-14-5-.10(7).

(5) General operating requirements.

(a) Hazardous wastes or treatment reagents must not be placed in a tank system if they could cause the tanks, 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 335-14-5-.10(7) if a leak or spill occurs in the tank system.

(6) 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 data gathered from monitoring and leak detection equipment (e.g., pressure or temperature gauges, monitoring wells) to ensure that the tank system is being operated according to its design.

[**Note:** 335-14-5-.02(6)(c) requires the owner or operator to remedy any deterioration or malfunction he finds. 335-14-5-.10(7) 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.]

(c) In addition, except as noted under 335-14-5-.10(6)(d), 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; and

2. 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).

(d) Owners or operators of tank systems that either use leak detection systems to alert facility personnel to leaks, or implement established workplace practices to ensure leaks are promptly identified, must inspect at least weekly those areas described in 335-14-5-.10(6)(c)1. and 2. Use of the alternate inspection schedule must be documented in the facility's operating record. This documentation must include a

description of the established workplace practices at the facility.

(e) Reserved.

(f) 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.]

(g) The owner or operator must document in the operating record of the facility an inspection of those items in 335-14-5-.10(6)(a) through (f).

(7) 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.

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 335-14-5-.10(7)(d)2., must be reported to the Department within 24 hours of its detection. Report of a release pursuant to 40 CFR Part 302 does not satisfy this requirement.

2. A leak or spill of hazardous waste is exempted from the requirements of 335-14-5-.10(7)(d) 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 335-14-5-.10(7)(e)2. through (e)4., the tank system must be closed in accordance with 335-14-5-.10(8).

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 335-14-5-.10(4) before it can be returned to service, unless the source of the leak is an aboveground portion of a tank system that can be inspected visually. If the source is an aboveground component that can be inspected visually, the component must be repaired and may be returned to service without secondary containment as long as the requirements of 335-14-5-.10(7)(f) are satisfied. If a component is replaced to comply with the requirements of 335-14-5-.10(7)(e), that component must satisfy the requirements for new tank systems or components in 335-14-5-.10(3) and 335-14-5-.10(4). 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 335-14-5-.10(4) prior to being returned to use.

(f) Certification of major repairs. If the owner/operator has repaired a tank system in accordance with 335-14-5-.10(7)(e), 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 a qualified professional engineer in accordance with 335-14-8-.02(2)(d) that the repaired system is capable of handling hazardous wastes without release for the intended life of the system. This certification must be placed

in the operating record and maintained until closure of the facility.

[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 RCRA Section 3004(v), 3008(h), or 7003(a) or the AHWMMA, respectively, requiring corrective action or such other response as deemed necessary to protect human health or the environment.]

[**Note:** See 335-14-5-.02(6)(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.]

(8) Closure and post-closure 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 335-14-2-.01(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 Rules 335-14-5-.07 and 335-14-5-.08.

(b) If the owner or operator demonstrates that not all contaminated soils can be practicably removed or decontaminated as required in 335-14-5-.10(8)(a), then the owner or operator must close the tank system and perform post-closure care in accordance with the closure and post-closure care requirements that apply to landfills [335-14-5-.14(11)]. In addition, for the purposes of closure, post-closure, and financial responsibility, such a tank system is then considered to be a landfill, and the owner or operator must meet all of the requirements for landfills specified in Rules 335-14-5-.07 and 335-14-5-.08.

(c) If an owner or operator has a tank system that does not have secondary containment that meets the requirements of 335-14-5-.10(4)(b) through (f) and has not been granted a variance from the secondary containment requirements in accordance with 335-14-5-.10(4)(g), then:

1. The closure plan for the tank system must include both a plan for complying with 335-14-5-.10(8)(a) and a contingent plan for complying with 335-14-5-.10(8)(b).

2. A contingent post-closure plan for complying with 335-14-5-.10(8)(b) must be prepared and submitted as part of the permit application.

3. The cost estimates calculated for closure and post-closure care must reflect the costs of complying with the contingent closure plan and the contingent post-closure plan, if those costs are greater than the costs of complying with the closure plan prepared for the expected closure under 335-14-5-.10(8)(a).

4. Financial assurance must be based on the cost estimates in 335-14-5-.10(8)(c)3.

5. For the purposes of the contingent closure and post-closure plans, such a tank system is considered to be a landfill, and the contingent plans must meet all of the closure, post-closure, and financial responsibility requirements for landfills under Rules 335-14-5-.07 and 335-14-5-.08.

(9) 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 335-14-2-.03(2) or 335-14-2-.03(4); and

(ii) 335-14-5-.02(8)(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 in rule 335-14-1-.02(2).

(10) Special requirements for incompatible wastes.

(a) Incompatible wastes, or incompatible wastes and materials, must not be placed in the same tank system, unless 335-14-5-.02(8)(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 335-14-5-.02(8)(b) is complied with.

(11) Air emission standards. The owner or operator shall manage all hazardous waste placed in a tank in accordance with the applicable requirements of 335-14-5-.27, 335-14-5-.28, 335-14-5-.29.

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335-14-5-.11 Surface Impoundments.

(1) Applicability. The requirements of 335-14-5-.11 apply to owners and operators of facilities that use surface impoundments to treat, store, or dispose of hazardous waste except as 335-14-5-.01(1) provides otherwise.

(2) Design and operating requirements.

(a) Any surface impoundment that is not covered by 335-14-5-.11(2)(c) or Rule 335-14-6-.11(2) 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 335-14-5-.11(9)(a)1. For impoundments that will be closed in accordance with 335-14-5-.11(9)(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 335-14-5-.11(2)(a) if the Director 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 Rule 335-14-5-.06(4)) into the groundwater or surface water at any future time. In deciding whether to grant an exemption, the Director 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 impoundment 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 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 335-14-1-.02 under "existing facility."

1.(i) The liner system must include:

(I) 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

(II) 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 lX10-7 cm/sec.

(ii) The liners must comply with 335-14-5-.11(2)(a)1., 2., and 3.

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 335-14-5-.11(2)(c) 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 lX10-1 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 m2/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.

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 groundwater.

(d) The Director may approve alternative design or operating practices to those specified in 335-14-5-.11(2)(c) if the owner or operator demonstrates to the Director that such design and operating practices, together with location characteristics:

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 335-14-5-.11(2)(c); and

2. Will allow detection of leaks of hazardous constituents through the top liner at least as effectively.

(e) The double liner requirement set forth in 335-14-5-.11(2)(c) may be waived by the Director 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 characteristics in 335-14-2-.03(5); and

2.(i)(I) The monofill has at least one liner for which there is no evidence that such liner is leaking. For the purposes of 335-14-5-.11(2)(e), 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 335-14-5-.11(2)(c) 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 post-closure requirements, including but not limited to groundwater monitoring and corrective action;

(II) The monofill is located more than one-quarter mile from an "underground source of drinking water" (as that term is defined in 335-14-1-.02); and

(III) The monofill is in compliance with generally applicable groundwater monitoring requirements for facilities with permits under RCRA Section 3005(c) and the AHWMMA; 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 335-14-5-.11(2)(c) if:

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 the AHWMMA; 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; run-on; malfunctions of level controllers, alarms, and other equipment; and human error.

(h) A surface impoundment must have dikes that are designed, constructed, and maintained with sufficient structural

integrity to prevent massive failure of the dikes. In ensuring structural integrity, it must not be presumed that the liner system will function without leakage during the active life of the unit.

(i) The Department will specify in the permit all design and operating practices that are necessary to ensure that the requirements of 335-14-5-.11(2) are satisfied.

(3) Action leakage rate.

(a) The Director shall approve an action leakage rate for surface impoundment units subject to 335-14-5-.11(2)(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 one foot. The action leakage rate must include an adequate safety margin to allow for uncertainties in the design (e.g., slope, hydraulic conductivity, thickness of drainage material), construction, operation, and location of the LDS, waste and leachate characteristics, likelihood and amounts of other sources of liquids in the LDS, and proposed response actions (e.g., the action leakage rate must 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 335-14-5-.11(7)(d) to an average daily flow rate (gallons per acre per day) for each sump. Unless the Director 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 335-14-5-.11(9)(b), monthly during the post-closure period when monthly monitoring is required under 335-14-5-.11(7)(d).

(4) Response actions.

(a) The owner or operator of surface impoundment units subject to 335-14-5-.11(2)(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 335-14-5-.11(4)(b).

(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 Director in writing of the exceedance within seven days of the determination;

2. Submit a preliminary written assessment to the Director 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 Director the results of the analyses specified in 335-14-5-.11(4)(b)3., 4., and 5., 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 Director a report summarizing the results of any remedial actions taken and actions planned.

(c) To make the leak and/or remediation determinations in 335-14-5-.11(b)3., 4., and 5., 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.

(5) [Reserved]

(6) [Reserved]

(7) Monitoring and inspection.

(a) During construction and installation, liners (except in the case of existing portions of surface impoundments exempt from 335-14-5-.11(2)(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.

4. The presence of leachate in and proper functioning of the leachate collection and removal system (between the liners), where present.

[NOTE: These inspections must be documented in accordance with 335-14-5-.02(6)(d).]

(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 qualified 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 335-14-5-.11(2)(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.

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 Director based on pump activation level, sump dimensions, and level that avoids backup into the drainage layer and minimizes head in the sump.

(8) Emergency repairs: contingency plans.

(a) A surface impoundment must be removed from service in accordance with 335-14-5-.11(8)(b) when:

1. The level of liquids in the impoundment suddenly drops and the drop is not known to be caused by changes in the normal operating flows into or out of the impoundment; or

2. The dike leaks.

(b) When a surface impoundment must be removed from service as required by 335-14-5-.11(8)(a), 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 Rule 335-14-5-.04, the owner or operator must specify a procedure for complying with the requirements of 335-14-5-.11(8)(b).

(d) No surface impoundment that has been removed from service in accordance with the requirements of 335-14-5-.11(8) 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 335-14-5-.11(7)(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 335-14-5-.11(2)(a); and

(ii) For any other portion of the impoundment, the repaired liner system must be certified by a qualified engineer as meeting the design specifications approved in the permit.

(e) A surface impoundment that has been removed from service in accordance with the requirements of 335-14-5-.11(8) and that is not being repaired must be closed in accordance with the provisions of 335-14-5-.11(9).

(9) Closure and post-closure 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 335-14-2-.01(3)(d) applies; or

2.(i) Eliminate free liquids by removing liquid wastes or solidifying the remaining wastes and waste residues; and

(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:

(I) Provide long-term minimization of the migration of liquids into and through the closed impoundment;

(II) Function with minimum maintenance;

(III) Promote drainage and minimize erosion or abrasion of the final cover;

(IV) Minimize and accommodate settling and subsidence so that the cover's integrity is maintained;

(V) Have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present; and

(VI) To meet the requirements of 335-14-5-.11(9)(a)2.

(iii) the final cover must meet the requirements of 335-14-5-.14(11)(b)1. through 3., unless Rule 335-14-5-.14(11)(c) applies.

(b) If some waste residues or contaminated materials are left in place at final closure, the owner or operator must comply with all post-closure requirements contained in 335-14-5-.07(8) through (11), including maintenance and monitoring throughout the post-closure care period [specified in the permit under 335-14-5-.07(8)]. 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 335-14-5-.11(2)(c)2.(iv) and (2)(c)3. and 335-14-5-.11(7)(d), and comply with all other applicable leak detection system requirements of 335-14-5;

3. Maintain and monitor the groundwater monitoring system and comply with all other applicable requirements of Rule 335-14-5-.06;

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

5. Maintain, monitor, and continue to operate (where applicable) the leachate collection and removal system until leachate is no longer observed.

6. The owner or operator must visually inspect the final cover to identify evidence of settling, subsidence, erosion, or other events expected to limit the integrity or effectiveness. These inspections must be documented in an inspection log, as required by Rule 335-14-5-.02(6)(d). The Department will specify in the permit the inspection schedule.

(c)1. If an owner or operator plans to close a surface impoundment in accordance with 335-14-5-.11(9)(a)1., and the impoundment does not comply with the liner requirements of 335-14-5-.11(2)(a) and is not exempt from them in accordance with 335-14-5-.11(2)(b), then:

(i) The closure plan for the impoundment under 335-14-5-.07(3) must include both a plan for complying with 335-14-5-.11(9)(a)1. and a contingent plan for complying with 335-14-5-.11(9)(a)2. in case not all contaminated subsoils can be practicably removed at closure; and

(ii) The owner or operator must prepare a contingent post-closure plan under 335-14-5-.07(9) for complying with 335-14-5-.11(9)(b) in case not all contaminated subsoils can be practicably removed at closure.

2. The cost estimates calculated under 335-14-5-.08(3) and (5) for closure and post-closure care of an impoundment subject to 335-14-5-.11(9)(c) must include the cost of complying with the contingent closure plan and the contingent post-closure plan, but are not required to include the cost of expected closure under 335-14-5-.11(9)(a)1.

(10) Special requirements for ignitable or reactive waste. Ignitable or reactive waste must not be placed in a surface impoundment, unless the waste and impoundment satisfy all applicable requirements of 335-14-9, and:

(a) The waste is treated, rendered, or mixed before or immediately after placement in the impoundment so that:

1. The resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive waste under 335-14-2-.03(2) or (4); and 2. 335-14-5-.02(8)(b) is complied with; or

(b) The waste is managed in such a way that it is protected from any material or conditions which may cause it to ignite or react; or

(c) The surface impoundment is used solely for emergencies.

(11) Special requirements for incompatible wastes. Incompatible wastes, or incompatible wastes and materials, (see 335-14-5 - Appendix V for examples) must not be placed in the same surface impoundment, unless 335-14-5-.02(8)(b) is complied with.

(12) 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 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 Director pursuant to the standards set out in 335-14-5-. 11(12)(a) and in accord with all other applicable requirements of 335-14-5. 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.

(13) Air emission standards. The owner or operator shall manage all hazardous waste placed in a surface impoundment in accordance with the applicable requirements of 335-14-5-.27, 335-14-5-.28, and 335-14-5-.29.

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335-14-5-.12 Waste Piles.

(1) Applicability.

(a) The requirements of 335-14-5-.12 apply to owners and operators of facilities that store or treat hazardous waste in piles, except as 335-14-5-.01(1) provides otherwise.

(b) The requirements of 335-14-5-.12 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 Rule 335-14-5-.14 (Landfills).

(c) The owner or operator of any waste pile that is inside or under a structure that provides protection from precipitation so that neither run-off nor leachate is generated is not subject to regulation under 335-14-5-.12(2) or under Rule 335-14-5-.06, provided that:

1. Liquids or materials containing free liquids are not placed in the pile;

2. The pile is protected from surface water run-on 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.

(2) 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. 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:

(I) Chemically resistant to the waste managed in the pile and the leachate expected to be generated; and

(II) 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 335-14-5-.12(2)(a) if the Director 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 335-14-5-.06(4)] into the groundwater or surface water at any future time. In deciding whether to grant an exemption, the Director 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 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, unit, each lateral expansion of a waste pile unit, and each replacement of an existing waste pile unit must install two or more liners and a leachate collection and removal system above and between such liners.

1.(i) The liner system must include:

(I) 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

(II) 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 lX10-7 cm/sec.

(ii) The liners must comply with 335-14-5-.12(2)(a)1.(i), (ii), and (iii).

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 Director 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 335-14-5-.12(2)(c)3.(iii) and (iv).

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 335-14-5-.12(2)(c) 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 3X10-5m2/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 groundwater.

(d) The Director may approve alternative design or operating practices to those specified in 335-14-5-.12(2)(c) if the owner or operator demonstrates to the Director that such design and operating practices, together with location characteristics:

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 335-14-5-.12(2)(c); and

2. Will allow detection of leaks of hazardous constituents through the top liner at least as effectively.

(e) 335-14-5-.12(2)(c) does not apply to monofills that are granted a waiver by the Director in accordance with 335-14-5-.11(2)(e).

(f) The owner or operator of any replacement waste pile unit is exempt from 335-14-5-.12(2)(c) if:

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 the AHWMMA; 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 run-on control system capable of preventing flow onto the active portion of the pile during peak discharge from at least a 25-year storm.

(h) The owner or operator must design, construct, operate, and maintain a run-off management system to collect and control at least the water volume resulting from a 24-hour, 25-year storm.

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

(j) If the pile contains any particular matter which may be subject to wind dispersal, the owner or operator must cover or otherwise manage the pile to control wind dispersal.

(k) The Department will specify in the permit all design and operating practices that are necessary to ensure that the requirements of 335-14-5-.12(2) are satisfied.

(3) Action leakage rate.

(a) The Director shall approve an action leakage rate for waste pile units subject to 335-14-5-.12(2)(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 one foot. The action leakage rate must include an adequate safety margin to allow for uncertainties in the design (e.g., slope, hydraulic conductivity, thickness of drainage material), construction, operation, and location of the LDS, waste and leachate characteristics, likelihood and amounts of other sources of liquids in the LDS, and proposed response actions (e.g., the action leakage rate must 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 335-14-5-.12(5)(c) to an average daily flow rate (gallons per acre per day) for each sump. Unless the Director approves a different calculation, the average daily flow rate for each sump must be calculated weekly during the active life and closure period.

(4) Response actions.

(a) The owner or operator of waste pile units subject to 335-14-5-.12(2)(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 335-14-5-.12(4)(b).

(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 Director in writing of the exceedance within seven days of the determination;

2. Submit a preliminary written assessment to the Director 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 Director the results of the analyses specified in 335-14-5-.12(4)(b)3., 4., and 5., 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 Director a report summarizing the results of any remedial actions taken and actions planned.

(c) To make the leak and/or remediation determinations in 335-14-5-.12(4)(b)3., 4., and 5., 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.

(5) Monitoring and inspection.

(a) During construction or installation, liners (except in the case of existing portions of piles exempt from 335-14-5-.12(2)(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 run-on and run-off 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.

[NOTE: These inspections must be documented in accordance with 335-14-5-.02(6)(d).]

(c) An owner or operator required to have a leak detection system under 335-14-5-.12(2)(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.

(6) [Reserved]

(7) Special requirements for ignitable or reactive waste. Ignitable or reactive waste must not be placed in a waste pile unless the waste and waste pile satisfy all applicable requirements of 335-14-9, and:

(a) The waste is treated, rendered, or mixed before or immediately after placement in the pile so that:

1. The resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive waste under 335-14-2-.03(2) or (4); and 2. 335-14-5-.02(8)(b) is complied with; or

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

(8) Special requirements for incompatible wastes.

(a) Incompatible wastes, or incompatible wastes and materials, (see 335-154-5 - Appendix V for examples) must not be placed in the same pile, unless 335-14-5-.02(8)(b) is complied with.

(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 335-14-5-.02(8).

(9) Closure and post-closure 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 335-14-2-.01(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 335-14-5-.12(9)(a), 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 care requirements that apply to landfills [335-14-5-.14(11)].

(c)1. The owner or operator of a waste pile that does not comply with the liner requirements of 335-14-5-.12(2)(a)1. and is not exempt from them in accordance with 335-14-5-.12(1)(c) or 335-14-5-.12(2)(b), must:

(i) Include in the closure plan for the pile under 335-14-5-.07(3) both a plan for complying with 335-14-5-.12(9)(a) and a contingent plan for complying with 335-14-5-.12(9)(b) in case not all contaminated subsoils can be practicably removed at closure; and

(ii) Prepare a contingent post-closure plan under 335-14-5-.07(9) for complying with 335-14-5-.12(9)(b) in case not all contaminated subsoils can be practicably removed at closure.

2. The cost estimates calculated under 335-14-5-.08(3) and (5) for closure and post-closure care of a pile subject to 335-14-5-.12(9)(c) must include the cost of complying with the contingent closure plan and the contingent post-closure plan, but are not required to include the cost of expected closure under 335-14-5-.12(9)(a).

(10) 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 waste piles that are not enclosed (as

defined in 335-14-5-.12(1)(c)) unless the owner or operator operates the waste pile in accordance with a management plan for these wastes that is approved by the Director pursuant to the standards set out in 335-14-5-.12(10)(a), and in accord with all other applicable requirements of 335-14-5. The factors to be considered include:

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 the 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.

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335-14-5-.13 Land Treatment.

(1) Applicability. The requirements of 335-14-5-.13 apply to owners and operators of facilities that treat or dispose of hazardous waste in land treatment units, except as 335-14-5-.01(1) provides otherwise.

(2) Treatment program.

(a) An owner or operator subject to 335-14-5-.13 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 Department will specify in the facility permit the elements of the treatment program, including:

1. The wastes that are capable of being treated at the unit based on a demonstration under 335-14-5-.13(3);

2. Design measures and operating practices necessary to maximize the success of degradation, transformation, and immobilization processes in the treatment zone in accordance with 335-14-5-.13(4)(a); and

3. Unsaturated zone monitoring provisions meeting the requirements of 335-14-5-.13(9).

(b) The Department will specify in the facility permit the hazardous constituents that must be degraded, transformed, or immobilized under 335-14-5-.13. Hazardous constituents are constituents identified in 335-14-2 - Appendix VIII that are reasonably expected to be in, or derived from, waste placed in or on the treatment zone.

(c) The Department will specify the vertical and horizontal dimensions of the treatment zone in the facility permit. The treatment zone is the portion of the unsaturated zone below and including the land surface in which the owner or operator intends to maintain the conditions necessary for effective degradation, transformation, or immobilization of hazardous constituents. The maximum depth of the treatment zone must be:

1. No more than 1.5 meters (5 feet) from the initial soil surface; and

2. More than 1 meter (3 feet) above the seasonal high water table.

(3) 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 335-14-5-.13(3)(a), he must obtain a treatment or disposal permit under

335-14-8-.06(3). The Department will specify in this permit the testing, analytical, design, and operating requirements (including the duration of the tests and analyses, and, in the case of field tests, the horizontal and vertical dimensions of the treatment zone, monitoring procedures, closure, and clean-up activities) necessary to meet the requirements in 335-14-5-.13(3)(c).

(c) Any field test or laboratory analysis conducted in order to make a demonstration under 335-14-5-.13(3)(a) 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 335-14-2 - Appendix VIII 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.

(4) Design and operating requirements. The Department will specify in the facility permit how the owner or operator will design, construct, operate, and maintain the land treatment unit in compliance with 335-14-5-.13(4).

(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 335-14-5-.13(3). At a minimum, the Department will specify the following in the facility permit:

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 run-off of hazardous constituents during the active life of the land treatment unit.

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

(d) The owner or operator must design, construct, operate, and maintain a run-off management system to collect and control at least the water volume resulting from a 24-hour, 25-year storm.

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

(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, and document the inspections in accordance with 335-14-5-.02(6)(d), the unit weekly and after storms to detect evidence of:

1. Deterioration, malfunctions, or improper operation of run-on and run-off control systems; and

2. Improper functioning of wind dispersal control measures.

(5) [Reserved]

(6) [Reserved]

(7) Food-chain crops. The Department may allow the growth of food-chain crops in or on the treatment zone only if the owner or operator satisfies the conditions of 335-14-5-.13(7). The Department will specify in the facility permit the specific food-chain crops which may be grown.

(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 food-chain 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 335-14-5-.13(7)(a) prior to the planting of crops at the facility for all constituents identified in 335-14-2 - Appendix VIII that are reasonably expected to be in, or derived from, waste placed in or on the treatment zone.

3. In making a demonstration under 335-14-5-.13(7)(a), 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 335-14-5-.13(7)(a), 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 food-chain crops, the annual cadmium application rate must not exceed:

Time Period	**Annual Cd Application Rate (kilograms per hectacre)**
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/ lOOg; 10 kg/ha if soil CEC is 5-15 meq/lOOg; and 20 kg/ha if soil CEC is greater than 15 meq/lOOg; or

2.(i) Animal feed must be the only food-chain 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 food-chain 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 food-chain crops must not be grown except in compliance with 335-14-5-.13(7)(b)2.

(8) [Reserved]

(9) Unsaturated zone monitoring. An owner or operator subject to 335-14-5-.13 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 Department will specify the hazardous constituents to be monitored in the facility permit. The hazardous constituents to be monitored are those specified under 335-14-5-.13(2)(b).

2. The Department may require monitoring for principal hazardous constituents (PHCs) in lieu of the constituents specified under 335-14-5-.13(2)(b). PHCs are hazardous constituents contained in the wastes to be applied at the unit that are the most difficult to treat, considering the combined effects of degradation, transformation, and immobilization. The 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.

(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 back-ground soil-pore liquid quality and the chemical make-up 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 make-up 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 335-14-5-.13(9)(a). 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 335-14-5-.13(9)(f).

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 335-14-5-.13(9)(b)1.

(d) The owner or operator must conduct soil monitoring and soil-pore liquid monitoring immediately below the treatment zone. The Department will specify the frequency and timing of soil and soil-pore liquid monitoring in the facility permit after considering the frequency, timing, and rate of waste application and the soil permeability. The owner or operator must express the results of soil and soil-pore liquid monitoring in a form necessary for the determination of statistically significant increases under 335-14-5-.13(9)(f).

(e) The owner or operator must use consistent sampling and analysis procedures that are designed to ensure sampling results that provide a reliable indication of soil-pore liquid quality and the chemical make-up of the soil below the treatment zone. At a minimum, the owner or operator must implement procedures and techniques for:

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 335-14-5-.

13(9)(a) below the treatment zone each time he conducts soil monitoring and soil-pore liquid monitoring under 335-14-5-.13(9)(d).

1. In determining whether a statistically significant increase has occurred, the owner or operator must compare the value of each constituent, as determined under 335-14-5-.13(9)(d), to the background value for that constituent according to the statistical procedure specified in the facility permit under 335-14-5-.13.

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 Department will specify that time period in the facility permit after considering the complexity of the statistical test and the availability of laboratory facilities to perform the analysis of soil and soil-pore liquid samples.

3. The owner or operator must determine whether there is a statistically significant increase below the treatment zone using a statistical procedure that provides reasonable confidence that migration from the treatment zone will be identified. The Department will specify a statistical procedure in the facility permit that it finds:

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

(ii) Provides a reasonable balance between the probability of falsely identifying migration from the treatment zone and the probability of failing to identify real migration from the treatment zone.

(g) If the owner or operator determines, pursuant to 335-14-5-.13(9)(f), 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.

(h) If the owner or operator determines, pursuant to 335-14-5-.13(9)(f), 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 335-14-5-.13(9)(h) in addition to, or in lieu of, submitting a permit modification application under 335-14-5-.13(9)(g)2., he is not relieved of the requirement to submit a permit modification application within the time specified in 335-14-5-.13(9)(g)2. unless the demonstration made under 335-14-5-.13(9)(h) 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 335-14-5-.13(9)(h), 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 335-14-5-.13(9)(h).

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 335-14-5-.13(9).

(10) Recordkeeping. The owner or operator must include hazardous waste application dates and rates in the operating record required under 335-14-5-.05(4).

(11) Closure and post-closure 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 335-14-5-.13(4)(a), except to the extent such measures are inconsistent with 335-14-5-.13(11)(a)8.

2. Continue all operations in the treatment zone to minimize run-off of hazardous constituents as required under 335-14-5-.13(4)(b);

3. Maintain the run-on control system required under 335-14-5-.13(4)(c);

4. Maintain the run-off management system required under 335-14-5-.13(4)(d);

5. Control wind dispersal of hazardous waste if required under 335-14-5-.13(4)(f),

6. Continue to comply with any prohibitions or conditions concerning growth of food-chain crops under 335-14-5-.13(7);

7. Continue unsaturated zone monitoring in compliance with 335-14-5-.13(9), 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 335-14-5-.07(6), 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 post-closure 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 post-closure care activities;

2. Maintain a vegetative cover over closed portions of the facility;

3. Maintain the run-on control system required under 335-14-5-.13(4)(c);

4. Maintain the run-off management system required under 335-14-5-.13(4)(d);

5. Control wind dispersal of hazardous waste if required under 335-14-5-.13(4)(f);

6. Continue to comply with any prohibitions or conditions concerning growth of food-chain crops under 335-14-5-.13(7); and

7. Continue unsaturated zone monitoring in compliance with 335-14-5-.13(9), 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 335-14-5-.13(11)(a)8. and (c) 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 335-14-5-.13(11)(d)3. The owner or operator may submit such a demonstration to the Department at any time during the closure or post-closure care periods. For the purposes of 335-14-5-.13(11):

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 335-14-5-.13(2)(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 335-14-5-.13(11)(d)3.

2. In taking samples used in the determination of background and treatment zone values, the owner or operator must take samples at a sufficient number of sampling points and at appropriate locations and depths to yield samples that represent the chemical make-up of soil that has not been affected by leakage from the treatment zone and the soil within the treatment zone, respectively.

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) Provide 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 Rule 335-14-5-.06 if the Department finds that the owner or operator satisfies 335-14-5-.13(11)(d) and if unsaturated zone monitoring under 335-14-5-.13(9) indicates that hazardous constituents have not migrated beyond the treatment zone during the active life of the land treatment unit.

(12) Special requirements for ignitable or reactive waste. The owner or operator must not apply ignitable or reactive waste to the treatment zone unless the waste and the treatment zone meet all applicable requirements of 335-14-9, and:

(a) The waste is immediately incorporated into the soil so that:

1. The resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive waste under 335-14-2-.03(2) and (4); and 2. 335-14-5-.02(8)(b) is complied with; or

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

(13) Special requirements for incompatible wastes. The owner or operator must not place incompatible wastes, or incompatible wastes and materials (see 335-14-5 - Appendix V for examples), in or on the same treatment zone, unless 335-14-5-.02(8)(b) is complied with.

(14) 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 335-14-5-.13(14)(a), and in accord with all other applicable requirements of 335-14-5. 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 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.

Author: Stephen C. Maurer; Amy P. Zachry; Michael B. Champion
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335-14-5-.14 Landfills.

(1) Applicability. The requirements of 335-14-5-.14 apply to owners and operators of facilities that dispose of hazardous waste in landfills, except as 335-14-5-.01(1) provides otherwise.

(2) Design and operating requirements.

(a) Any landfill that is not covered by 335-14-5-.14(2)(b) or 335-14-6-.14(2)(a) 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 double 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 any time during the active life (including the closure period) of the landfill. The liners 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 and between the liners 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 at any location does not exceed 30 cm (one foot). The leachate collection and removal system must be:

(i) Constructed of materials that are:

(I) Chemically resistant to the waste managed in the landfill and the leachate expected to be generated; and

(II) 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 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 335-14-1-.02 under "existing facility".

1.(i) The liner system must include:

(I) 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

(II) 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 335-14-5-.14(2)(a)1.(i), (ii), and (iii).

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 Director 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 335-14-5-.14(2)(b)3.(iii) and (iv).

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 335-14-5-.14(2)(b) 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 m2/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.

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 groundwater.

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

(d) The owner or operator must design, construct, operate and maintain a run-off management system to collect and control at least the water volume resulting from a 24-hour, 25-year storm.

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

(f) 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.

(g) The Department will specify in the permit all design and operating practices that are necessary to ensure that the requirements of 335-14-5-.14(2) are satisfied.

(h) Any permit which is issued after November 8, 1984 for a landfill located within the State of Alabama shall require the installation of two or more liners and a leachate collection system above and between such liners.

(3) Action leakage rate.

(a) The Director shall approve an action leakage rate for landfill units subject to 335-14-5-.14(2)(b). The action leakage rate is the maximum design flow rate that the leak detection system (LDS) can remove without the fluid head on the bottom liner exceeding one foot. The action leakage rate must include an adequate safety margin to allow for uncertainties in the design (e.g., slope, hydraulic conductivity, thickness of drainage material), construction, operation, and location of the 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 335-14-5-.14(4)(c) to an average daily flow rate (gallons per acre per day) for each sump. Unless the Director 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 335-14-5-.14(4)(c).

(4) Monitoring and inspection.

(a) During construction or installation, liners (except in the case of existing portions of landfills exempt from 335-14-5-.14(2)(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, excessive folds, 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 run-on and run-off 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.

[NOTE: These inspections must be documented in accordance with 335-14-5-.02(6)(d).]

(c)1. An owner or operator required to have a leak detection system under 335-14-5-.14(2)(b) must record the amount of liquids removed from each leak detection system sump at least once each week during the active life and closure period.

2. After the final cover is installed, the amount of 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 Director based on pump activation level, sump dimensions, and level that avoids backup into the drainage layer and minimizes head in the sump.

(5) Response actions.

(a) The owner or operator of landfill units subject to 335-14-5-.14(2)(b) 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 335-14-5-.14(5)(b).

(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 Director in writing of the exceedence within seven days of the determination;

2. Submit a preliminary written assessment to the Director 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 Director the results of the analyses specified in 335-14-5-.14(5)(b)3., 4., and 5., 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 Director a report summarizing the results of any remedial actions taken and actions planned.

(c) To make the leak and/or remediation determinations in 335-14-5-.14(5)(b)3., 4., and 5., 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.

(6) [Reserved]

(7) [Reserved]

(8) [Reserved]

(9) [Reserved]

(10) Surveying and record keeping. The owner and operator of a landfill must maintain the following items in the operating record required under 335-14-5-.05(4):

(a) On a map, the exact location and dimensions, including depth, of each cell with respect to permanently surveyed bench marks; and

(b) The contents of each cell and the approximate location of each hazardous waste type within each cell.

(11) Closure and post-closure care.

(a) At final closure of the landfill or upon closure of any cell, the owner or operator must cover the landfill or cell with a final cover designed and constructed to:

1. Provide long-term minimization of migration of liquids into and through the closed landfill;

2. Function with minimum maintenance;

3. Promote drainage and minimize erosion or abrasion of the cover;

4. Minimize and 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 sub-soils present (whichever is less).

(b) To meet the requirements in Rule 335-14-5-.14(11)(a), the final cover system must contain (as a minimum):

1. A vegetated top cover. The top cover must:

(i) Be at least 24 inches thick;

(ii) Support vegetation that will effectively minimize erosion;

(iii) Have a final top slope between three and five percent; and

(iv) Have a final side slope which does not exceed 25 percent; and

(v) Have a surface drainage system capable of conducting run-off across the cap without erosion occurring.

2. Drainage layer. The drainage layer must:

(i) Be at least 12 inches thick with a saturated hydraulic conductivity not less than 10-3 cm/sec;

(ii) Have a final bottom slope of at least two percent;

(iii) Be overlain by a graded granular or synthetic fabric filter to prevent clogging;

(iv) Be designed so that discharge flows freely in the lateral direction to minimize the head on the low permeability layer.

3. Low permeability layer. The low permeability layer must consist of two components, a synthetic liner and a compacted soil liner.

(i) The synthetic liner component must:

(I) Consist of at least a 20 mil synthetic membrane;

(II) Be protected from damage above the membrane by at least six inches of bedding material;

(III) Have a final upper slope of at least two percent;

(IV) Be located wholly below the average frost penetration;

(V) Lay directly on the compacted soil liner;

(ii) The compacted soil component must:

(I) Have 24 inches of soil recompacted to a saturated hydraulic conductivity of not more than 10-7 cm/sec:

(II) Have the soil emplaced in lifts not exceeding six inches before compaction to maximize the effectiveness of compaction.

(c) If the owner or operator can demonstrate to the satisfaction of the Department that an alternative cover system meets or exceeds the performance standards set forth in

Rule 335-14-5-.14(11)(a) and (b), the alternative final cover system may be used.

(d) After final closure, the owner or operator must comply with all post-closure requirements contained in 335-14-5-.07(8) through (11), including maintenance and monitoring throughout the post-closure care period (specified in the permit under 335-14-5-.07(8)). 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 systems until leachate is no longer detected;

3. Maintain and monitor the leak detection system in accordance with 335-14-5-.14(2)(b)3.(iv) and (2)(b)4. and 335-14-5-.14(4)(c), and comply with all other applicable leak detection system requirements of 335-14-5-.14;

4. Maintain and monitor the groundwater monitoring system and comply with all other applicable requirements of Rule 335-14-5-.06;

5. Prevent run-on and run-off from eroding or otherwise damaging the final cover; and

6. Protect and maintain surveyed bench marks used in complying with 335-14-5-.14(10); and

7. The owner or operator must visually inspect the final cover to identify evidence of settling, subsidence, erosion, or other events expected to limit the integrity or effectiveness. These inspections must be documented in an inspection log, as required by Rule 335-14-5-.02(6)(d). The Department will specify in the permit the inspection schedule.

(12) [Reserved]

(13) Special requirements for ignitable or reactive waste.

(a) Except as provided in 335-14-5-.14(13)(b), and in 335-14-5-.14(17), ignitable or reactive waste must not be placed in a landfill, unless the waste and landfill meet all applicable requirements of Chapter 335-14-9, and:

1. The resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive waste under 335-14-2-.03(2) or (4); and

2. 335-14-5-.02(8)(b) is complied with.

(b) Except for prohibited wastes which remain subject to treatment standards in rule 335-14-9-.04, ignitable wastes in containers may be landfilled without meeting the requirements of 335-14-5-.14(13)(a), provided that the wastes are disposed of in such a way that they are protected from any material or conditions which may cause them to ignite. At a minimum, ignitable wastes must be disposed of in non-1eaking containers which are carefully handled and placed so as to avoid heat, sparks, rupture or any other condition that might cause ignition of the wastes; must be covered daily with soil or other non-combustible material to minimize the potential for ignition of the wastes; and must not be disposed of in cells that contain or will contain other wastes which may generate heat sufficient to cause ignition of the waste.

(14) Special requirements for incompatible wastes. Incompatible wastes or incompatible wastes and materials (see 335-14-5 - Appendix V for examples) must not be placed in the same landfill cell unless 335-14-5-.02(8)(b) is complied with.

(15) Special requirements for bulk and containerized liquids.

(a) [Reserved]

(b) 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.

(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 9095B (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 rule 335-14-1-.02(2).

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

1. All free-standing liquid:

(i) Has been removed by decanting, or other methods;

(ii) Has been mixed with sorbent or solidified so that free-standing liquid is no longer observed; or

(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 335-14-5-.14(17) and is disposed of in accordance with 335-14-5-.14(17).

(e) Sorbents used to treat free liquids to be disposed of in landfills must be nonbiodegradable. Nonbiodegradable sorbents are: materials listed or described in 335-14-5-.14(15)(e)1.; materials that pass one of the tests in 335-14-5-.14(15)(e)2.; or materials that are determined by the Department to be nonbiodegradable through the Rule 335-14-1-.03 petition process.

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-1inked 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 nonbiodegradable under OECD test 301B: [CO Evolution (Modified 2 Sturm Test)].

(f) 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 Director determines that:

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

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 335-14-1-.02).

(16) 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 in the landfill; or

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

(17) 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 non-1eaking 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 416-1iter (110 gallon) capacity and surrounded by, at a minimum, a sufficient quantity of sorbent material, determined to be nonbiodegradable in accordance with 335-14-5-.14(15)(e), to completely absorb all of the liquid contents of the inside containers. The metal outer container must be full after packing with inside containers and sorbent material.

(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 335-14-5-.02(8)(b).

(d) Incompatible wastes, as defined in 335-14-1-.02(1), must not be placed in the same outside container.

(e) Reactive wastes, other than cyanide- or sulfur-bearing waste as defined in 335-14-2-.03(4)(a)5., must be treated or rendered non-reactive prior to packaging in accordance with 335-14-5-.14(17)(a) through (d). Cyanide- and sulfide-bearing reactive waste may be packed in accordance with 335-14-5-.14(17)(a) through (d) without first being treated or rendered non-reactive.

(f) Such disposal is in compliance with the requirements of 335-14-9. Persons who incinerate lab packs according to the requirements in 335-14-9-.04(3) 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 335-14-5-.14(17)(b).

(18) 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 landfill unless the owner or operator operates the landfill in accord with a management plan for these wastes that is approved by the Director pursuant to the standards set out in 335-14-5-.14(18)(a), and in accord with all other applicable requirements of 335-14-5. The factors to be considered are:

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.

Author: Stephen C. Maurer; Stephen A. Cobb; James W. Hathcock; Amy P. Zachry; Michael B. Champion; Vernon H. Crockett; Bradley N. Curvin
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335-14-5-.15 Incinerators.

(1) Applicability.

(a) The requirements of 335-14-5-.15 apply to owners and operators of hazardous waste incinerators (as defined in 335-14-1-.02), except as 335-14-5-.01(1) provides otherwise.

(b) Integration of the MACT standards.

1. Except as provided by 335-14-5-.15(1)(b)2., (b)3. and (b)4., the standards of 335-14-5 no longer apply when an owner or operator demonstrates compliance with the maximum achievable control technology (MACT) requirements of 335-3-11-.06(56) by conducting a comprehensive performance test and submitting to the Director a Notification of Compliance under 335-3-11-.06(56) and 40 CFR § 63.1210(d)documenting compliance with the requirements of 335-3-11-.06(56). Nevertheless, even after this demonstration of compliance with the MACT standards, RCRA permit conditions that were based on the standards of 335-14-5 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.

2. The MACT standards do not replace the closure requirements of 335-14-5-.15(12) or the applicable requirements of 335-14-5-.01 through 5-.08, 5-.28, and 5-.29.

3. The particulate matter standard of 335-14-5-.15(4)(c) remains in effect for incinerators that elect to comply

with the alternative to the particulate matter standard of 40 CFR §63.1206(b)(14) and §63.1219(e).

4. The following requirements remain in effect for startup, shutdown, and malfunction events if the facility elects to comply with 335-14-8-.15(1)(a)1.(i) to minimize emissions of toxic compounds from these events:

(i) 335-14-5-.15(6)(a) requiring that an incinerator operate in accordance with operating requirements specified in the permit; and

(ii) 335-14-5-.15(6)(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, in establishing the permit conditions, may exempt the applicant from all requirements of 335-14-5-.15 except 335-14-5-.15(2) (Waste analysis) and 335-14-5-.15(12) (Closure).

1. If the Department finds that the waste to be burned is:

(i) Listed as a hazardous waste in Rule 335-14-2-.04 solely because it is ignitable (Hazard Code I), corrosive (Hazard Code C), or both; or

(ii) Listed as a hazardous waste in rule 335-14-2-.04 solely because it is reactive (Hazard Code R) for characteristics other than those listed in 335-14-2-.03(4)(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 rule 335-14-2-.03; or

(iv) A hazardous waste solely because it possesses any of the reactivity characteristics described by 335-14-2-.03 (4)(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 335-14-2 - 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 335-14-5-.15(1)(c)1.(i), (c)1.(ii), (c)1.(iii), or (c)1.(iv) and contains insignificant concentrations of the hazardous constituents listed in 335-14-2 - Appendix VIII, then the Department may, in establishing permit conditions, exempt the applicant from all requirements of 335-14-5-.15, except 335-14-5-.15(2) (Waste analysis) and 335-14-5-.15(12) (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 335-14-8-.06(2) (Short term and incinerator permits).

(2) Waste analysis.

(a) As a portion of the trial burn plan required by 335-14-8-.06(2), 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 335-14-8-.06(2)(b) or 335-14-8-.02(10). Owners or operators of new hazardous waste incinerators must provide the information required by 335-14-8-.06(2)(c) or 335-14-8-.02(10) to the greatest extent possible.

(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 (under 335-14-5-.15(6)(b)).

(3) 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 335-14-5-.15(4).

1. One or more POHCs will be specified in the facility's permit, from among those constituents listed in of 335-14-2 - 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.

2. Trial POHCs will be designated for performance of trial burns in accordance with the procedure specified in 335-14-8-.06(2) for obtaining trial burn permits.

(4) Performance standards. An incinerator burning hazardous waste must be designed, constructed, and maintained so that, when operated in accordance with the operating requirements specified under 335-14-5-.15(6), it will meet the following performance standards:

(a)1. Except as provided in 335-14-5-.15(4)(a)2., 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 335-14-5-.15(3)) in its permit 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 335-14-5-.15(3)) in its permit. 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 335-14-5-.15(4)(a)1.

(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 (HC1) must control HC1 emissions such that the rate of emission is no greater than the larger of either 1.8 kilograms per hour or 1% of the HC1 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: 1

$$P_c = P_m \, x \, \frac{14}{21-Y}$$

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 Part 60, Appendix A (Method 3), of Chapter 1, Environmental Protection Agency, of the Code of Federal Regulations. This correction procedure is to be used by all hazardous waste incinerators except those operating under conditions of oxygen enrichment. For these facilities, the Department will select an appropriate correction procedure, to be specified in the facility permit.

(d) For purposes of permit enforcement, compliance with the operating requirements specified in the permit (under 335-14-5-.15(6)) will be regarded as compliance with 335-14-5-.15(4). However, evidence that compliance with those permit conditions is insufficient to ensure compliance with the performance requirements of 335-14-5-.15(4) may be "information" justifying modification, revocation, or reissuance of a permit under 335-14-8-.04(2).

(5) Hazardous waste incinerator permits.

(a) The owner or operator of a hazardous waste incinerator may burn only wastes specified in his permit and only under operating conditions specified for those wastes under 335-14-5-.15(6), except:

1. In approved trial burns under 335-14-8-.06(2); or

2. Under exemptions created by 335-14-5-.15(1).

(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 335-14-8-.02(10).

(c) The permit for a new hazardous waste incinerator must establish appropriate conditions for each of the applicable

requirements of 335-14-5-.15, including but not limited to, allowable waste feeds and operating conditions necessary to meet the requirements of 335-14-5-.15(6), sufficient to comply with the following standards:

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 335-14-5-.15(5)(c)2., not to exceed a duration of 720 hours operating time for treatment of hazardous waste, the operating requirements must be those likely to ensure compliance with the performance standards of 335-14-5-.15(4), 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;

2. For the duration of the trial burn, the operating requirements must be sufficient to demonstrate compliance with the performance standards of 335-14-5-.15(4) and must be in accordance with the approved trial burn plan;

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 335-14-5-.15(4), based on the Department's engineering judgment; and

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 335-14-8-.02(10)(c), as sufficient to ensure compliance with the performance standards of 335-14-5-.15(4).

(6) Operating requirements.

(a) An incinerator must be operated in accordance with operating requirements specified in the permit. These will be specified on a case-by-case basis as those demonstrated (in a trial burn or in alternative data as specified in 335-14-5-.15(5)(b) and included with Part B of a facility's permit application) to be sufficient to comply with the performance standards of 335-14-5-.15(4).

(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

335-14-5-.15(4)) to which the operating requirements apply. For each such waste feed, the permit will specify acceptable operating limits including the following conditions:

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 335-14-5-.15(4) are met.

(c) During start-up and shut-down of an incinerator, hazardous waste (except wastes exempted in accordance with 335-14-5-.15(1)) 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.

(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 335-14-5-.15(6)(a).

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

(7) [Reserved]

(8) 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 must be monitored on a continuous basis.

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 achieve the performance standards of 335-14-5-.15(4).

(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 record required by 335-14-5-.05(4) and maintained in the operating record for five years.

(9) [Reserved]

(10) [Reserved]

(11) [Reserved]

(12) 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.

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Statutory Authority: Code of Ala. 1975, §§22-30-11, 22-30-16.

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335-14-5-.16 [Reserved].
Author:
Statutory Authority:
History:

335-14-5-.17 [Reserved].
Author:
Statutory Authority:
History:

335-14-5-.18 [Reserved].
Author:
Statutory Authority:
History:

335-14-5-.19 Special Provisions For Cleanup.

(1) Applicability of Corrective Action Management Unit (CAMU) Regulations.

(a) Except as provided in 335-14-5-.19(1)(b), CAMUs are subject to the requirements of 335-14-5-.19(3).

(b) CAMUs that were approved before April 22, 2002, or for which substantially complete applications (or equivalents) were submitted to the Department on or before November 20, 2000, are subject to the requirements in 335-14-5-.19(2) for grandfathered CAMUs; CAMU waste, activities, and design will not be subject to the standards in 335-14-5-.19(2), so long as the waste, activities, and design remain within the general scope of the CAMU as approved.

(2) Grandfathered Corrective Action Management Units (CAMU).

(a) To implement remedies under 335-14-5-.06(12), §22-30-19 et seq., Code of Alabama 1975 and/or RCRA Section 3008(h), or to implement remedies at a permitted facility that is not subject to 335-14-5-.06(12), the Department may designate an area at the facility as a corrective action management unit under the requirements in 335-14-5-.19(2). "Corrective action management unit (CAMU)" means an area within a facility that is used only

for implementing corrective action or cleanup at the facility, pursuant to the requirements of 335-14-5-.19(1), (2), and (3). A CAMU must be located within the contiguous property under the control of the owner/operator where the wastes to be managed in the CAMU originated. One or more CAMUs may be designated at a facility.

1. Placement of remediation wastes into or within a CAMU does not constitute land disposal of hazardous wastes.

2. Consolidation or placement of remediation wastes into or within a CAMU does not constitute creation of a unit subject to minimum technology requirements.

[NOTE: The provisions of 335-14-5-.19(2)(a)1. and (2)(a)2. do not relieve the owner or operator of the requirement to meet other applicable requirements of this or other Divisions of the ADEM Administrative Code or other authorities (i.e., These provisions only exempt the unit from the LDR provisions of Chapter 335-14-9 and the hazardous waste minimum technology design requirements of Chapters 335-14-5 and 335-14-8.)]

(b)1. The Department may designate a regulated unit (as defined in rule 335-14-5-.06(1) 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 rule 335-14-5-.07(4) or Rule 335-14-6-.07(4); and

(ii) Inclusion of the regulated unit will enhance implementation of effective, protective and reliable remedial actions for the facility.

2. The requirements of Rules 335-14-5-.06, 335-14-5-.07 and 335-14-5-.08 and the unit-specific requirements of Chapters 335-14-5- and 335-14-6 that applied to that regulated unit will continue to apply to that portion of the CAMU after incorporation into the CAMU.

(c) The Department 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 of 335-14-5-.19.

(e) The Department shall specify, in the permit or order, requirements for CAMUs to include the following:

1. The areal configuration of the CAMU.

2. Requirements for remediation waste management to include the specification of applicable design, operation and closure requirements.

3. Requirements for groundwater monitoring 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 groundwater that may occur from areas of the CAMU in which wastes will remain in place after closure of the CAMU.

4. Closure and post-closure requirements.

(i) Closure of corrective action management units shall:

(I) Minimize the need for further maintenance; and

(II) 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 waste, 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:

(I) Requirements for excavation, removal, treatment or containment of wastes;

(II) For areas in which wastes will remain after closure of the CAMU, requirements for capping of such areas; and

(III) Requirements for removal and decontamination of equipment, devices, and structures used in remediation waste management activities within the CAMU.

(iii) In establishing specific closure requirements for CAMUs under 335-14-5-.19(2)(e), the Department shall consider the following factors:

(I) CAMU characteristics;

(II) Volume of wastes which remain in place after closure;

(III) Potential for releases from the CAMU;

(IV) Physical and chemical characteristics of the waste;

(V) Hydrogeological and other relevant environmental conditions at the facility which may influence the migration of any potential or actual releases; and

(VI) Potential for exposure of humans and environmental receptors if releases were to occur from the CAMU.

(iv) 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) The Department shall document the rationale for designating CAMUs and shall make such documentation available to the public.

(g) Incorporation of a CAMU into an existing permit must be approved by the Department according to the permit modification procedures of Rule 335-14-8-.04(2).

(h) 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.

(3) Corrective Action Management Units (CAMU).

(a) To implement remedies under 335-14-5-.06(12) or RCRA Section 3008(h), or to implement remedies at a permitted facility that is not subject to 335-14-5-.06(12), the Department may designate an area at the facility as a corrective action management unit under the requirements in 335-14-5-.19. 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 335-14-5-.19(3)(a)1.(i) are not “CAMU-Eligible Wastes” where:

(I) The wastes are hazardous wastes found during cleanup in intact or substantially intact containers, tanks, or other non-1and-based units found above ground, unless the wastes are first placed in the tanks, containers or non-1and-based units as part of cleanup, or the containers or tanks are excavated during the course of cleanup; or

(II) The Department exercises the discretion in 335-14-5-.19(3)(a)2. to prohibit the wastes from management in a CAMU.

(iii) Notwithstanding 335-14-5-.19(3)(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 335-14-9, or applicable unit design requirements of 335-14-5, or applicable unit design requirements of 335-14-6, or that non-compliance with other applicable requirements of 335-14 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 335-14-5-.14(15)(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 335-14-5-.14(15)(f).

(iv) The absence or presence of free liquids in either a containerized or a bulk waste must be determined in accordance with 335-14-5-.14(15)(c).

Sorbents used to treat free liquids in CAMUs must meet the requirements of 335-14-5-.14(15)(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 335-14-5-.06(1)(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 335-14-5-.07(4) or 335-14-6-.07(4); and

(ii) Inclusion of the regulated unit will enhance implementation of effective, protective and reliable remedial actions for the facility. 2. 335-14-5-.06, 5-.07, and 5-.08 or 335-14-6-.06, 6-.07, and 6-.08 and the unit-specific requirements of 335-14-5 or 335-14-6 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 335-14-5-.19(3)(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 335-14-5-.19. 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 335-14-9 were in effect for the waste listing or characteristic.

(e) The Department shall specify, in the permit or order, requirements for CAMUs to include the following:

1. The areal configuration of the CAMU.

2. Except as provided in 335-14-5-.19(3)(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 335-14-5-.19(3)(f), into which wastes are placed must be designed in accordance with the following:

(i) Unless the Department approves alternate requirements under 335-14-5-.19(3)(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 of 335-14-5-.

19, 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:

(I) 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 335-14-5-.19(3)(e)3.(i); or

(II) 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 335-14-5-.19(3)(f), CAMU-eligible wastes that, absent 335-14-5-.19, would be subject to the treatment requirements of 335-14-9, and that the Department determines contain principal hazardous constituents must be treated to the standards specified in 335-14-5-.19(3)(e)4.(iii).

(i) Principal hazardous constituents are those constituents that the Department determines to pose a risk to human health and the environment substantially higher than the cleanup levels or goals at the site.

(I) In general, the Department will designate as principal hazardous constituents: I. Carcinogens that pose a potential direct risk from ingestion or inhalation at the site at or above 10-3; and II. 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.

(II) 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.

(III) 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 335-14-5-.19, would be subject to the treatment requirements in 335-14-9.

(iii) Waste that the Department determines to contain principal hazardous constituents must meet treatment standards determined in accordance with 335-14-5-.19(3)(e)4.(iv) or (e)4.(v).

(iv) Treatment standards for wastes placed in CAMUs.

(I) For non-metals, treatment must achieve 90 percent reduction in total principal hazardous constituent concentrations, except as provided by 335-14-5-.19(3)(e)4.(iv)(III).

(II) 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 335-14-5-.19(3)(e)4.(iv)(III).

(III) 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 335-14-9.

(IV) For waste exhibiting the hazardous characteristic of ignitability, corrosivity or reactivity, the waste must also be treated to eliminate these characteristics.

(V) For debris, the debris must be treated in accordance with 335-14-9, or by methods or to levels established under 335-14-5-.19(3)(e)4.(iv)(I) through (IV) or 335-14-5-.19(3)(e)4.(v), whichever the Department determines is appropriate.

(VI) 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) 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 335-14-5-.19(3)(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:

(I) The technical impracticability of treatment to the levels or by the methods in 335-14-5-.19(3)(e)4.(iv);

(II) The levels or methods in 335-14-5-.19(3)(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);

(III) The views of the affected local community on the treatment levels or methods in 335-14-5-.19(3)(e)4.(iv) as applied at the site, and, for treatment levels, the treatment methods necessary to achieve these levels;

(IV) The short-term risks presented by the on-site treatment method necessary to achieve the levels or treatment methods in 335-14-5-.19(3)(e)4.(iv);

(V) The long-term protection offered by the engineering design of the CAMU and related engineering controls: I. Where the treatment standards in 335-14-5-.19(3)(e)4.(iv) are substantially met and the principal hazardous constituents in the waste or residuals are of very low mobility; or II. 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 335-14-5-.14(2)(b); or III. 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 335-14-5-.14(2)(b); or IV. Where cost-effective treatment has been used and the principal hazardous constituents in the treated wastes are of very low mobility; or V. 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 335-14-5-.19(3)(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 335-14-5-.19(3)(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 335-14-5-.19(3)(f), closure and post-closure requirements:

(i) Closure of corrective action management units shall:

(I) Minimize the need for further maintenance; and

(II) 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:

(I) Requirements for excavation, removal, treatment or containment of wastes; and

(II) 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 335-14-5-.19(3)(e), the Department shall consider the following factors:

(I) CAMU characteristics;

(II) Volume of wastes which remain in place after closure;

(III) Potential for releases from the CAMU;

(IV) Physical and chemical characteristics of the waste;

(V) Hydrogeological and other relevant environmental conditions at the facility which may influence the migration of any potential or actual releases; and

(VI) Potential for exposure of humans and environmental receptors if releases were to occur from the CAMU.

(iv) Cap requirements:

(I) 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 335-14-5-.19(3)(e)6.(iv)(II): I. Provide long-term minimization of migration of liquids through the closed unit; II. Function with minimum maintenance; III. Promote drainage and minimize erosion or abrasion of the cover; IV. Accommodate settling and subsidence so that the cover's integrity is maintained; and V. Have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present.

(II) The Department may determine that modifications to 335-14-5-.19(3)(e)6.(iv)(I) 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 of 335-14-5-.19, 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 335-14-5-.

19(5)(d)1.(iii), (h), and (i) are subject to the requirements for staging piles at 335-14-5-.19(5)(d)1.(i) and

(ii), 335-14-5-.19(5)(d)2., 335-14-5-.19(5)(e) and (f), and 335-14-5-.19(5)(j) and (k) in lieu of the performance standards and requirements for CAMUs at 335-14-5-.19(3)(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 335-14-5-.19(5)(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 335-14-5-.19(5)(d)(1)(i) and (ii), 335-14-5-.19(5)(d)2., 335-14-5-.19(5)(e) and (f), and 335-14-5-.19(5)(j) and (k) in lieu of the performance standards and requirements for CAMUs at 335-14-5-.19(3)(c) and 335-14-5-.19(3)(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 335-14-5-.19(3)(e)3.(i), caps at 335-14-5-.19(3)(e)6.(iv), ground water monitoring requirements at 335-14-5-.19(3)(e)5. or, for treatment and/or storage-only CAMUs, the design standards at 335-14-5-.19(3)(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 335-14-5-.19(3)(e)4.(v) to the treatment standards in 335-14-5-.19(3)(e)4.(iv).

(i) Notwithstanding any other provision of 335-14-5-.19, 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 permit modifications under 335-14-8-.04(2).

(k) The designation of a CAMU does not change ADEM'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.

(4) Temporary Units (TU).

(a) For temporary tanks and container storage areas used to treat or store hazardous remediation wastes during remedial activities required under 335-14-5-.06(12), §22-30-19 et seq., Code of Alabama 1975 and/or RCRA Section 3008(h), or at a permitted facility that is not subject to 335-14-5-.06(12), the Department may designate a unit at the facility as a temporary unit. A temporary unit must by 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 335-14-5 or 335-14-6 with alternative requirements which protect human health and the environment.

(b) Any temporary unit to which alternative requirements are applied in accordance with 335-14-5-.19(2)(a) 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 Department shall specify in the permit 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 Department 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 State of Alabama-initiated permit modifications under Rule 335-14-8-.04(2); or

2. Requested by the owner/operator as a major modification according to the procedures under Rule 335-14-8-.04(2).

(g) The Department shall document the rationale for designating a temporary unit and for granting time extensions for temporary units and shall make such documentation available to the public.

(5) Staging piles.

(a) A staging pile is an accumulation of solid, non-flowing remediation waste (as defined in 335-14-1-.02) 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 ADEM in accordance with the requirements in 335-14-5-.19.

1. For the purposes of 335-14-5-.19(5), 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.

2. Reserved.

(b) A staging pile may be used to store hazardous remediation waste (or remediation waste otherwise subject to land disposal restrictions) only if following the standards and design criteria ADEM has designated for that staging pile. ADEM must designate the staging pile in a permit or, at an interim status facility, in a closure plan or order (consistent with 335-14-8-.07(3)(a)5. and (b)5.). ADEM must establish

conditions in the permit, closure plan, or order that comply with 335-14-5-.19(3)(d) through (k).

(c) Staging pile designation. When seeking a staging pile designation, the following must be provided:

1. Sufficient and accurate information to enable ADEM to impose standards and design criteria for your staging pile according to 335-14-5-.19(3)(d) through (k);

2. Certification by a qualified professional engineer for technical data, such as design drawings and specifications, and engineering studies, unless ADEM 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 ADEM determines is necessary to protect human health and the environment.

(d) Staging pile performance criteria. ADEM 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 ADEM grants an operating term extension under 335-14-5-.19(3)(i). The two-year limit, or other operating term specified by ADEM in the permit, closure plan, or order, is measured from the first-time remediation waste is placed into a staging pile. Records of the date remediation waste is placed into the staging pile must be maintained 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, ADEM must consider the following factors:

(i) Length of time the pile will be in operation;

(ii) Volumes of wastes intended to be stored 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) Receipt of ignitable or reactive remediation waste in a staging pile. Ignitable or reactive remediation waste must not be placed in a staging pile unless:

1. Remediation waste must be treated, rendered or mixed before being placed it in the staging pile so that:

(i) The remediation waste no longer meets the definition of ignitable or reactive under 335-14-2-.03(2) or 335-14-2-.03(4); and

(ii) The owner or operator has complied with 335-14-5-.02(8)(b); or

2. The remediation waste must be managed to protect it from exposure to any material or condition that may cause it to ignite or react.

(f) Handling incompatible remediation wastes in a staging pile. The term "incompatible waste" is defined in 335-14-1-.02. The owner or operator must comply with the following requirements for incompatible wastes in staging piles:

1. Incompatible remediation wastes must not be placed in the same staging pile unless compliance with 335-14-5-.02(8)(b) has occurred;

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. Remediation 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 comply with 335-14-5-.02(8)(b).

(g) Staging piles are subject to Land Disposal Restrictions (LDR) and Minimum Technological Requirements (MTR). 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) Length of staging pile operation. ADEM may allow a staging pile to operate for up to two years after hazardous remediation waste is first placed into the pile. A staging pile may be used no longer than the length of time designated by ADEM in the permit, closure plan, or order (the "operating term"), except as provided in 335-14-5-.19(5)(i).

(i) Operating extension for a staging pile

1. ADEM 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 335-14-5-.19(5)(l) for modification procedures). To justify to ADEM the need for an extension, sufficient and accurate information must be provided to enable ADEM 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. ADEM 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) 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, a staging pile located in a previously contaminated area of the site must be closed by removing or decontaminating all:

(i) Remediation waste;

(ii) Contaminated containment system components; and

(iii) Structures and equipment contaminated with waste and leachate.

2. Contaminated subsoils must be decontaminated in a manner and according to a schedule that ADEM determines will protect human health and the environment.

3. ADEM must include the above requirements in the permit, closure plan, or order in which the staging pile is designated.

(k) Closure requirement for a staging piles 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 335-14-5-.12(9)(a) and 335-14-5-.07(2); or according to 335-14-6-.12(9)(a) and 335-14-6-.07(2).

2. ADEM must include the above requirement in the permit, closure plan, or order in which the staging pile is designated.

(l) Modifying an existing permit, closure plan, or order to allow for use of a staging pile.

1. To modify a permit, to incorporate a staging pile or staging pile operating term extension, either:

(i) ADEM must approve the modification under the procedures for ADEM-initiated permit modifications in 335-14-8-.04(2); or

(ii) Request a major modification under 335-14-8-.04(2).

2. [Reserved]

3. To modify a closure plan to incorporate a staging pile or staging pile operating term extension, the owner or operator must follow the applicable requirements under 335-14-5-.07(3)(c) or 335-14-6-.07(3)(c).

4. To modify an order to incorporate a staging pile or staging pile operating term extension, the owner or operator must follow the terms of the order and the applicable provisions of 335-14-8-.07(3)(a)5. or (b)5.

(m) Public information. ADEM must document the rationale for designating a staging pile or staging pile operating term extension and make this documentation available to the public.

(6) Disposal of CAMU-eligible wastes in permitted hazardous waste landfills.

(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 335-14-9, if the conditions in 335-14-5-.19(6)(a)1. through 3. are met:

1. The waste meets the definition of CAMU-eligible waste in 335-14-5-.19(3)(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 335-14-5-.19(3)(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 335-14-5-.19(3)(e)4.(iv); or

(ii) Treatment standards adjusted in accordance with 335-14-5-.19(3)(e)4.(v)(I), (III), (IV) or (V)I.; or

(iii) Treatment standards adjusted in accordance with 335-14-5-.19(3)(e)4.(v)(V)II., 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 335-14-5-.14, 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 335-14-5-.19(6)(a). Information required by 335-14-5-.19(3)(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 335-14-5-.19(3)(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 335-14-5-.19, 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 335-14-8-.01(4)(a), a landfill may not receive hazardous CAMU-eligible waste under 335-14-5-.19 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 335-14-5-.19(6)(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 335-14-8-.08(6)(c)1.(ix), of his or her intent to receive CAMU-eligible waste in accordance with 335-14-5-.19; 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 335-14-8-.01(4)(a), until the objection has been resolved, or the owner/operator obtains a permit modification in accordance with the procedures of 335-14-8-.04(2) specifically authorizing receipt of the waste.

6. As part of the permit issuance or permit modification process of 335-14-5-.19(6)(d), the Department may modify, reduce, or eliminate the notification requirements of

335-14-5-.19(6)(e) 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 335-14-5-.19 must comply with the requirements of 335-14-9-.01(7); off-site facilities treating CAMU-eligible wastes to comply with 335-14-5-.19 must comply with the requirements of 335-14-9-.01(7), except that the certification must be with respect to the treatment requirements of 335-14-5-.19(6)(a)2.

(g) For the purposes of 335-14-5-.19 only, the "design of the CAMU" in 335-14-5-.19(3)(e)4.(v)(V) means design of the permitted Subtitle C landfill.

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335-14-5-.21 [Reserved].
Author:
Statutory Authority:
History:

335-14-5-.22 [Reserved].
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History:

335-14-5-.23 Drip Pads.

(1) Applicability.

(a) The requirements of 335-14-5-.23 apply to owners and operators of facilities that use new or existing drip pads to convey treated wood drippage, precipitation, and/or surface water run-off to an associated collection system. Existing drip pads are those constructed before December 6, 1990 and those for which the owner or operator has a design and has entered into binding financial or other agreements for construction prior to December 6, 1990. All other drip pads are new drip pads. The requirement of 335-14-5-.23(4)(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.

(b) The owner or operator of any drip pad that is inside or under a structure that provides protection from precipitation so that neither run-off nor run-on is generated is not subject to regulation under 335-14-5-.23 (4)(e) or (f), as appropriate.

(c) The requirements of 335-14-5-.23 are not applicable to the management of infrequent and incidental drippage in storage yards provided that:

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 documents regarding cleanup for three years; and

(iv) Manage the contaminated media in a manner consistent with State of Alabama regulations.

(2) Assessment of existing drip pad integrity.

(a) For each existing drip pad as defined in 335-14-5-.23(1), the owner or operator must evaluate the drip pad and determine that it meets all of the requirements of 335-14-5-.23, except the requirements for liners and leak detection systems of 335-14-5-.23(4)(b). No later than the effective date of 335-14-5-.23, the owner or operator must obtain and keep on file at the facility a written assessment of the drip pad, reviewed and certified by a qualified professional engineer that attests to the results of the evaluation. The assessment must be reviewed, updated and re-certified annually until all upgrades, repairs, or modifications necessary to achieve compliance with all of the standards of 335-14-5-.23(4) are complete. The evaluation must document the extent to which the drip pad meets each of the design and operating standards of 335-14-5-.23(4), except the standards for liners and leak detection systems, specified in 335-14-5-.23(4)(b).

(b) The owner or operator must develop a written plan for upgrading, repairing, and modifying the drip pad to meet the requirements of 335-14-5-.23(4)(b) and submit the plan to the Director no later than two years before the date that all repairs, upgrades, and modifications are complete. This written plan must describe all changes to be made to the drip pad in sufficient detail to document compliance with all the requirements of 335-14-5-.23(4). The plan must be reviewed and certified by a qualified professional engineer.

(c) Upon completion of all upgrades, repairs and modifications, the owner or operator must submit to the Director, the as-built drawings for the drip pad together with a certification by a qualified 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 335-14-5-.23(4)(m) or close the drip pad in accordance with 335-14-5-.23(6).

(3) 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:

(a) All of the requirements of 335-14-5-.23(4) (except (4)(a)4.), (5), and (6), or

(b) All of the requirements of 335-14-5-.23(4) (except (4)(b)), (5), and (6).

(4) 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 cm/sec, e.g., existing concrete drip pads must be sealed, coated, or covered with a surface material with a hydraulic conductivity of less than or equal to 1 X 10-7 cm/sec 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 335-14-5-.23(3)(b).

(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 a qualified 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 335-14-5-.23(4), except for 335-14-5-.23(4)(b).

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: ADEM 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 Materials (ASTM) in judging the structural integrity requirements of 335-14-5-23-.(4).

(b) If an owner/operator elects to comply with 335-14-5-.23(3)(a) instead of 335-14-5-.23(3)(b), the drip pad must have:

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:

(I) Chemically resistant to the waste managed in the drip pad and the leakage that might be generated; and

(II) 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.

(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 335-14-5-.23(4)(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 run-off.

(e) Unless protected by a structure, as described in 335-14-5-.23(l)(b), the owner or operator must design, construct, operate, and maintain a run-on control system capable of preventing flow onto the drip pad during peak discharge from at least a 24-hour, 25-year storm, unless the system has sufficient excess capacity to contain any run-off that might enter the system.

(f) Unless protected by a structure or cover, as described in 335-14-5-.23(1)(b), the owner or operator must design, construct, operate, and maintain a run-off management system to collect and control at least the water volume resulting from a 24-hour, 25-year storm.

(g) The drip pad must be evaluated to determine that it meets the requirements of 335-14-5-.23(4)(a) through (f), and the owner or operator must obtain a statement from a qualified professional engineer certifying that the drip pad design meets the requirements of 335-14-5-.23(4).

(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 Rule 335-14-3-.01(2) and, if so, must manage them under Chapters 335-14-2 through 335-14-9, and Section 3010 of RCRA.

(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 non-pressure processes must be held on the drip pad until drippage has ceased. The owner or operator must maintain records sufficient to document that all treated wood is held on the pad following treatment in accordance with this requirement.

(l) Collection and holding units associated with run-on and run-off control systems must be emptied or otherwise managed as soon as possible after storms to maintain design capacity of the system.

(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 Director of the condition and within 10 working days, provide written notice to the Director 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 Director will review the information submitted, make a determination regarding whether the pad 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.

3. Upon completing all repairs and cleanup, the owner or operator must notify the Director in writing and provide a certification, signed by an independent, qualified registered professional engineer, that the repairs and cleanup have been completed according to the written plan submitted in accordance with 335-14-5-.23(4)(m)1.(iv).

(n) Should a permit be necessary, the Director will specify in the permit all design and operating practices that are necessary to ensure that the requirements of 335-14-5-.23(4) 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.

(5) 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 335-14-5-.23(4) by a qualified professional engineer. The certification must be maintained at the facility as part of the facility operating record. After installation, liners and covers must be inspected to ensure tight seams and joints and the absence of tears, punctures, or blisters.

(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 run-on and run-off 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 335-14-5-.23(4)(m) for remedial action required if deterioration or leakage is detected.

(c) For inspections performed pursuant to rule 335-14-5-.23(5)(b), the owner or operator must record inspections in an inspection log or summary and 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.

(6) 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 contamination components, subsoils, structures, and equipment as required in 335-14-5-.23(6)(a), the owner or operator finds that not all contaminated subsoils can be practically removed or decontaminated, he must close the facility and perform post-closure care in accordance with closure and post-closure care requirements that apply to landfills (335-14-5-.14(11)). For permitted units, the requirement to have a permit continues throughout the post-closure period. In addition, for the purposes of closure, post-closure, and financial responsibility, such a drip pad is then considered to be a landfill, and the owner or operator must meet all of the requirements for landfills specified in Rules 335-14-5-.07 and 335-14-5-.08.

(c)1. The owner or operator of an existing drip pad, as defined in 335-14-5-.23(1), that does not comply with the liner requirements of 335-14-5-.23(4)(b)1. must:

(i) Include in the closure plan for the drip pad under 335-14-5-.07(3) both a plan for complying with 335-14-5-.23(6)(a) and a contingent plan for complying with 335-14-5-.23(6)(b) in case not all contaminated subsoils can be practicably removed at closure; and

(ii) Prepare a contingent post-closure plan under Rule 335-14-5-.07(9) for complying with 335-14-5-.23(6)(b) in case not all contaminated subsoils can be practicably removed at closure.

2. The cost estimates calculated under 335-14-5-.07(3) and 335-14-5-.08(5) for closure and post-closure care of a drip pad subject to 335-14-5-.23(6)(c) must include the cost of complying with the contingent closure plan and the contingent post-closure plan, but are not required to include the cost of expected closure under 335-14-5-.23(6)(a).

Author: Stephen C. Maurer; C. Edwin Johnston; Michael B. Champion; Theresa A. Maines; Jonah Harris; Vernon H. Crockett
Statutory Authority: Code of Ala. 1975, §§22-30-11, 22-30-16. **History:** January 25, 1992. **Amended:** January 1, 1993. **Amended:** Filed November 30, 1994; effective January 5, 1995. **Amended:** Filed March 9, 2001; effective April 13, 2001. **Amended:** Filed February 8, 2002; effective March 15, 2002. **Amended:** Filed March 13, 2003; effective April 17, 2003. **Amended:** Filed February 27, 2007; effective April 3, 2007. **Amended:** Filed February 28, 2012; effective April 3, 2012. **Amended:** Filed February 14, 2017; effective March 31, 2017.

335-14-5-.24 Miscellaneous Units.

(1) Applicability. The requirements in 335-14-5-.24 apply to owners and operators of facilities that treat, store, or dispose of hazardous waste in miscellaneous units, except as 335-14-5-.01(1) provides otherwise.

(2) 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. Permits 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 shall include those requirements of Rules 335-14-5-.09 through 335-14-5-.15, 335-14-5-.27 through 335-14-5-.29, Chapter 335-14-8, and 335-3-11-.06(56) that are appropriate for the miscellaneous unit being permitted. Protection of human health and the environment includes, but is not limited to:

(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:

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.

(3) Monitoring, analysis, inspection, response, reporting, and corrective action. Monitoring, testing, analytical data, inspections, response, and reporting procedures and frequencies must ensure compliance with 335-14-5-.24(2), 335-14-5-.02(6), 35-14-5-.03(4), 335-14-5-.05(6), (7), (8), and 335-14-5-.06(12) as well as meet any additional requirements needed to protect human health and the environment as specified in the permit.

(4) Post-closure care. A miscellaneous unit that is a disposal unit must be maintained in a manner that complies with 335-14-5-.24(2) during the post-closure 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 335-14-5-.24(2) during post-closure care. The post-closure plan under 335-14-5-.07(9) must specify the procedures that will be used to satisfy this requirement.
Author: Stephen C. Maurer, Steven A. Cobb, C. Edwin Johnston
Statutory Authority: Code of Ala. 1975, §§22-30-11, 22-30-16.
History: August 24, 1989. **Amended:** Filed February 20, 1998; effective March 27, 1998. **Amended:** Filed March 9, 2001; effective April 13, 2001. **Amended:** Filed February 27, 2007; effective April 3, 2007.

335-14-5-.25 Commercial Hazardous Waste Disposal Facilities.

(1) Notification.

(a) A commercial hazardous waste disposal facility located in the State of Alabama may not dispose of any waste unless all of the applicable requirements in Rule 335-14-3-.08 are met.

(b) A commercial hazardous waste disposal facility located in the State of Alabama must maintain, for three (3) years, the notification documents required by Rule 335-14-3-.08 for each waste stream disposed there.

(2) [Reserved]

(3) [Reserved]
Author: William K. Mullins II, Robert W. Barr, Nicholas J. Wolf
Statutory Authority: Code of Ala. 1975, §§22-30-11, 22-30-16.
History: August 24, 1989. **Amended:** December 21, 1989. **Amended:** February 2, 1996; effective March 8, 1996. **Amended:** Filed February 8, 2002; effective March 15, 2002.

335-14-5-.26 [Reserved].
Author:
Statutory Authority:
History:

335-14-5-.27 Subpart AA - Air Emission Standards For Process Vents.

(a) The Environmental Protection Agency Regulations set forth in 40 CFR, Part 264, Subpart AA (as published by EPA on June 21, 1990, and amended on April 26, 1991; December 6, 1994; February 9, 1996; November 25, 1996; June 13, 1997; October 8, 1997; December

8, 1997; January 21, 1999; June 14, 2005; July 14, 2006; November 28, 2016; and August 9, 2023), are incorporated herein by reference.

(b) In the event that any Code of Federal Regulations Rule(s) incorporated herein by reference refers to or cites another Code of Federal Regulations Rule(s), other than 40 CFR Part 264, Subpart AA, such reference to the other Code of Federal Regulations Rule(s) is not incorporated in this ADEM Administrative Code and the ADEM Administrative Code Rule specifically addressing said issue or circumstance shall take precedence, be applicable and govern.

(c) The materials incorporated by reference are available for purchase and inspection at the Department's offices at 1400 Coliseum Blvd, Montgomery, Alabama 36110.
Author: Stephen C. Maurer; C. Edwin Johnston; Bradley N. Curvin; Vernon H. Crockett; Jonah L. Harris
Statutory Authority: Code of Ala. 1975, §§22-30-11, 22-30-16.
History: January 25, 1992. **Amended:** January 1, 1993. **Amended:** Filed November 30, 1995; effective January 5, 1995. **Amended:** Filed December 8, 1995; effective January 12, 1996. **Amended:** Filed February 20, 1998; effective Mach 27, 1998. **Amended:** Filed February 26, 1999; effective April 2, 1999. **Amended:** Filed February 25, 2000; effective March 31, 2000. **Amended:** Filed March 9, 2001; effective April 13, 2001. **Amended:** Filed February 24, 2005; effective March 31, 2005. **Amended:** Filed February 28, 2006; effective April 4, 2006. **Amended:** Filed February 14, 2017; effective March 31, 2017. **Amended:** Published April 28, 2023; effective June 12, 2023. **Amended:** Published December 31, 2025; effective February 14, 2026.

335-14-5-.28 Subpart BB - Air Emission Standards For Equipment Leaks.

(a) The Environmental Protection Agency Regulations, set forth in 40 CFR, Part 264, Subpart BB (as published by EPA on June 21, 1990, and amended on April 26, 1991; November 25, 1996; June 13, 1997; October 8, 1997; December 8, 1997; April 26, 2004; June 14, 2005; April 4, 2006; July 14, 2006; November 28, 2016; and August 9, 2023), are incorporated herein by reference.

(b) In the event that any Code of Federal Regulations Rule(s) incorporated herein by reference refers to or cites another Code of Federal Regulations Rule(s), other than 40 CFR Part 264, Subpart BB, such reference to the other Code of Federal Regulations Rule(s) is not incorporated in this ADEM Administrative Code and the ADEM Administrative Code Rule specifically addressing said issue or circumstance shall take precedence, be applicable and govern.

(c) The materials incorporated by reference are available for purchase and inspection at the Department's offices at 1400 Coliseum Boulevard, Montgomery, Alabama 36110.
Author: Stephen C. Maurer; C. Edwin Johnston; Bradley N. Curvin; Vernon H. Crockett; Jonah L. Harris
Statutory Authority: Code of Ala. 1975, §§22-30-11, 22-30-16.
History: January 25, 1992. **Amended:** January 1, 1993. **Amended:** Filed November 30, 1994; effective January 5, 1995. **Amended:** Filed December 8, 1995; effective January 12, 1996. **Amended:** Filed February 20, 1998; effective March 27, 1998. **Amended:** Filed February 26, 1999; effective April 2, 1999. **Amended:** Filed March 9, 2001; effective April 13, 2001. **Amended:** Filed February 24, 2005; effective March 31, 2005. **Amended:** Filed February 28, 2006; effective April 4, 2006. **Amended:** Filed February 14, 2017; effective March 31, 2017. **Amended:** Published April 28, 2023; effective June 12, 2023. **Amended:** Published December 31, 2025; effective February 14, 2026.

335-14-5-.29 Subpart CC - Air Emission Standards For Tanks, Surface Impoundments, And Containers.

(a) The Environmental Protection Agency Regulations, set forth in 40 CFR, Part 264, Subpart CC (as published by EPA on December 6, 1994 and as amended on May 19, 1995; September 29, 1995; November 13, 1995; June 5, 1996; November 25, 1996; October 8, 1997; December 8, 1997; March 6, 1998; April 22, 1998; September 15, 1998; October 7, 1998; January 21, 1999; July 14, 2006), and January 3, 2018), are incorporated herein by reference.

(b) In the event that any Code of Federal Regulations Rule(s) incorporated herein by reference refers to or cites another Code of Federal Regulations Rule(s), other than 40 CFR Part 264, Subpart CC, such reference to the other Code of Federal Regulations Rule(s) is not incorporated in this ADEM Administrative Code and the ADEM Administrative Code Rule specifically addressing said issue or circumstance shall take precedence, be applicable and govern. Any provision of 40 CFR Part 264, Subpart CC, which is inconsistent with the provisions of ADEM Administrative Code, Division 335-14, is not incorporated herein by reference.

(c) The materials incorporated by reference are available for purchase and inspection at the Department's offices at 1400 Coliseum Boulevard, Montgomery, Alabama 36110.
Author: C. Edwin Johnston; Bradley N. Curvin; Vernon H. Crockett
Statutory Authority: Code of Ala. 1975, §§22-30-11 and 22-30-16.
History: New Rule: Filed February 20, 1998; effective March 27, 1998. **Amended:** Filed February 26, 1999; effective April 2, 1999. **Amended:** Filed February 25, 2000; effective March 31, 2000. **Amended:** Filed March 9, 2001; effective April 13, 2001. **Amended:** Filed February 24, 2005; effective March 31, 2005. **Amended:**

Filed February 28, 2006; effective April 4, 2006. **Amended:** Filed February 14, 2017; effective March 31, 2017. **Amended:** Filed February 19, 2019; effective April 6, 2019.

335-14-5-.30 Containment Buildings.

(1) Applicability. The requirements of 335-14-5-.30 apply to owners or operators who store or treat hazardous waste in units designed and operated under 335-14-5-.30(2). The owner or operator is not subject to the definition of land disposal in RCRA §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 335-14-5-.30(2).

(d) Has controls sufficient to prevent fugitive dust emissions to meet the no visible emission standard in 335-14-5-.30(2)(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.

(2) Design and operating standards.

(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 335-14-5-.30(2)(b), 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 335-14-5-.30(2). 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 335-14-5-.30(2)(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:

(I) Constructed with a bottom slope of 1 percent or more; and

(II) Constructed of a granular drainage material with a hydraulic conductivity of 1×10^{-2} cm/sec or more and a thickness of 12 inches (30.5 cm) or more, or constructed of synthetic or geonet drainage materials with a transmissivity of 3×10^{5m2}/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 Rule 335-14-5-.10(4)(e)1. In addition, the containment building must meet the requirements of Rule 335-14-5-.10(4)(b) and Rule 335-14-5-.10(4)(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 Director 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 335-14-5-.30. In making this demonstration, the owner or operator must:

(i) Provide written notice to the Director of their request by November 16, 1992. 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 Director on these plans within 30 days; and

(iii) Fulfill the terms of the revised plans, if such plans are approved by the Director.

(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 and keep on-site a certification by a qualified professional engineer that the containment building design meets the requirements of 335-14-5-.30(2)(a) through (c). A qualified professional engineer 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, the owner or operator 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:

(I) Enter a record of the discovery in the facility operating record;

(II) Immediately remove the portion the containment building affected by the condition from service;

(III) 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

(IV) Within 7 days after the discovery of the condition, notify the Director of the condition, and within 14 working days, provide a written notice to the Director with a description of the steps taken to repair the containment building, and the schedule for accomplishing the work.

(ii) The Director 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 completed 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 Director 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 335-14-5-.30(2)(c)3.(i)(IV).

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 a containment buildings that contains both areas with and without secondary containment, the owner or operator must:

1. Design and operate each area in accordance with the requirements enumerated in 335-14-5-.30(2)(a) through (c);

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 335-14-5-.30 the Director may waive requirements for secondary containment for a permitted containment building where the owner or operator

demonstrates that the only free liquids in the unit are limited amounts of dust suppression liquids required to meet occupational health and safety requirements, and where containment of managed wastes and liquids can be assured without a secondary containment system.

(3) Closure and post-closure care.

(a) At closure of a containment building, the owner or operator must remove or decontaminate all waste residues, contaminated containment system components (liner, etc.) contaminated subsoils, and structures and equipment contaminated with waste and leachate, and manage them as hazardous waste unless Rule 335-14-2-.01(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 Rules 335-14-5-.07 and 335-14-5-.08.

(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 335-14-5-.30(3)(a), 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 [Rule 335-14-5-.14(11)]. 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 Rules 335-14-5-.07 and 335-14-5-.08.

Author: C. Lynn Garthright; C. Edwin Johnston; Michael B. Champion; Theresa A. Maines; Vernon H. Crockett; Sonja B. Favors; Brent A. Watson; Jonah L. Harris.
Statutory Authority: Code of Ala. 1975, §§22-30-11, 22-30-16.
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Amended: Filed March 13, 2003; effective April 17, 2003.
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Amended: Published April 28, 2023; effective June 12, 2023.

335-14-5-.31 Hazardous Waste Munitions And Explosives Storage.

(1) Applicability. The requirements of 335-14-5-.31 apply to owners or operators who store munitions and explosive hazardous wastes, except as 335-14-5-.01(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 (335-14-5-.30), tanks (335-14-5-.10), or containers (335-14-5-.09). See 335-14-7-.13(6) for storage of waste military munitions).

(2) 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 335-14-5-.31 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:

(I) To be of sufficient strength and thickness to support the weight of any explosives or munitions stored and any equipment used in the unit;

(II) To provide working space for personnel and equipment in the unit; and

(III) 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 335-14-5-.02(5), the preparedness and prevention procedures of 335-14-5-.03, and the contingency plan and emergency procedures requirements of 335-14-5-.04, 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.

(3) Closure and post-closure care.

(a) At closure of a magazine or unit which stored hazardous waste under 335-14-5-.31, 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 335-14-2-.01(3)(d) 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 335-14-5-.07 and 335-14-5-.08, 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 335-14-5-.31(3)(a), 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 [335-14-5-.14(11)].

Author: C. Edwin Johnston, Michael B. Champion
Statutory Authority: Code of Ala. 1975, §§22-30-11, 22-30-16.
History: New Rule: Filed February 20, 1998; March 27, 1998. **Amended:** Filed March 9, 2001; effective April 13, 2001. **Amended:** Filed March 13, 2003; effective April 17, 2003.

335-14-5-A1 Appendix I - Recordkeeping Instructions.

(a) The recordkeeping provisions of 335-14-5-.05(4) specify that an owner or operator must keep a written operating record at his facility. 335-14-5 - Appendix I provides additional instructions for keeping portions of the operating record. See 335-14-5-.05(4) (b) for additional recordkeeping requirements.

(b) 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:

(c) 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 Chapter 335-14-2 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 Rule 335-14-2-.04, the description also must include the process that produced it (for example, solid filter cake from production of_____, EPA Hazardous Waste Number W051).

Each hazardous waste listed in Rule 335-14-2-.04 and each hazardous waste characteristic defined in Rule 335-14-2-.03, 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 or Alabama 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;

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

TABLE 1

Unit of Measure	Symbol[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
Unit of Measure	**Symbol[1]**
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
Pounds.	P
Short Tons.	T
Kilograms	K
Tons.	M

[1]Single digit symbols are used here for data processing purposes.

TABLE 2

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

T01	Tank
T02	Surface Impoundment
T03	Incinerator
T04	Other Treatment
T94	Containment Building (Treatment)
T99	Boiler/Industrial Furnace

Note: In addition to coding T01, T02, T03, T04, T94, or T99, record specific handling codes as appropriate below.

(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 fisation
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	Trickling 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 Device Used in the Recovery of Sulfur Values from Spent Sulfuric Acid
T92	Halogen Acid Furnaces
T93	Other Industrial Furnaces Listed in Rule 335-14-1-.02

3. Disposal

D79	Underground injection
D80	Landfill
D81	Land treatment
D82	Ocean disposal
D83	Surface impoundment (to be closed as a landfill)
D99	Other (specify)

4. Miscellaneous (Subpart X)

X01	Open Burning/Open Detonation
X02	Mechanical Processing
X03	Thermal Unit
X04	Geologic Repository
X99	Other Subpart X (specify; use appropriate code from 2. (a) through 2. (e), if applicable)

Author: Stephen C. Maurer, C. Edwin Johnston, Michael B. Champion, Bradley N. Curvin, Theresa A. Maines
Statutory Authority: Code of Ala. 1975, §§22-30-11, 22-30-16, 22-30-18.
History: July 19, 1982. **Amended:** August 24, 1989. **Amended:** Filed November 30, 1994; effective January 5, 1995. **Amended:** Filed March 9, 2001; effective April 13, 2001. **Amended:** Filed March 13, 2003; effective April 17, 2003. **Amended:** Filed February 28, 2006; effective April 4, 2006. **Amended:** Filed February 27, 2007; effective April 3, 2007. **Amended:** Filed February 23, 2010; effective March 30, 2010.

335-14-5-A2 Appendix II - [Reserved].
Author:
Statutory Authority:
History:

335-14-5-A3 Appendix 3 - [Reserved].
Author:
Statutory Authority:
History:

335-14-5-A4 Appendix IV - Cochran's Approximation To The Behrens-Fischer Students' T-Test.

Using all the available background data (N_b readings), calculate the background mean (X_B) and background variance (S_B^2). For the single monitoring well under investigation (N_m reading), calculate the monitoring mean (X_m) and monitoring variance (S_m^2).

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

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

and the variance is calculated by:

$$S^2 = \frac{\left(X_1-X\right)^2+\left(X_2-X\right)^2...+\left(X_n-X\right)^2}{n-1}$$

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 tc 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:

$$t^*= \frac{X_m-X_B}{\sqrt{\frac{{s_m}^2}{n_m}+\frac{{s_B}^2}{n_B}}}$$

If the value of this t-statistic is negative then there is no significant difference between the monitoring data and background data. It should be noted that significantly small negative values may be indicative of a failure of the assumption made for test validity or errors have been made in collecting the background data.

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* has 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 (lst Edition, Section 5.8) by R. G. D. Steel and J. H. Torrie.

STANDARD T-TABLES 0.05 LEVEL OF SIGNIFICANCE

Degrees of Freedom	t-values (one-tail)	t-values (two-tail)
1	6.314	12.706
2	2.920	4.303
3	2.353	3.182
4	2.132	2.776

5	2.015	2.571
6	1.943	2.447
7	1.895	2.365
8	1.860	2.306
9	1.833	2.262
10.	1.812	2.228
11.	1.796	2.201
12.	1.782	2.179
13.	1.771	2.160
14.	1.761	2.145
15.	1.753	2.131
16.	1.746	2.120
17.	1.740	2.110
18.	1.734	2.101
19.	1.729	2.093
20.	1.725	2.086
21.	1.721	2.080
22.	1.717	2.074
23.	1.714	2.069
24.	1.711	2.064
25.	1.708	2.060
30.	1.697	2.042
40.	1.684	2.021

Adopted from Table III of "Statistical Tables for Biological, Agricultural, and Medical Research" (1947, R. A. Fisher and F. Yates).
Author: Stephen C. Maurer, Michael B. Champion
Statutory Authority: Code of Ala. 1975, §22-30-11.
History: April 9, 1986. **Amended**: August 24, 1989. **Amended**: Filed March 13, 2003; effective April 17, 2003.

335-14-5-A5 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 heat or pressure, fire or explosion, violent reaction, toxic dusts, mists, fumes, or gases, or 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

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 waste-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 wastes
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 wastes
Group 4-A wastes
Other flammable and combustible wastes
Potential consequences: Fire, explosion, or violent reaction.

Source: "Law, Regulations, and Guidelines for Handling of Hazardous Waste". California Department of Health, February 1975.
Author: Stephen C. Maurer
Statutory Authority: Code of Ala. 1975, §22-30-11.
History: July 19, 1982. **Amended:** August 24, 1989.

335-14-5-A6 Appendix VI - [Reserved].
Author:
Statutory Authority:
History:

335-14-5-A7 Appendix VII - [Reserved].
Author:
Statutory Authority:
History:

335-14-5-A8 Appendix VIII - [Reserved].
Author:
Statutory Authority:
History:

335-14-5-A9 Appendix IX - Groundwater Monitoring List(1).

Common Name[2]	CASRN[3]	Chemical Abstracts Service Index Name[4]
Acenaphthene	83-32-9	Acenaphthylene, 1,2-dihydro-
Acenaphthylene	208-96-8	Acenaphthylene
Acetone	67-64-1	2-Propanone
Acetophenone	98-86-2	Ethanone, 1-phenyl-
Acetonitrile; Methyl cyanide	75-05-8	Acetonitrile
2-Acetylamino fluorene; 2-AAF	53-96-3	Acetamide, N-9H-fluoren-2-yl-
Acrolein	107-02-8	2-Propenal
Acrylonitrile	107-13-1	2-Propenenitrile
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,4aβ,5aα, 8α, 8aβ)-

Allyl chloride	107-05-1	1-Propene, 3-chloro-
4-Aminobiphenyl	92-67-1	[1,1'-Biphenyl]-4-amine
Aniline	62-53-3	Benzenamine
Anthracene	120-12-7	Anthracene
Antimony	(Total)	Antimony

Common Name[2]	CASRN[3]	Chemical Abstracts Service Index Name[4]
Aramite	140-57-8	Sulfurous acid, 2-chloroethyl 2-[4-(1,1-dimethylethyl)phenoxy]- 1-methylethyl ester
Arsenic	(Total)	Arsenic
Barium	(Total)	Barium
Benzene	71-43-2	Benzene
Benzo[a]anthracene; Benzanthracene	56-55-3	Benz[a]anthracene
Benzo[b]fluoranthene	205-99-2	Benz[e]acephenanthrylene
Benzo[k]fluoranthene	207-08-9	Benzo[k]fluoranthene
Benzo[ghi]perylene	191-24-2	Benzo[ghi]perylene
Benzo[a]pyrene	50-32-8	Benzo[a]pyrene
Benzyl alcohol	100-51-6	Benzenemethanol
Beryllium	(Total)	Beryllium

alpha-BHC	319-84-6	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1α, 2α,3β,4β, 5β,6β)-
beta-BHC	319-85-7	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1α, 2β,3α,4β, 5α, 6β)-
delta-BHC	319-86-8	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1α, 2α,3α,4β, 5α, 6β)-
gamma-BHC; Lindane	58-89-9	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1α, 2α,3β,4α, 5α, 6β)-
Bis(2-chloroethoxy) methane	111-91-1	Ethane, 1,1'-[methylenebis (oxy)]bis[2-chloro-
Bis(2-chloroethyl)ether	111-44-4	Ethane, 1,1'-oxybis[2-chloro-
Bis(2-chloro-1-methylethyl) ether; 2,2'-Dichloro-diisopropyl ether	108-60-1	Propane, 2,2'-oxybis[1-chloro-
Bis(2-ethylhexyl) phthalate	117-81-7	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl)ester
Bromodichloro-methane	75-27-4	Methane, bromodichloro-
Bromoform; Tribromomethane	75-25-2	Methane, tribromo-
4-Bromophenyl phenyl ether	101-55-3	Benzene, 1-bromo-4-phenoxy-
Butyl benzyl phthalate; Benzyl butyl phthalate	85-68-7	1,2-Benzenedicarboxylic acid, butyl phenylmethyl ester
Cadmium	(Total)	Cadmium
Carbon disulfide	75-15-0	Carbon disulfide
Carbon tetrachloride	56-23-5	Methane, tetrachloro-
Chlordane	57-74-9	4,7-Methano-1H-indene, 1,2,4,5,6,7, 8,8-octachloro-2,3,3a,4, 7,7a- hexahydro-

p-Chloroaniline	106-47-8	Benzenamine, 4-chloro-
Chlorobenzene	108-90-7	Benzene, chloro-
Chlorobenzilate	510-15-6	Benzeneacetic acid, 4-chloro-α-(4-chlorophenyl)- α-hydroxy-, ethyl ester
p-Chloro-m-cresol	59-50-7	Phenol, 4-chloro-3-methyl-

Common Name[2]	CASRN[3]	Chemical Abstracts Service Index Name[4]
Chloroethane; Ethyl chloride	75-00-3	Ethane, chloro-
Chloroform	67-66-3	Methane, trichloro-
2-Chloronaphthalene	91-58-7	Naphthalene, 2-chloro-
2-Chlorophenol	95-57-8	Phenol, 2-chloro-
4-Chlorophenyl phenyl ether	7005-72-3	Benzene, 1-chloro-4-phenoxy-
Chloroprene	126-99-8	1,3-Butadiene, 2-chloro-
Chromium	(Total)	Chromium
Chrysene	218-01-9	Chrysene
Cobalt	(Total)	Cobalt
Copper	(Total)	Copper
m-Cresol	108-39-4	Phenol, 3-methyl-
o-Cresol	95-48-7	Phenol, 2-methyl-
p-Cresol	106-44-5	Phenol, 4-methyl-

Cyanide	57-12-5	Cyanide
2,4-D; 2,4-Dichloro-phenoxyacetic acid	94-75-7	Acetic acid, (2,4-dichlorophenoxy)-
4,4'-DDD	72-54-8	Benzene, 1,1'-(2,2-dichloroethylidene)bis[4-chloro-
4,4'-DDE	72-55-9	Benzene, 1,1'-(dichloroethenylidene)bis[4-chloro-
4,4'-DDT	50-29-3	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro-
Diallate	2303-16-4	Carbamothioic acid, bis(1-methyl-ethyl)-, S-(2,3-dichloro-2-propenyl) ester
Dibenz[a,h]anthracene	53-70-3	Dibenz[a,h]anthracene
Dibenzofuran	132-64-9	Dibenzofuran
Dibromochloro methane; Chlorodi bromomethane	124-48-1	Methane, dibromochloro-
1,2-Dibromo-3-chloro-propane; DBCP	96-12-8	Propane, 1,2-dibromo-3-chloro-
1,2-Dibromoethane; Ethylene dibromide	106-93-4	Ethane, 1,2-dibromo-
Di-n-butyl phthalate	84-74-2	1,2-Benzenedicarboxylic acid, dibutyl ester
o-Dichlorobenzene	95-50-1	Benzene, 1,2-dichloro-
m-Dichlorobenzene	541-73-1	Benzene, 1,3-dichloro-
p-Dichlorobenzene	106-46-7	Benzene, 1,4-dichloro-
3,3'-Dichlorobenzidine	91-94-1	

		[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dichloro-
trans-1,4-Dichloro-2-butene	110-57-6	2-Butene, 1,4-dichloro-, (E)-
Dichlorodifluoro methane	75-71-8	Methane, dichlorodifluoro-
1,1-Dichloroethane	75-34-3	Ethane, 1,1-dichloro-
1,2-Dichloroethane; Ethylene dichloride	107-06-2	Ethane, 1,2-dichloro-

Common Name[2]	CASRN[3]	Chemical Abstracts Service Index Name[4]
1,1-Dichloroethylene; Vinylidene chloride	75-35-4	Ethene, 1,1-dichloro-
trans-1,2-Dichloroethylene	156-60-5	Ethene, 1,2-dichloro-, (E)-
2,4-Dichlorophenol	120-83-2	Phenol, 2,4-dichloro-
2,6-Dichlorophenol	87-65-0	Phenol, 2,6-dichloro-
1,2-Dichloropropane	78-87-5	Propane, 1,2-dichloro-
cis-1,3-Dichloropropene	10061-01-5	1-Propene, 1,3-dichloro-, (Z)-
trans-1,3-Dichloropropene	10061-02-6	1-Propene, 1,3-dichloro-, (E)-
Dieldrin	60-57-1	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,2β,2aα,3β, 6β,6aα, 7β, 7aα)-
Diethyl phthalate	84-66-2	1,2-Benzenedicarboxylic acid, diethyl ester

O,O-Diethyl O-2-pyrazinyl phosphorothioate; Thionazin	297-97-2	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester
Dimethoate	60-51-5	Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester
p-(Dimethylamino) azobenzene	60-11-7	Benzenamine, N,N-dimethyl-4-(phenylazo)
7,12-Dimethylbenz[a] anthracene	57-97-6	Benz[a]anthracene,7,12-dimethyl-
3,3'-Dimethylbenzidine	119-93-7	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-
alpha, alpha-Dimethylphene-thylamine	122-09-8	Benzeneethanamine, α,α- dimethyl-
2,4-Dimethylphenol	105-67-9	Phenol, 2,4-dimethyl-
Dimethyl phthalate	131-11-3	1,2-Benzenedicarboxylic acid, dimethyl ester
m-Dinitrobenzene	99-65-0	Benzene, 1,3-dinitro-
4,6-Dinitro-o-cresol	534-52-1	Phenol, 2-methyl-4,6-dinitro-
2,4-Dinitrophenol	51-28-5	Phenol, 2,4-dinitro-
2,4-Dinitrotoluene	121-14-2	Benzene, 1-methyl-2,4-dinitro-
2,6-Dinitrotoluene	606-20-2	Benzene, 2-methyl-1,3-dinitro-
Dinoseb; DNBP; 2-sec-Butyl-4,6-dinitrophenol	88-85-7	Phenol, 2-(1-methylpropyl) -4,6-dinitro-
Di-n-octyl phthalate	117-84-0	1,2-Benzenedicarboxylic acid, dioctyl ester
1,4-Dioxane	123-91-1	1,4-Dioxane

Diphenylamine	122-39-4	Benzenamine, N-phenyl-
Disulfoton	298-04-4	Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl]ester
Endosulfan I	959-98-8	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9, 10,10-hexachloro- 1,5, 5a,6,9,9a-hexahydro-, 3-oxide, (3α,5aβ,6α,9α, 9aβ)-
Endosulfan II	33213-65-9	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9, 10,10-hexachloro- 1,5,5a,6, 9,9a-hexahydro- 3-oxide, (3α,5aα,6β,9β, 9aα)-

Common Name[2]	CASRN[3]	Chemical Abstracts Service Index Name[4]
Endosulfan sulfate	1031-07-8	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9, 10,10-hexachloro- 1,5,5a,6, 9,9a-hexahydro-, 3,3-dioxide
Endrin	72-20-8	2,7:3,6-Demethanonaphth[2,3-b]oxirene, 3,4, 5, 6,9,9-hexachloro-,1a,2,2a,3,6,6a,7,7a-octahydro-, (1aα,2β,2aβ,3α, 6α,6aβ, 7β, 7aα)-
Endrin aldehyde	7421-93-4	1,2,4-Methenocyclopenta [cd]pentalene- 5-carboxaldehyde, 2,2a,3,3,4,7- hexachlorodecahydro-, (1α,2β, 2aβ, 4β, 4aβ,5β, 6aβ, 6bβ,7R*)-

Ethylbenzene	100-41-4	Benzene, ethyl-
Ethyl methacrylate	97-63-2	2-Propenoic acid, 2-methyl-, ethyl ester
Ethyl methanesulfonate	62-50-0	Methanesulfonic acid, ethyl ester
Famphur	52-85-7	Phosphorothioic acid, O-[4-[(dimethylamino) sulfonyl] phenyl]-O, O-dimethyl ester
Fluoranthene	206-44-0	Fluoranthene
Fluorene	86-73-7	9H-Fluorene
Heptachlor	76-44-8	4,7-Methano-1H-indene,1, 4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-
Heptachlor epoxide	1024-57-3	2,5-Methano-2H-indeno[1, 2-b]oxirene,2, 3,4,5, 6,7,7- heptachloro-1a,lb,5,5a,6, 6a-hexahydro-,(1aα, lbβ,2α,5α, 5aβ,6β, 6aα)
Hexachlorobenzene	118-74-1	Benzene, hexachloro-
Hexachlorobutadiene	87-68-3	1,3-Butadiene, 1,1,2,3,4,4- hexachloro-
Hexachlorocyclopentadiene	77-47-4	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-
Hexachloroethane	67-72-1	Ethane, hexachloro-
Hexachlorophene	70-30-4	Phenol, 2,2'-methylenebis [3,4,6-trichloro-
Hexachloropropene	1888-71-7	1-Propene, 1,1,2,3,3,3-hexachloro-
2-Hexanone	591-78-6	2-Hexanone
Indeno(1,2,3-cd) pyrene	193-39-5	Indeno[1,2,3-cd]pyrene

Isobutyl alcohol	78-83-1	1-Propanol, 2-methyl-
Isodrin	465-73-6	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10, 10-hexachloro-1,4,4a,5,8,8a hexahydro-(lα, 4α,4aβ,5β, 8β,8aβ)-
Isophorone	78-59-1	2-Cyclohexen-1-one, 3,5,5-trimethyl-
Isosafrole	120-58-1	1,3-Benzodioxole, 5-(1-propenyl)-
Kepone	143-50-0	1,3,4-Metheno-2H-cyclo buta-[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,6-decachlorooctahydro-
Lead	(Total)	Lead
Mercury	(Total)	Mercury
Methacrylonitrile	126-98-7	2-Propenenitrile, 2-methyl-
Methapyrilene	91-80-5	1,2,Ethanediamine, N,N-dimethyl-N'-2-

Common Name[2]	CASRN[3]	Chemical Abstracts Service Index Name[4]
		pyridinyl-N'-(2-thienylmethyl)-
Methoxychlor	72-43-5	Benzene, 1,1'-(2,2,2, trichloro-ethylidene)bis [4-methoxy-
Methyl bromide; Bromomethane	74-83-9	Methane, bromo-
Methyl chloride; Chloromethane	74-87-3	Methane, chloro-
3-Methylcholanthrene	56-49-5	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-

Methylene bromide; Dibromo - methane	74-95-3	Methane, dibromo-
Methylene chloride; Dichloromethane	75-09-2	Methane, dichloro-
Methyl ethyl ketone; MEK	78-93-3	2-Butanone
Methyl iodide; Iodomethane	74-88-4	Methane, iodo-
Methyl methacrylate	80-62-6	2-Propenoic acid, 2-methyl-, methyl ester
Methyl methanesulfonate	66-27-3	Methanesulfonic acid, methyl ester
2-Methylnaphthalene	91-57-6	Naphthalene, 2-methyl-
Methyl parathion; Parathion methyl	298-00-0	Phosphorothioic acid, O,O-dimethyl O- (4-nitrophenyl) ester
4-Methyl-2-pentanone; Methyl isobutyl ketone	108-10-1	2-Pentanone, 4-methyl-
Naphthalene	91-20-3	Naphthalene
1,4-Naphthoquinone	130-15-4	1,4-Naphthalenedione
1-Naphthylamine	134-32-7	1-Naphthalenamine
2-Naphthylamine	91-59-8	2-Naphthalenamine
Nickel	(Total)	Nickel
o-Nitroaniline	88-74-4	Benzenamine, 2-nitro-
m-Nitroaniline	99-09-2	Benzenamine, 3-nitro-
p-Nitroaniline	100-01-6	Benzenamine, 4-nitro-
Nitrobenzene	98-95-3	Benzene, nitro-
o-Nitrophenol	88-75-5	Phenol, 2-nitro-
p-Nitrophenol	100-02-7	Phenol, 4-nitro-

4-Nitroquinoline 1-oxide	56-57-5	Quinoline, 4-nitro-, 1-oxide
N-Nitrosodi-n-butylamine	924-16-3	1-Butanamine, N-butyl-N-nitroso-
N-Nitrosodiethylamine	55-18-5	Ethanamine, N-ethyl-N-nitroso-
N-Nitrosodimethylamine	62-75-9	Methanamine, N-methyl-N-nitroso-
N-Nitrosodiphenylamine	86-30-6	Benzenamine, N-nitroso-N-phenyl-
N-Nitrosodipropylamine; Di-n-propylnitrosamine	621-64-7	1-Propanamine, N-nitroso-N-propyl-
N-Nitrosomethylethalamine	10595-95-6	Ethanamine, N-methyl-N-nitroso-
N-Nitrosomorpholine	59-89-2	Morpholine, 4-nitroso-
N-Nitrosopiperidine	100-75-4	Piperidine, 1-nitroso-

Common Name[2]	CASRN[3]	Chemical Abstracts Service Index Name[4]
N-Nitrosopyrrolidine	930-55-2	Pyrrolidine, 1-nitroso-
5-Nitro-o-toluidine	99-55-8	Benzenamine, 2-methyl-5-nitro-
Parathion	56-38-2	Phosphorothioic acid, O,O-diethyl-O-(4-nitrophenyl) ester
Polychlorinated biphenyls; PCBs	See Note 4	1,1'-Biphenyl, chloro derivatives
Polychlorinated dibenzo-p-dioxins; PCDDs	See Note 5	Dibenzo[b,e][1,4]dioxin, chloro derivatives
Polychlorinated dibenzo-furans; PCDFs	See Note 6	Dibenzofuran, chloro derivatives

Pentachlorobenzene	608-93-5	Benzene, pentachloro-
Pentachloroethane	76-01-7	Ethane, pentachloro-
Pentachloronitro-benzene	82-68-8	Benzene, pentachloronitro-
Pentachlorophenol	87-86-5	Phenol, pentachloro-
Phenacetin	62-44-2	Acetamide, N-(4-ethoxyphenyl)
Phenanthrene	85-01-8	Phenanthrene
Phenol	108-95-2	Phenol
p-Phenylenediamine	106-50-3	1,4-Benzenediamine
Phorate	298-02-2	Phosphorodithioic acid, O,O-diethyl S-[(ethylthio) methyl] ester
2-Picoline	109-06-8	Pyridine, 2-methyl-
Pronamide	23950-58-5	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-
Propionitrile; Ethyl cyanide	107-12-0	Propanenitrile
Pyrene	129-00-0	Pyrene
Pyridine	110-86-1	Pyridine
Safrole	94-59-7	1,3-Benzodioxole, 5-(2-propenyl)-
Selenium	(Total)	Selenium
Silver	(Total)	Silver
Silvex; 2,4,5-TP	93-72-1	Propanoic acid, 2-(2,4,5-trichloro-phenoxy)-
Styrene	100-42-5	Benzene, ethenyl-

Sulfide	18496-25-8	Sulfide
2,4,5-T; 2,4,5-Trichloro-phenoxyacetic acid	93-76-5	Acetic acid, (2,4,5-trichlorophenoxy)-
2,3,7,8-TCDD; 2,3,7, 8- Tetrachlorodi benzo-p-dioxin	1746-01-6	Dibenzo[b,e][1,4]dioxin, 2,3,7,8-tetrachloro-
1,2,4,5-Tetrachlorobenzene	95-94-3	Benzene, 1,2,4,5-tetrachloro-
1,1,1,2-Tetrachloroethane	630-20-6	Ethane, 1,1,1,2-tetrachloro-
1,1,2,2-Tetrachloroethane	79-34-5	Ethane, 1,1,2,2-tetrachloro-
Tetrachloroethylene; Perchloroethylene; Tetrachloroethene	127-18-4	Ethene, tetrachloro-
Common Name[1]	CASRN[2]	Chemical Abstracts Service Index Name[3]
2,3,4,6-Tetrachlorophenol	58-90-2	Phenol, 2,3,4,6-tetrachloro-
Tetraethyl dithiopyro-phosphate; Sulfotepp	3689-24-[4]	Thiodiphosphoric acid, $([(HO)_2P(S)]_2O)$, tetraethyl ester
Thallium	(Total)	Thallium
Tin	(Total)	Tin
Toluene	108-88-3	Benzene, methyl-
o-Toluidine	95-53-4	Benzenamine, 2-methyl-
Toxaphene	8001-35-2	Toxaphene
1,2,4-Trichlorobenzene	120-82-1	Benzene, 1,2,4-trichloro-

1,1,1-Trichloroethane; Methylchloroform	71-55-[5]	Ethane, 1,1,1-trichloro-

Common Name[1]	CASRN[2]	Chemical Abstracts Service Index Name[3]
1,1,2-Trichloroethane	79-00-5	Ethane, 1,1,2-trichloro-
Trichloroethylene; Trichloroethene	79-01-6	Ethene, trichloro-
Trichlorofluoromethane	75-69-4	Methane, trichlorofluoro-
2,4,5-Trichlorophenol	95-95-4	Phenol, 2,4,5-trichloro-
2,4,6-Trichlorophenol	88-06-2	Phenol, 2,4,6-trichloro-
1,2,3-Trichloropropane	96-18-4	Propane, 1,2,3-trichloro-
O,O,O-Triethyl phosphorothioate	126-68-1	Phosphorothioic acid,O,O,O-triethyl ester
sym-Trinitrobenzene	99-35-4	Benzene, 1,3,5-trinitro-
Vanadium	(Total)	Vanadium
Vinyl acetate	108-05-4	Acetic acid, ethenyl ester
Vinyl chloride	75-01-4	Ethene, chloro-
Xylene (total)	1330-20-7	Benzene, dimethyl-
Zinc	(Total)	Zinc

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

[2] Chemical Abstracts Service registry number. Where "Total" is entered, all species in the groundwater that contain this element are included.

[3] CAS index names are those used in the 9th Cumulative Index.

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

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

[6] This category contains congener chemicals, including tetrachlorodibenzofurans, pentachlorodibenzofurans, and hexachlorodibenzofurans.

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