ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 122, 264, and 265

[SWH-FRL 1673-7a]

Standards Applicable to Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities; Consolidated Permit Regulations

AGENCY: Environmental Protection Agency.

ACTION: Interim final rule.

SUMMARY: The Environmental Protection Agency is amending its regulations for the management of hazardous waste by: adding significant new sections to the standards applicable to the owners and operators of waste management facilities; adding financial requirements and amending closure and post-closure care requirements during the interim status periods for such facilities; and amending the permit regulations to comply with the facility regulations being published today.

Under the Resource Conservation and Recovery Act (RCRA) the Agency is required to establish a Federal hazardous waste management system. The first phase of that system was promulgated earlier this year. Today's publication, by setting forth requirements for location, closure and post-closure care, financial requirements, use and management of containers, and storage and treatment of hazardous waste in tanks, surface impoundments, and waste piles, will significantly improve the regulatory program by providing necessary standards around which permits may be granted for many treatment and storage operations. The additions to the permit regulations are necessary to enable the Agency's permitting officials to evaluate facility compliance with these regulations. The additions and changes to the interim status closure, post-closure care, and financial requirements were made to complete the interim status control program and in response to some public comments.

These regulations do not include the Part 264 requirements for ground-water monitoring, land treatment, landfills, incinerators, chemical, physical, and biological treatment units, thermal treatment facilities, injection wells, or the provisions for surface impoundments or waste piles used for disposal. These are still under preparation and will be issued at a later date.

DATES: Effective Date: These regulations, in the form published today, complete EPA's initial rulemaking on the subjects covered. They become effective on July 13, 1981, which is six months from the date of promulgation as RCRA Section 3010(b) requires.

Comment dates: EPA will accept public comments on these regulations as follows:

Deadline for Submission of Comments

All of these requirements are issued on an interim final basis. Comments on these regulations will be accepted until March 13, 1981. Comments in response to Requests in the Preamble will also be accepted until March 13, 1981.

ADDRESSES: Comments should be sent to Docket Clerk [Docket No. 3004], Office of Solid Waste (WH-562), U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460.

Public Docket: The public docket for these regulations is located in Room 2711, U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, D.C., and is available for viewing from 9:00 a.m. to 4:00 p.m. Monday through Friday, excluding holidays. Among other things, the docket contains background documents which explain, in more detail than the preamble to this regulation, the basis for many of the provisions in this regulation.

Copies of Regulations: Single copies of these regulations will be available approximately 30 days after publication from Ed Cox, Solid Waste Information, U.S. Environmental Protection Agency, 26 West St. Clair Street, Cincinnati, Ohio 45268 (513) 684-5362. Multiple copies will be available from the Superintendent of Documents, Washington, D.C. 20402.

FOR FURTHER INFORMATION CONTACT:

For general information contact the RCRA hazardous waste hotline, Office of Solid Waste (WH-565), U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460 (phone 800/424-9346, or in Washington, D.C., 554-1404).

For information on implementation of these regulations, contact the EPA regional offices below:

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Region II

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Region IV

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Region V

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Region VI

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Region VII

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Region VIII

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Region X

Kenneth D. Feigner, Chief, Waste Management Branch, 1200 6th Avenue, Seattle, Washington 98101 (206) 442-1260

SUPPLEMENTARY INFORMATION:

Preamble Outline

I. Authority

These regulations are issued under the authority of Sections 1006, 2002(a), 3004, and 3005 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended, 42 U.S.C. 6905, 6912(a), 6924, and 6925.

II. Structure of Subtitle C

Subtitle C of RCRA creates a "cradle-to-grave" management system assuring that hazardous waste is safely stored, treated or disposed. Subtitle C creates a manifest system which is designed to track the movement of hazardous waste. Under regulations established by the Administrator of EPA, hazardous waste generators and transporters, as well as owners and operators of hazardous waste treatment, storage and disposal facilities are required to discharge certain responsibilities that insure the effective operation of the manifest system. In addition, owners and operators of treatment, storage and disposal facilities must comply with standards that "may be necessary to protect human health and the environment," which are established by EPA under Section 3004 of RCRA. These standards are generally implemented through permits, issued by EPA or authorized states, to owners and operators of hazardous waste treatment, storage and disposal facilities.

Section 3004 standards become effective 6 months after their promulgation by EPA. Under Section 3005(a), on the effective date of the Section 3004 standards, all treatment, storage and disposal of hazardous waste is prohibited except in accordance with a permit which implements the Section 3004 standards. Recognizing that not all permits would be issued within six months of the promulgation of Section 3004 standards, Congress created "interim status" in Section 3005(e) of RCRA. Owners and operators of existing hazardous waste treatment, storage and disposal facilities who qualify for interim status will be treated as having been issued a permit until EPA takes final administrative action on their permit application. Interim status does not relieve a facility owner or operator of complying with Section 3004 standards. The privilege of carrying on operations in the absence of a permit carries with it the responsibility of complying with appropriate portions of the Section 3004 standards (contained in 40 CFR Part 265).

To implement the various sections of Subtitle C EPA has issued several sets of regulations:

Part 260: Hazardous Waste Management System: general
Part 261: Hazardous Waste Management System: Identification and Listing of Hazardous Waste
Part 262: Standards for Generators of Hazardous Waste
Part 263: Standards for Transporters of Hazardous Waste
Part 264: Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities
Part 265: Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities
Parts 122–125: Consolidated Permit Regulations (including permit regulations for hazardous waste facilities)

III. Status of the Subtitle C Rulemaking

The development of the hazardous waste regulations has been one of the most complicated rulemakings EPA has ever attempted. To give the reader an appreciation of the context surrounding today's promulgation it is useful to summarize EPA's rulemaking efforts of the last year:

1. Section 3010 Notice—This Notice was issued on February 26, 1980.

2. *Part 260*—This portion of the regulation, which includes general definitions used in the regulations and

procedures for petitioning EPA, was promulgated on May 19, 1980.

3. *Part 261*—Part 261, which defines through lists and characteristics the wastes which are considered hazardous under the program, was first promulgated on May 19, 1980. Many of the listings of wastes in the May 19 rulemaking were in "interim final" form. Final versions of those listings were completed in regulations issued on November 12, 1980 (45 FR 74884–74894) and November 25, 1980 (45 FR 532–78544). Another "interim final" and proposed list of hazardous wastes was issued on July 16, 1980 (45 FR 47832–47836). Additional amendments have been made to Part 261 to clarify issues raised by the May 19 regulations and to resolve problems concerning specific waste listings.

4. *Parts 262 and 263*—Portions of Part 262, which contains standards for generators of hazardous waste, and Part 263, which contains standards for transporters of hazardous waste, were issued on February 26, 1980 (45 FR 12722.) The remainder of Parts 262 and 263 were promulgated in the May 19, 1980 set of regulations. Additional modifications have been made to those regulations to clarify issues raised in the May 19 regulations.

5. *Part 264*—Portions of the Part 264 regulations, the standards applicable to owners and operators of hazardous waste treatment, storage, and disposal facilities, were issued on May 19, 1980. Specifically Subparts A (General), B (General Facility Standards), C (Preparedness and Prevention), D (Contingency Plan and Emergency Procedures) and E (Manifest System, Recordkeeping and Reporting) were issued at that time. In that package, § 264.12 (Required Notices) was issued in "interim final" form. All of the other 264 Subparts were issued in final form.

6. *Part 265*—On May 19 EPA promulgated regulations applicable to facilities operating under interim status. Specifically it promulgated Subparts A (General), B (General Facility Standards), C (Preparedness and Prevention), D (Contingency Plan and Emergency Procedures), E (Manifest System, Recordkeeping and Reporting), F (Ground-Water Monitoring), G (Closure and Post-Closure), H (Financial Requirements), I (Containers), J (Tanks), K (Surface Impoundments), L (Piles), M (Land Treatment), N (Landfills), O (Incinerators), P (Thermal Treatment), Q (Chemical, Physical and Biological Treatment), and R (Underground Injection). Some subsections were in final form while others were in "interim final" form.

Two major proposed rules accompanied the May 19 set of regulations. One proposed significant additions to Subpart H, the financial responsibility requirements, while the other proposed significant additions to Subpart R, the requirements for underground injection. The proposed rules would have modified both Parts 265 and 264.

7. *Parts 122–125*—The Consolidated Permit Regulations, which set forth the permit regulations for several EPA programs including the hazardous waste program, were issued on May 19, 1980. All portions of those regulations affecting the hazardous waste program were issued in final form.

IV. Scope of Rulemaking

The regulations that EPA is issuing today comprise additions to Part 264. Subparts G–L are also being added to Part 264 for the first time. Location standards are being added to Subpart B of Part 264 as well. All the 264 regulations are being issued in "interim final" form.

Limited changes are being made to Part 265. Subpart H of Part 265 is being modified to accord with the Part 264 financial requirements. These modifications to Part 265, Subpart H are "interim final". Certain elements of Part 265, Subpart G were issued as "interim final" in the May 19 regulations. Some modifications based on comments are being made today, again on an interim final basis.

EPA is not finalizing any of the "interim final" portions of the Part 265 regulations. Moreover it is not yet adding Subparts F, M, N, O, P, Q or R to Part 264. The following chart summarizes the status of the various portions of Parts 264 and 265, based on the May 19 regulations, the regulations issued today, and recent amendments.

Regulatory Status

Part 264—General Standards

Subpart	Section	Action	Action date
A	264.1	Final	5/19/80
		Amended	11/17/80
		Amended	11/19/80
	264.3	Final	5/19/80
	264.4	Final	5/19/80
B	264.10	Final	5/19/80
		Amended	
	264.11	Final	5/19/80
	264.12	Interim Final	5/19/80
	264.13	Final	5/19/80
		Amended	
	264.14	Final	5/19/80
	264.15	Final	5/19/80
		Amended	
	264.16	Final	5/19/80
	264.17	Interim Final	
	264.18	Interim Final	
C	264.30	Final	5/19/80
	264.31	Final	5/19/80
	264.32	Final	5/19/80
	264.33	Final	5/19/80
	264.34	Final	5/19/80
	264.35	Final	5/19/80
	264.36	Final	5/19/80
		Reserved	
	264.37	Final	5/19/80
D	264.50	Final	5/19/80
	264.51	Final	5/19/80
	264.52	Final	5/19/80
	264.53	Final	5/19/80
	264.54	Final	5/19/80
	264.55	Final	5/19/80
	264.56	Final	5/19/80
		Amended	
E	264.70	Final	5/19/80
	264.71	Final	5/19/80
	264.72	Final	5/19/80
	264.73	Final	5/19/80
		Amended	
	264.74	Final	5/19/80
	264.75	Final	5/19/80
		Amended	
	264.76	Final	5/19/80
	264.77	Final	5/19/80
		Amended	
G	264.110	Interim Final	
	264.111	Interim Final	
	264.112	Interim Final	
	264.113	Interim Final	
	264.114	Interim Final	
	264.115	Interim Final	
	264.116	Interim Final	
	264.117	Interim Final	
	264.118	Interim Final	
	264.119	Interim Final	
	264.120	Interim Final	
H	264.140	Proposed	5/19/80
		Interim Final	
	264.141	Proposed	5/19/8
		Interim Final	
	264.142	Interim Final	
	264.143	Proposed	5/19/80
		Interim Final	
	264.44	Interim Final	
	264.45	Proposed	5/19/80
		Interim Final	
	264.146	Proposed	5/19/80
		Interim Final	
	264.147	Proposed	5/19/80
		Interim Final	
	264.148	Interim Final	
	264.149	Proposed	5/19/80
		Interim Final	
	264.150	Interim Final	
	264.151	Interim Final	
I	264.170	Interim Final	
	264.171	Interim Final	
	264.172	Interim Final	
	264.173	Interim Final	
	264.174	Interim Final	
	264.175	Interim Final	
	264.176	Interim Final	
	264.177	Interim Final	
	264.178	Interim Final	
J	264.190	Interim Final	
	264.191	Interim Final	
	264.192	Interim Final	
	264.194	Interim Final	
	264.197	Interim Final	
	264.198	Interim Final	
	264.199	Interim Final	
	264.200	Proposed	
K	264.220	Interim Final	
	264.221	Interim Final	
	264.222	Interim Final	
	264.223	Interim Final	
	264.226	Interim Final	
	264.227	Interim Final	
	264.228	Interim Final	
	264.229	Interim Final	
	264.230	Interim Final	
L	264.250	Interim Final	

Regulatory Status—Continued

Part 264—General Standards

Subpart	Section	Action	Action date
	264.251	Interim Final	
	264.252	Interim Final	
	264.253	Interim Final	
	264.254(a)	Interim Final	
	264.254 (b+c)	Proposed	
	264.255	Interim Final	
	264.266	Interim Final	
	264.257	Interim Final	
	264.258	Interim Final	

Regulatory Status

Part 265—Interim Status Standards

A	265.1	Final	5/19/80
		Amended	11/17/80
		Amended	11/19/80
	265.4	Final	5/19/80
B	265.10	Final	5/19/80
	265.11	Final	5/19/80
	265.12	Interim Final	5/19/80
	265.13	Final	5/19/80
	265.14	Final	5/19/80
	265.15	Final	5/19/80
	265.16	Final	5/19/80
	265.17	Interim Final	5/19/80
C	265.30	Final	5/19/80
	265.31	Final	5/19/80
	265.32	Final	5/19/80
	265.33	Final	5/19/80
	265.34	Final	5/19/80
	265.76	Final	5/19/80
	265.77	Final	5/19/80
D	265.50	Final	5/19/80
	265.51	Final	5/19/80
	265.52	Final	5/19/80
	265.53	Final	5/19/80
	265.54	Final	5/19/80
	265.55	Final	5/19/80
	265.56	Final	5/19/80
E	265.70	Final	5/19/80
	265.71	Final	5/19/80
	265.72	Final	5/19/80
	265.73	Final	5/19/80
	265.74	Final	5/19/80
	265.75	Final	5/19/80
F	265.90	Interim Final	5/19/80
	265.91	Interim Final	5/19/80
	265.92	Interim Final	5/19/80
	265.93	Interim Final	5/19/80
	265.94	Interim Final	5/19/80
G	265.110	Final	5/19/80
	265.111	Interim Final	5/19/80
		Final	
	265.112	Interim Final	5/19/80
		Amended	10/30/80
		Amended	
	265.113	Interim Final	5/19/80
		Amended	
	265.114	Final	5/19/80
	265.115	Final	5/19/80
	265.117	Interim Final	5/19/80
	265.118	Interim Final	5/19/80
	265.119	Final	5/19/80
		Proposed Amendment.	
	265.120	Final	5/19/80
		Proposed Amendment.	
H	265.140	Final	5/19/80
	265.141	Proposed	5/19/80
		Interim Final	
	265.142	Final	5/19/80
		Amended	10/30/80
	265.143	Proposed	5/19/80
		Interim Final	
	265.144	Final	5/19/80
		Amended	10/30/80
	265.145	Proposed	5/19/80
		Interim Final	
	265.146	Proposed	5/19/80
		Interim Final	
H	265.147	Proposed	5/19/80
		Interim Final	
	265.148	Interim Final	
	265.149	Proposed	5/19/80
		Interim Final	
	265.150	Interim Final	
	265.151	Interim Final	
I	265.170	Final	5/19/80

Regulatory Status—Continued

Part 264—General Standards

Subpart	Section	Action	Action date
	265.171	Final	5/19/80
	265.172	Final	5/19/80
	265.173	Final	5/19/80
	265.174	Final	5/19/80
	265.176	Interim Final	5/19/80
	265.177	Final	5/19/80
J	265.190	Final	5/19/80
	265.192	Final	5/19/80
	265.193	Final	5/19/80
	235.194(a)	Final	5/19/80
	265.194(b)	Proposed	
	265.197	Final	5/19/80
	265.198	Interim Final	5/19/80
	265.199	Final	5/19/80
K	265.220	Final	5/19/80
	265.222	Final	5/19/80
	265.223	Final	5/19/80
	265.225	Final	5/19/80
	265.226	Final	5/19/80
	265.228	Interim Final	5/19/80
	265.229	Final	5/19/80
	265.230	Final	5/19/80
L	265.250	Final	5/19/80
	265.251	Interim Final	5/19/80
	265.252	Interim Final	5/19/80
	265.253	Interim Final	5/19/80
	265.254	Proposed	
	265.256	Interim Final	5/19/80
	265.257	Interim Final	5/19/80
M	265.270	Final	5/19/80
	265.272	Interim Final	5/19/80
	265.273	Interim Final	5/19/80
	265.276	Interim Final	5/19/80
	265.278	Interim Final	5/19/80
	265.279	Final	5/19/80
	265.280	Interim Final	5/19/80
	265.281	Final	5/19/80
	265.282	Final	5/19/80
N	265.300	Final	5/19/80
	265.302	Final	5/19/80
	265.309	Final	5/19/80
	265.310	Interim Final	5/19/80
	265.312	Final	5/19/80
	265.313	Final	5/19/80
	265.314	Interim Final	5/19/80
	265.315	Interim Final	5/19/80
O	265.340	Final	5/19/80
	265.343	Interim Final	5/19/80
	265.345	Interim Final	5/19/80
	265.347	Interim Final	5/19/80
	265.351	Interim Final	5/19/80
P	265.370	Final	5/19/80
	265.373	Interim Final	5/19/80
	265.375	Interim Final	5/19/80
	265.377	Interim Final	5/19/80
	265.381	Interim Final	5/19/80
	265.382	Interim Final	5/19/80
Q	265.400	Final	5/19/80
	265.401	Final	5/19/80
	265.402	Final	5/19/80
	265.403	Final	5/19/80
	265.404	Final	5/19/80
	265.405	Interim Final	5/19/80
	265.406	Final	5/19/80
R	265.430	Interim Final	5/19/80

EPA had hoped to issue today Part 264 standards for all of the major hazardous waste management options. Unfortunately EPA has not been able to do so for several reasons. First, EPA's limited resources have been severely taxed by its efforts to implement the existing regulations. Many States have been seeking "interim authorization" to implement the hazardous waste program within their borders. (See 45 FR 33386 for an explanation of interim authorization under RCRA). Review of State applications and assisting the States in the development of their programs has proved to be a time-consuming task for EPA. Moreover EPA has had to devote substantial resources to explaining the complexities of the hazardous waste program to the public.

Second, EPA has had to face substantial legal challenge to its existing program. Approximately 52 petitions for review were filed on the May 19 regulations by various corporations, trade associations and environmental groups. Preliminary discussions with the petitioners have indicated that they may wish to negotiate modifications to some of the Part 265 regulations, particularly those involving some of the land disposal regulations. EPA has not yet decided to make *any* changes in Part 265 as a result of discussions with the petitioners. However, EPA is willing to explore with the petitioners, at least for some reasonable time period, the issues and regulatory options which they might suggest. Under these circumstances EPA believes that it should temporarily delay final promulgation of those Part 265 regulations, and the analogous elements of Part 264, that might be affected by the negotiations with the petitioners. This avoids the prospect of promulgating final regulations now which might have to be modified a few months later in further rulemaking.

Third, several of the Subparts which have not been included in today's promulgation will be affected by the Agency's decisions on the use of the "best engineering judgment" (BEJ) approach to hazardous waste permitting under RCRA. As indicated in the Preamble to the May 19 regulations (45 FR 33166), the BEJ approach is, in part, an effort to make EPA's regulations more adaptable to the wide range of wastes and management scenarios subject to the hazardous waste program. Essentially the BEJ approach relies on basic performance standards and a set of relevant technical factors that relate to those performance standards. Permitting authorities (EPA or the States) would then use these performance standards and technical factors as a structure for exercising their discretion on the acceptability of particular facilities, based on a thorough knowledge of the wastes managed at the facility, the facility design and the environment in which the facility is located.

In developing its regulations EPA is considering the use of several types of performance standards that will guide the BEJ analysis. For example, the Agency may use operational performance standards (*e.g.* 99.99% destruction and removal efficiency for organic constituents in incinerators), specific ambient health and environmental performance standards

(*e.g.* assuring maintenance of water quality levels contained in the National Interim Primary Drinking Water Regulations in the ground water downgradient from a land disposal facility), and non-narrative health and environmental performance standards (*e.g.* assuring no adverse effects on human health due to carcinogenicity, acute toxicity or mutagenicity). Currently EPA intends to employ a mix of these types of performance standards.

On October 8, 1980 EPA published a Supplemental Notice of Proposed Rulemaking (45 FR 66817–66823), which outlined its intended BEJ approach for assuring ground water protection at land disposal facilities. EPA received over 100 comments on the Notice, many of which raised substantial objections. In order to fully analyze and address the issues raised by those comments, EPA will have to take more time to promulgate the land disposal regulations. Moreover the Agency is currently considering whether to propose the key elements of these BEJ regulations.

Due to these considerations EPA decided to focus its limited resources on promulgating those portions of the 264 regulations which were not substantially affected by the pending litigation and the development of its BEJ strategy for land disposal. This approach allows for careful consideration and efficient promulgation of the remaining standards. At the same time this approach allows for the prompt permitting of a large number of hazardous waste management facilities. EPA estimates, for example, that there are over 13,000 facilities that store hazardous waste. Such facilities can begin to receive permits once the regulations promulgated today become effective.

EPA will make every effort to finalize the remaining portions of the Parts 264 and 265 regulations as soon as possible. As part of its finalization of the interim final portions of Part 264 that are issued today EPA will also finalize the Part 265 analogs of those provisions. The next major portion of the Part 264 standards will be the incinerator standards (Subpart O). EPA intends to issue those regulations in January of 1981. The land disposal regulations will be promulgated some time thereafter. At this time EPA is considering proposing the key elements of the BEJ land disposal regulations in January as well.

In its rulemaking on the hazardous waste regulations EPA has provided many opportunities for public comment. EPA will be responding to the major comments received on those proposed hazardous waste regulations of December 18, 1978 (43 FR 58982–59016) that concerned the Subparts being promulgated today. In addition EPA has responded to some of the comments submitted on the interim final portions of the Part 265 regulations issued on May 19. Such comments are discussed when they are directly related to decisions made on the Part 264 regulations.

V. Effect on Permitting

Once the regulations promulgated today become effective EPA will be able to issue permits for many hazardous waste management facilities. Specifically EPA, or authorized states, will be able to issue permits to owner and operators of container, tank, surface impoundment and pile facilities. In keeping with § 122.9 of EPA's Consolidated Permit Regulations, EPA will generally issue 10 year permits for these facilities. However, in appropriate situations the Director may establish shorter term permits. As will be discussed later, EPA expects that the regulations being issued today will be undergoing substantial refinement in the next few months. Modifications which are made promptly will be used as a basis for setting conditions in the first round of permits.

While these regulations will allow EPA to issue permits for most container, and tank, and many surface impoundment and pile facilities, certain limited types of storage facilities will not be covered by these regulations. For example, Section 264.190 excludes covered underground tanks from these regulations. As will be discussed later, EPA is seeking further information on this type of storage facility and thus is not ready to regulate such facilities at this time. Therefore no permits may be issued to such facilities until that component of the tank regulations has been issued.

In the case of surface impoundments and piles, the regulations give a choice to the permittee. Where impoundments and piles are to be used for "storage," namely the holding of waste for a temporary period, the permittee may seek and obtain a permit under the regulations issued today. Likewise EPA may call up and act on a permit for storage surface impoundments or piles under these regulations. However, if the permittee intends to leave the waste in place at closure, the facility must be treated for regulatory purposes as a disposal facility. For the reasons discussed earlier, EPA is not yet ready to issue its BEJ Standards for land disposal. Therefore, permits for surface impoundments and piles which discharge or that are not emptied at closure will have to await finalization of the remainder of the surface impoundment regulations.

EPA intends to issue the remaining portion of the surface impoundment and pile regulations as soon as possible, and it does not expect that the delay will present undue hardship for the regulated community. Owners and operators of new facilities will be able to receive permits allowing storage of hazardous waste for up to ten years. Those facilities which will eventually be seeking permits under the land disposal regulations can seek short-term permits. Moreover existing facilities that have properly qualified for interim status will be able to continue to operate providing that they comply with the interim status standards. Owners and operators of such facilities who intend to use their surface impoundments and piles for storage may receive a permit under these regulations. Those owners and operators who will be using existing surface impoundments and piles as the ultimate repositories of hazardous waste will be allowed to continue operation (providing that they comply with interim status standards) until the land disposal standards are promulgated.

It should also be pointed out that the regulations being issued today do not distinguish between new and existing facilities. While EPA clearly has authority to make such a distinction in setting Section 3004 standards, EPA does not believe that it is appropriate to distinguish between new and existing storage facilities. As will be discussed later, EPA believes that all storage facilities should be designed to essentially contain hazardous waste constituents. Disposal facilities may be regulated in a somewhat different manner, however, and it may be appropriate to draw distinctions between new and existing facilities in that context.

VI. Regulation of Storage and Treatment Facilities

Subparts I–L of these regulations establish the requirements for container, tank, surface impoundment and pile facilities, the principal facilities used to store hazardous waste.

As indicated in Section 1004(33) of RCRA,

> The term "storage", when used in connection with hazardous waste, means the containment of hazardous waste, *either on a temporary basis or for a period of years,* in such a manner as not to constitute disposal of such hazardous waste.

In defining the term storage in the regulations EPA emphasized the manner

in which the waste is managed. EPA defined "storage" in § 260.10(a)(66) as

> the holding of hazardous waste for a temporary period, at the end of which the hazardous waste is treated, disposed of, or stored elsewhere.

EPA believes that this is an appropriate way to define storage for purposes of the hazardous waste management program. This definition focuses on how the owner or operator intends to use the facility. Knowing whether the facility will be used to hold the waste for a set period of time or whether it will be used as the ultimate repository of the waste is a basic element of sound waste management. EPA believes, therefore, that this definition directs the owner or operator's attention toward a key factor that can and should be known about the facility at the time of permit issuance.

The reasonableness of this approach is demonstrated by contrasting it with a definition that uses the environmental effects of the facility as a means of distinguishing between storage and disposal. Disposal is defined in Section 1004(3) as

> * * * the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters.

The definition of storage in Section 1004(33) specifically indicates that storage is "containment * * * in such a manner as not to constitute disposal of such hazardous waste." These definitions pose the question of how to classify a storage facility which leaks, causing disposal of hazardous waste. For example, is a leaky container a storage facility that violates its storage requirements or has it suddenly been re-defined as a disposal facility?

EPA believes that the definitions of storage and disposal facilities for purposes of Subtitle C permitting should not depend on whether the facility does in fact leak. Such a distinction would not be useful in determining what kinds of requirements should be placed in an initial permit for the facility. The question of whether a facility will leak depends on the conditions placed in a permit, and it would be impossible to know before such conditions are established whether leakage from the facility would occur. Thus it is more appropriate to focus on how the owner or operator intends to manage a facility (i.e., either to hold the hazardous waste for a temporary period, prior to treatment, disposal or storage elsewhere, or to permanently hold the waste at the facility) when establishing its status for hazardous waste facility permitting.

A. Regulatory Approach to Storage

Once it is clear what distinguishes storage facilities from disposal facilities it is necessary for EPA to formulate a regulatory strategy for storage facilities. After further consideration of the information available to it, EPA has decided that the requirements for storage facilities should be aimed at *containment* of the hazardous waste during the storage period.

This approach is an outgrowth of a general policy which EPA believes is appropriate for the storage, treatment and disposal of hazardous waste. EPA believes that it is unwise to allow the *uncontrolled* release of hazardous waste constituents into the environment. Certainly the entire structure of the hazardous waste program under RCRA reflects a Congressional intent that the general random release of hazardous waste constituents into the environment must be curtailed. The entire thrust of the "cradle to grave" manifest system and the permit program for storage, treatment and disposal facilities indicates a Congressional intent that the *indiscriminate* release of hazardous wastes, which has characterized so much of hazardous waste management in the past, would no longer be tolerated. Under this scheme significant releases of hazardous waste would only occur under *controlled* conditions where the facility owners and operators, EPA, the states and ultimately the public could be assured that human health and the environment would be protected. Thus where such releases are inevitable the hazardous waste program would assure, through facility design, operating conditions, monitoring provisions and emergency response measures, that only those releases which the environment can safely accommodate would be allowed.

The implications of this philosophy for regulation of storage facilities becomes clearer after considering some of the characteristics of these facilities. First, by definition, wastes are held at storage facilities only temporarily. Secondly, there are a great number of storage facilities. Third, waste storage facilities are often adjuncts to other types of industrial facilities which are not primarily engaged in waste management activities.

Under these circumstances, EPA believes that, as a national policy, owners and operators of storage facilities can more easily comply with a containment philosophy than properly implement the complex design, operational, monitoring and response permit conditions which will be necessary to responsibly manage controlled releases (e.g., as a result of proper disposal) of hazardous waste into the environment. Similarly, EPA can more easily implement a regulatory program for storage which requires containment than a program which requires analysis of risk of releases from thousands of storage facilities.

Since storage facilities are often ancillary to the main activity at a facility and are often temporary in nature, it cannot be expected that the owner or operator has sufficient knowledge to assure that any releases from the facility will be properly controlled now and in the future. Moreover, it would be inefficient for an owner or operator to commit the resources necessary to achieve such assurance in most cases for simple storage activities.

Likewise EPA is well aware that the available scientific resources (expertise, equipment, etc.) that are necessary for sound hazardous waste management are quite limited. Thus the best use of available resources requires that EPA limit the number of site-specific situations where a release of hazardous waste constituents would be allowed under controlled conditions.

Thorough analyses of hydrogeologic environments and of how particular wastes migrate in those environments simply cannot be done at every storage, treatment and disposal facility in this country. Wholly apart from the question of administrative convenience in permitting, an attempt to perform such analyses at all such facilities would spread the available resources for analysis and management too thin, forcing facility owners or operators, and EPA to compromise on the care with which such analyses are done.

EPA, therefore, concludes that the question of whether controlled releases are allowed should only be considered when such releases are inevitable, such as releases from disposal facilities (e.g., landfills) and, air emissions (from treatment facilities). Responsible use of available scientific resources requires that some limits be placed. EPA believes that it is appropriate to preclude management of controlled releases at storage facilities because of the large number of those facilities, the relative lack of knowledge about hazardous waste management among many owners and operators of such facilities, the substantial likelihood that the owner or operator has not made a long-term commitment to the management of that facility and the feasibility of containing

wastes which are held only temporarily. Therefore EPA has concluded that the requirements for storage facilities should be aimed at containment of the waste for the term of storage.

However, air emissions cannot currently be completely contained at most storage facilities. Air emissions from storage tanks holding certain types of waste are not technologically avoidable. Venting is often necessary for example to prevent pressure build up. (However, in some cases, even these emissions can be controlled. Elsewhere in today's Federal Register, proposed § 264.200 would grant the Regional Administrator authority to impose appropriate requirements to control air emissions.) Similarly, the Agency has to date been unable to develop a successful strategy to control air emissions from volatile wastes in surface impoundments. (See 45 FR 33168.) Again, some air emissions from some waste piles are probably unavoidable, although these will be minimized through compliance with § 264.251, promulgated today.

The containment approach used in the storage regulations, therefore, focuses on prevention of releases to the soil and to ground and surface waters. This approach is not mandated by the mention of the word "containment" in the statutory definition of "storage," although that definition certainly indicates that EPA's regulatory approach for storage is consistent with the Act. EPA, however, could have taken a different regulatory approach to storage facilities, just as it could have established a containment approach for disposal facilities. Ultimately, then, EPA's selection of the containment approach, embodied in the regulations issued today, is based on a policy decision about how best to accomplish the statutory goal of protecting human health and the environment.

The containment strategy for storage devices, (container storage, tanks, piles, and surface impoundments) has been translated into a regulatory approach which requires a primary containment device designed to prevent leakage and overflow as long as the wastes will remain there. An inspection program is also required to monitor deterioration in the primary containment system so that repairs or replacement can be made before release of any contents to the environment; or failing that, to detect leaks before they become major or result in significant contamination. Thirdly, where the primary containment devices are easily damaged and/or where inspection is difficult, secondary containment devices have been required. The specific requirements vary for the various facility types, i.e., tanks, piles, etc. These are discussed in detail later in this Preamble.

The reader should note that EPA does not assert that surface impoundments and piles cannot be used for (permanent) disposal rather than (temporary) storage. EPA will soon be proposing regulations that would allow such disposal facilities to be permitted, where appropriate, based upon the detailed analyses and subject to stringent requirements appropriate to disposal facilities.

B. Regulatory Approach to Treatment

The facility specific regulations promulgated today cover not only storage operations, but also many treatment facilities. Treatment operations are defined in RCRA Section 1004(34) as follows:

> * * * any method, technique, or process designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste or so as to render such waste nonhazardous, safer for transport, amenable for recovery, amenable for storage or reduced in volume * * *

The statutory definition of treatment does not depend on whether hazardous wastes are held at the facility only temporarily prior to treatment, disposal, or storage elsewhere, or whether they are permanently retained on site. Thus a surface impoundment used to treat hazardous waste would be a storage facility if all hazardous wastes (which may include treatment residues or sludges—see § 261.3(c)(2)) is removed from the site at closure. If all hazardous waste is not removed, the impoundment would be a disposal facility. A similar analysis pertains to those waste piles in which treatment may occur. Thus, a determination that a facility is a "treatment" facility is not relevant to a determination of whether it is, on one hand, a storage facility, or, on the other hand, a disposal facility. Rather, the criteria outlined earlier in this preamble determines whether a treatment facility is a storage or disposal facility. If a tank, waste pile, or surface impoundment used for treatment meets the regulations definition of storage, it is a storage facility and may be permitted under Part 264, subpart J, K, or L.

Treatment facilities subject to the storage requirements may present hazards which either do not occur or occur less frequently at storage facilities. Some of these hazards (emissions, ignition, or reactions) are regulated under § 264.17, which requires certain precautions to be taken to prevent uncontrolled releases. EPA is developing additional standards for chemical, physical and biological (C/P/B) treatment (Part 264, Subpart Q) facilities; some or all of which may be applicable to treatment in tanks, waste piles, and surface impoundments. However, the storage standards in Part 264, Subpart J, K, and L provide baseline protection (through the storage containment philosophy) to prevent releases to the soil and ground and surface waters.

VII. Analysis of Rules

The following sections of this Preamble consider the major issues and present the rationale for the specific regulations promulgated today. These are arranged in a section-by-section sequence for reference ease.

A. Subpart B—General Facility Standards; Subpart C—Preparedness and Prevention; Subpart E—Manifest System, Recordkeeping, and Reporting

Subpart B of Part 264 contains general requirements for waste treatment, storage, and disposal facilities including requirements regarding identification numbers, required notices, waste analysis, security at facilities, inspection of facilities, and personnel training. Subpart B of Part 265 contains comparable interim status standards for those facilities. The general requirements contained in Part 264 were promulgated in final form on May 19, 1980 with one exception: § 264.12 required notices.

The May 19, 1980 Part 264 regulations did not include standards for location of facilities, and those standards are being promulgated today on an interim final basis. In addition, the May 19, 1980 regulations included only partial standards in Part 264 for managing ignitable, reactive and incompatible wastes (§ 264.36). Those standards are being promulgated today (moved from § 264.36) in § 264.17 and expanded. The expansion incorporates provisions from § 265.17(b) as promulgated on May 19, 1980. Those standards are also promulgated on an interim final basis.

In addition, the Agency is today promulgating a number of interim final amendments to Part 264, Subparts B, C, and E, which conform to the additional standards being promulgated today in Subparts G, H, I, J, K, and L. These amendments are as follows:

- A new section, § 264.10(b) is being added which states that § 264.18(b) (requirements for facilities locating in floodplains) is applicable to facilities subject to regulation under Part 264, Subparts I, J, K, and L. As additional facility standards are promulgated in the future, the Agency will amend

§ 264.10(b) when it is determined that the regulations under § 264.18(b) should apply to those new Subparts.

- A new section, § 264.13(b)(6) is being added which requires that waste analysis plans include the methods which will be used to meet the waste analysis requirements for ignitable waste in § 264.17.
- A comment is being added to § 264.14 to direct the reader to § 264.117(b) for further discussion of security requirements during the post-closure care period.
- A new requirement is being added to § 264.15 which states that inspection schedules must include at a minimum, the frequencies called for in the inspection requirements for containers, tanks, piles, and surface impoundments.
- A comment is being added to § 264.16(a) which refers to a provision of Part 122, Subpart B, requiring that Part B of the permit application include an outline of the training program at the facility and how it is designed to meet actual job tasks.
- Section 264.36 is being deleted and reserved because its provisions are covered by § 264.17.
- A new requirement is being added to § 264.73 which states that operating records must include the additional analysis required by § 264.17 and the closure and post-closure cost estimates required under §§ 264.142 and 144.
- A new requirement is being added to § 264.75 which states that the annual report must include the most recent closure and post-closure cost estimates required under §§ 264.142 and 144.
- Section 264.77 is being amended to require that facility closure be reported.

The amendments to §§ 264.73, 264.75, and 264.77 are made to include requirements resulting from promulgation today of Part 264 standards for closure and post-closure. Section 264.12 is not being finalized today. It will be promulgated in final form at a later date.

1. *General Requirements for Ignitable, Reactive or Incompatible Wastes* (§ 264.17, § 265.17). Section 265.17(a) of the Interim Status Standards and § 264.36 of the General Standards required the owner or operator to take precautions to prevent accidental ignition or reaction of ignitable or reactive waste and protect this waste from sources of ignition. Section 265.17(b) also required the owner or operator to treat, store, or dispose of ignitable, reactive or incompatible waste so that it does not ignite or explode, emit toxic gases, damage the containment structure or through other like means threaten human health or the environment.

The Agency is today promulgating requirements for ignitable, reactive and incompatible wastes in the Part 264 General Standards (§ 264.17). These requirements include those previously promulgated in § 264.36 (identical to § 265.17(a)), and those previously promulgated only in § 265.17(b), but now included in § 264.17(b) as well. Since the § 264.17(a) requirements are identical to the requirements of § 264.36, Section 264.36 is being deleted and reserved. The Agency did not include the requirements of § 265.17(b) in the Part 264 standards promulgated on May 19, 1980 since it was considering developing a general approach for regulating air emissions through the permit process on the basis of the toxicity and concentration of vapors released. However, the Agency now realizes, as discussed below, that much additional work is necessary before such an approach will be feasible, and believes that the § 264.17 requirement will provide some control over air emissions (as well as other hazards) resulting from treatment, storage or disposal.

A minor change was made to the language of § 265.17(b) upon its incorporation as § 264.17(b). Some commenters pointed out that § 265.17(b) was a "result determinative" standard in that if a fire or other incident occurred, the facility was automatically in violation despite the taking of precautions to prevent such a fire. In response to this comment, the language was changed to require the owner or operator to "take precautions" when ignitable, reactive or incompatible wastes are stored, treated or disposed.

A new § 264.17(c) was also included. This section requires that those owners or operators who must meet the requirements of § 264.17(a) or (b), document their compliance. This documentation may take the form of references to scientific or engineering literature or data derived from experience with similar wastes, in similar equipment, using similar processes, under similar operating conditions. This paragraph replaces individual requiements in each process specific section (i.e., tanks, surface impoundments, etc.). Requiring documentation will ensure that the necessary research work is carried out and makes it clear how the determinations can be made.

The Agency is promulgating all of § 264.17 as interim final and will accept comments on these provisions. The requirements of § 265.17 which were promulgated as interim final on May 19, 1980 will be finalized at a later date.

In the preamble to the Part 265 General Facility Standards (p. 33183), EPA asked for comments on the issue of expanding the classes of incompatible wastes to include pairs of waste that when exposed to each other would mobilize a hazardous waste constituent thereby increasing the rate at which it would be leached to groundwater. An example included placing organic solvents in landfill cells receiving either PCB wastes or organic pesticide wastes. Another example was the addition of acidic solutions to neutralized metalic wastes, resulting in solution of the metals.

Commenters stated that a landfill or surface impoundment equipped with a liner and leachate collection system adequately protects the environment from mobile wastes. Commenters also stated that organic solvents are routinely used to clean PCB containing equipment and this practice is recognized by EPA's Toxic Substances regulations. Commenters also believed that the suggestion that acid solutions mobilize metals was too broad since only highly acidic solutions will mobilize metals.

The Agency recognizes these comments as legitimate concerns. However, the Agency still believes that a requirement to limit the mixing of wastes, when such mixing would mobilize hazardous constituents, is necessary in some situations. Although solubility will not be added to the determination of incompatible wastes at this time, the Agency plans to propose this concept in a modified form at a future date.

2. *Volatile Wastes.* The Agency has examined several alternatives for defining and controlling volatile waste. However, attempts to develop a precise definition of volatile waste or a general regulatory strategy for its control have thus far been unsuccessful. Several of the interim status and general standards will act to reduce air emissions. However, the Agency believes that the control offered by these requirements is not sufficiently comprehensive.

The Agency requested comments and data on the issue of volatile wastes in the Preamble to the May 19 regulations (45 FR at 33166). The comments the Agency received recommended that the Clean Air Act rather than RCRA be used for the control of air emissions.

The Clean Air Act (CAA) is not well suited to the control of volatile emissions from hazardous waste facilities. Current CAA regulations address only a fraction of the potential emissions from a hazardous waste facility. The Clean Air Act is oriented toward control of emissions on a pollutant-by-pollutant basis. Current regulations are focused largely on wide-

spread large volume, pollutants (particulates, NO_x, SO_x etc.). In contrast the pollutants which could be emitted from hazardous waste facilities are more numerous and diverse. RCRA provides the authority to control emissions broadly through performance standards and direct operating and design standards. In those cases where Clean Air Act regulations apply to storage of volatile wastes, such as the Standards of Performance for New Stationary Sources which pertain to volatile emissions from tanks, EPA will coordinate its efforts under the two Acts.

3. *Location Standards* (§ 264.18). In December of 1978 EPA proposed standards for the location of facilities in active fault zones, regulatory floodways, coastal high hazard areas, 500-year floodplains, wetlands, critical habitats of endangered and threatened species, recharge zones of sole source aquifers, and, for the location of active portions of facilities with respect to the facility's property line. The Agency received extensive comments on these proposed standards and has undertaken additional research. Specific responses to comments received and additional research data are available to the public in the Background Document entitled "40 CFR Part 264, Subpart B—General Facility Standards, Section 264.18 Location Standards" and accompanying technical documents.

The hazard which a facility presents to human health and the environment may be increased by locating the facility in certain areas. The location standards are designed to reduce these additional risks. Of the eight location standards proposed, two were retained, but in modified form. These two, seismic considerations and floodplains, are now found at § 264.18. Consideration of coastal high hazard areas is incorporated into the floodplain standard where this hazard is known to exist. EPA is reserving judgment on a separate coastal high hazard area standard while it further researches the need for such a standard. The substance of three proposed standards—critical habitats, sole source aquifers, and buffer zone—is covered under other Federal environmental statutes, and/or other requirements of Part 264. A location standard for wetlands is being deferred. Considerable protection to wetlands is already provided by the Section 404 and 402 Clean Water Act regulations when combined with the specific facility requirements in Section 264. EPA, however, is still considering the appropriateness of a separate Section 264.18 wetland standard to cover situations not regulated by either Sections 404 or 402. The regulatory floodway standard is the only proposed standard that was deleted.

Each of the proposed site location standards is discussed below. The discussions include responses to major comments, and the rationale for the final standard, or for deletion or deferral of the standard.

a. *Seismic Considerations* (§ 264.18(a)).

Earthquakes present a threat to public safety and welfare in a significant portion of the United States. Damage and loss of life in earthquakes occur as a result of surface displacement along faults (surface faulting), ground motion (shaking), as well as secondary effects of the shaking such as ground or soil failure. The proposed regulation addressed the first one of these hazards, surface faulting. The standard promulgated today also addresses only surface faulting.

The proposed standard prohibited location relative to active fault zones. The standard which EPA promulgates today is similar in concept, but more specific with respect to restricted locations relative to faults. It prohibits the location of new facilities within 200 feet of faults which have moved in the recent geologic past, called Holocene faults. The standard is designed to protect facilities from such deformation (i.e., bending and warping of the earth's surface) and displacement (i.e., the relative movement of any two sides of a fault measured in any direction) of the earth's surface which occur when the fault moves.

Surface faulting is a permanent displacement of the ground surface along a fault which can take one of three forms—strike-slip fault displacement, normal-slip fault displacement, and reverse-slip fault displacement. Each form describes a different type of movement of one side of the fault relative to the other, and each subjects a structure to different types of forces, e.g., compression, extension, and deformation, as well as displacement. Displacement along a fault can be horizontal, vertical, or a combination of both and can be on the order of a few feet (1–10) to several tens of feet (10–30). The intersection of the fault with the earth's surface is called a fault trace.

Seismically active areas usually do not contain only one fault, but a number of faults grouped together. These faults are grouped within a well defined width or zone. Such a grouping is commonly referred to as a "fault zone" since it consists of a zone (a width) with several individual faults. The regulation promulgated today deals with all faults which have had displacement in time. Such faults may be found in a fault zone.

The general fault zone usually can be divided into a main fault zone, a branch fault zone, and a secondary fault zone. The spatial relationship of individual faults in the fault zone has resulted in this classification system. The main fault zone contains the main fault (i.e., the fault with the greatest displacement, length, and continuity) and closely associated faults. The width of the main zone of faulting has been reported to range up to 3,000 feet, but in most of the cases (71%) (reported by Bonilla, 1967) the width was less than 1,600 feet and for half (50%) the width was less than 550 feet. Occasionally, faults diverge from and extend well beyond the main zone of faults and are referred to as branch faults. Secondary faults are completely separate spatially from the main fault and sometimes form several hundred feet to a few miles from the main fault. Associated with main, branch, or secondary faults are often small, subsurface faults evident as fault planes in a geologic investigation. These planes run parallel to the fault and typically are considered a part of that fault.

Adjacent to the fault rupture is commonly found a zone of deformation. This is an area where the ground has been bent or warped as a consequence of the two surface planes moving relative to one another. Surface deformation is frequently reported within a zone of several tens to several hundred feet wide. Structures located within this zone are subject to distortion and are likely to be subject to damage.

Structures located across a fault at the time of surface faulting will be subjected to fault displacement. The amount of and direction of displacement and deformation will depend upon the type of fault (strike-slip, normal slip, or reverse-slip) and amount of displacement (a few inches or feet to as much as 20 feet). At the present time it is generally not practicable to design most structures to withstand serious damage under the stress of surface fault rupture. Mitigating measures are available for lifelines (pipelines, electrical lines, roads, canals, etc.) and earthen structures (dams, embankments, fills, etc.) which must cross a fault subject to displacement. The best protection, however, for hazardous waste facilities is to avoid faults subject to displacement. Consequently, the regulation promulgated today prohibits location of portions of a facility where treatment, storage, or disposal of hazardous waste will be conducted within a distance (200 feet) of the fault.

This distance typically covers the zone of deformation.

Standards relative to ground motion and ground failure have not been promulgated. Ground motion pertains to the energy released by the earthquake, expressed in terms of intensity and duration, as transmitted through the ground. Ground motion is fundamentally different than displacement and deformation for damage in the former is only secondarily related to distance from the fault. Thus the impact that ground motion has upon structures is a function of the energy characteristics of the earthquake as well as the characteristics of the ground located between the facility and the epicenter of the earthquake; and the design of the structure. A facility may be located adjacent to or hundreds of miles away from the displacement fault and still be damaged by the resulting ground motion.

There has been some attention given to the design of earthquake resistant structures. Perhaps the most significant efforts to date have been by the Nuclear Regulatory Commission, and the study by the Applied Technology Council entitled "Tentative Provisions for the Development of Seismic Regulations for Buildings" (National Bureau of Standards, U.S. Department of Commerce, 1978). However, few data exist that relate ground motion dynamics to adequacy of engineering design for various types of hazardous waste facilities. Thus, EPA is not presently prepared to set a ground motion standard until it can determine which components of ground motion (e.g., acceleration, velocity, significant duration) should be the subject of design for different operational units (e.g., tanks, surface impoundments, incinerators) at facilities. This requires an analysis of data on (1) probability of occurrence of different magnitudes of earthquakes, (2) types of construction needed to protect against the different magnitudes of earthquakes, and (3) the feasibility and costs of such construction. Such analysis is needed for each type of hazardous waste facility. In order to resolve these uncertainties, it is apparent that information from the fields of geology and engineering which could be utilized in designing hazardous waste facilities for seismic considerations must be gathered and analyzed by the engineering community.

Because of these uncertainties, EPA invites public comment on ground motion issues specifically to include:

(1) What ground motion parameters should be considered for the full range of operational units at hazardous waste facilities;

(2) What is the magnitude of ground motion which is critical for the different operational units found at facilities;

(3) What types of structural designs would adequately protect facilities at different magnitudes of ground motion; and

(4) What are the costs of designing facilities to withstand earthquakes at different magnitudes.

Ground failure occurs when the energy characteristics of an earthquake cause a particular piece of ground to loose its qualities of support. This may occur in several different forms to include landsliding, liquefaction, settlement, and lurching. While the cause of damage due to ground failure originates with ground motion, actual damage to a facility results because of the failure of the ground in or near the facility. It is common for earthquake-triggered landslides to occur as renewed movements of deposits resulting from previous landslides. Areas subject to slope instability and strong earthquakes could be subject to earthquake-triggered landslides.

Liquefaction occurs when granular, essentially cohesionless soils undergo small to complete losses of their supporting strength. When the loss in strength is low to moderate, partial liquefaction may cause ground settlement and associated ground cracking. However, when liquefaction is complete, the soil can behave as a fluid, and catastrophic failures, including soil flows and landslides, have occurred as a result.

Seismic settlement is also typically associated with cohesionless soil deposits but can occur in poorly placed or uncompacted manmade fill. The strong ground shaking that occurs during earthquakes will densify loose granular soils. The rate of the resulting ground subsidence depends upon the location of the soil with respect to the groundwater table. Above the water table, ground subsidence will occur rapidly. Below the groundwater table, the pore water pressures that have developed during the shaking must begin to dissipate before a decrease in soil volume can occur and, as a result, settlement occurs at a rate commensurate with the flow of water from the cohesionless soil layer.

Lurching may be generally defined as the development of all types and sizes of irregular ground fractures, cracks, and fissures associated with ground motion, settling, and the passage of surface wave phases during earthquakes. More specifically, lurching involves the seismically induced lateral movement and spreading of ground toward a "free face," together with the development of associated tension cracks in the ground behind the free face.

As in the case of ground motion, EPA does not have sufficient data relating ground failure risks to hazardous waste facility siting and design. Therefore, EPA does not at present include a ground failure standard; although the Agency plans to propose such a standard in the future. To assist EPA in this regard, the Agency seeks data on the various issues relating to a ground failure standard to include:

(1) Is it necessary to distinguish between hazardous waste facility types when setting a standard?

(2) Should the standard involve a prohibition from locating facilities in areas of possible failure or should the standard allow location of facilities in such areas if properly designed?

(3) What types of ground and soil conditions are reasonably part of a standard?

(4) What types of tests would be definitive for demonstrating compliance?

Public Comments on the Proposed Standard

In the proposed rules, EPA prohibited all hazardous waste facilities from locating in an active fault zone because damage to a facility during a serious earthquake could not be prevented with practicable engineering means. Active fault zone was defined as a land area which, according to the weight of geologic evidence, has a reasonable probability of being affected by movement along a fault to the extent that a hazardous waste facility would be damaged and thereby pose a threat to human health and the environment.

Numerous comments were received. One group of comments reflected concern about the precision of the standard. Questions were raised as to the appropriate definition of faults and whether we should be concerned with all faults or the ones most recently formed. Should the standard be pegged to the magnitude of the earthquake? What did EPA mean by "weight of geologic evidence", and "reasonable probability of being affected by movement along a fault" in the definition of active fault zone? Other questions centered on whether facilities should be allowed within the active fault zone if they are designed to withstand the expected seismic activity.

EPA has not pegged the standard to the magnitude of the earthquake. EPA recognizes that damage to facilities can result from fault displacement and associated deformation, ground motion or ground failure. As discussed above,

EPA's data are sufficient only to establish a ground faulting standard. For this standard, proximity to the fault and zone of deformation are the relevant factors, not magnitude of the earthquake. Magnitude will be fully considered when standards for ground motion and failure are proposed.

As for precision of definition, EPA agrees that the proposed standard left many situations unclear. Therefore, EPA has provided a specific definition of what types of faults are of concern. Once those faults are identified, the standard prohibits placement of a facility within 200 feet of such faults thereby eliminating the concept of active fault zone.

The intent of EPA's proposed standard was to ban the placement of a facility on or near faults that were likely to experience displacement in the future. The geological evidence indicates that faults which have moved in recent times are the ones most likely to move in the future. The data also indicate that such faults are the ones that either were created in or experienced displacement in Holocene times. Therefore, the ambiguous phrase "weight of geologic evidence" is replaced by the more specific reference to faults which have had displacement in Holocene time.

The Holocene is a geologic time period which extends from the end of the Pleistocene to the present; it includes approximately the last 11,000 years. Displacements during historic times in the United States have occurred along Holocene faults. Faults which have had displacement in Holocene time are easier to identify and date in the field than older faults. The Holocene produced recognizable geological deposits, and erosion and deposition surfaces. Thus, Holocene faults are identifiable by fault scarps, offset streams, mole tracks, furrows, and fault traces on young surfaces with groundwater barriers marked by spring alignments and vegetation contrasts.

While many areas of the United States have Holocene deposits and landforms of significant extent such that evaluation of fault presence and activity can be achieved, there are areas where Holocene deposits and landforms are scarce. For example, in certain areas glacial activity has stripped the surfical ground cover and left highly resistant rock, such that inspection of Holocene deposits and landforms will not yield enough evidence to conclusively determine the recency of faulting activity. In situations of this sort, reference to seismic epicenter plots and historic records must be utilized, as well as identification and close examination of possible fault related features expressed in Pleistocene and older deposits.

The U.S. Geological Survey mapped the location of Holocene faults in the United States that were so identified in 1978. (See "Preliminary Map of Young Faults in the United States as a Guide to Possible Fault Activity" by Howard and others, 1978.) Maps of identified Holocene faults in the United States are also available from the States of California and Nevada.

To further clarify the standard, EPA defined fault generally so that it includes the various forms of faults (i.e., main, branch, or secondary). This definition includes both faults which appear at the surface and those which do not have surface expression (including the small fault planes associated with surface faults). It is important to note, however, that only faults which have experienced displacement in Holocene time are of concern in this standard. Thus a subsurface or surface fault which has not disturbed the Holocene deposits is not included in the standard.

The concept of an active fault zone was also ambiguous in the proposed regulation. The breadth of this zone varies with the type of fault (e.g., normal, strike-slip and reverse-slip) as well as with the unique characteristics of the specific fault involved. Moreover, the area of deformation (which often includes fault planes) also varies with the type of fault. Finally, prohibiting location in a fault zone is an overly restrictive approach to addressing the potential damages associated with faulting. For example, even though a fault zone may extend as far as 3000 feet from the main fault (due to a single secondary fault 3000 feet from the main fault) there may be locations within that zone that are safe for location of a facility because they are outside the zone of deformation of any individual fault (main, branch, or secondary). The more relevant consideration is the specific distance of the facility from a fault, i.e., the distance associated with the zone of deformation. In the regulation promulgated today the concept of a fault zone is incorporated only as a relevant zone of study in investigating the specific location of faults. (See information requirements in § 122.25(a)(11).)

The standard promulgated today prohibits new facilities from locating within 200 feet of a fault which has had displacement in Holocene time. By expressing the standard in terms of faults, rather than fault zones, the standard is less restrictive, but equally protective.

Data available to the Agency indicate that the effects of deformation drop off rapidly as distance increases from the fault. Since the greatest degree of deformation occurs along the fault with the greatest displacement (usually the main fault), the further away the facility is from the main fault, the less likely it will be affected by deformation. Based upon available data it appears that most deformation occurs within two to three hundred feet of faults which have had displacement in Holocene time. Most of the data is taken from studies of main fault traces. Since the 200 foot set-back is measured from any fault, not just the main fault trace, EPA concludes that a 200 foot distance from any Holocene fault (surface or subsurface) gives ample protection against the effects of deformation.

Commenters suggested that facilities should be allowed to locate in fault zones if the facility is designed and constructed to withstand the effects of displacement and deformation. EPA does not have data to show that proven technology exists to design a critical structure to withstand serious damage under the stress of displacement and deformation. While there are design standards for such structures as pipe lines which cross faults, there is no systematic design information for structures which would accommodate hazardous waste facilities. States with seismic standards, like California, prohibit construction within close proximity to faults. Thus, EPA has elected the conservative approach of prohibiting the placement of those portions of new facilities where treatment, storage, or disposal of hazardous waste will be conducted within 200 feet of a fault which has had displacement in Holocene time.

Not all areas of the country are affected by Holocene faulting. To require an analysis for this standard in areas known not to have faults which have had displacement in Holocene time would impose an unnecessary regulatory burden and cost upon the owner or operator. Thus, the standard is specified to apply only to those facilities proposed to be located within political jurisdictions (e.g., counties, townships) which have some historical evidence of faulting or potential for such faulting. Analyses by the Applied Technology Council and the U.S. Geological Survey (identified above) provide a basis for identifying those areas within which seismic activity has occurred, and thus warrant application of the standard. These political jurisdictions are listed in Appendix VI to Part 264.

Because a demonstration of compliance with the seismic standard is made as part of the permit application, Part 122, Subpart B, § 122.25(a) contains procedures which must be followed to adequately demonstrate compliance with the standard. The permit applicant is provided with serveral alternative study approaches because site-specific conditions will vary considerably due to type of faults, geologic structure of the area, and the existence of published data. The information developed during the study must be of sufficient quality to be acceptable to geologists experienced in identifying and evaluating seismic activity.

Study approaches may include a review of published geological data, an aerial reconnaissance, an analysis of aerial photographs, a geological reconnaissance of the site, or trenching. EPA intends to require these studies to be carried out to different distances from the facility. The distances which EPA has chosen are generally accepted within the geologic profession as distances which must be investigated to conclusively make the demonstrations required. These distances are also based on results of geological studies, the most important of these is by M. G. Bonilla (1967) which analyzes historic surface faulting in the continental United States and adjacent parts of Mexico. Bonilla has indicated that the maximum distance from the centerline of the main zone of surface faulting to the outer edge of that zone is on the order of 3,000 feet. Bonilla also found that some branch and secondary faults do appear within this zone. Therefore, if an area within 3,000 feet of the site is studied and there is no evidence of Holocene faulting, EPA is confident that the facility is not located within a main fault zone where the large-scale damage due to displacement and deformation occurs.

The other study distance is five miles. Regional studies include a review of published geological data and an aerial reconnaissance to cover an area within a five mile radius of the site. Five miles is specified here because surface faulting data (Bonilla, 1967) indicate that the majority (81%) of branch and secondary faults associated with the main Holocene fault zone occur within five miles from the centerline of the main zone. This distance is also accepted as a regional study distance by the Nuclear Regulatory Commission for siting nuclear power plants and by the State of California Public Utilities Commission for siting of liquefied natural gas facilities.

The level of effort which will be required to make the demonstration to comply with the standard will depend upon the amount of evidence which indicates that Holocene faulting is likely or unlikely. For example, if Holocene faults have been mapped within one mile of the facility the owner or operator may want to trench at the outset because, even though the other procedures are followed through, the data may indicate that trenching must be done to conclusively make the demonstration. On the other hand, if no published data indicate faulting within (for example) 5 to 10 miles of the site, an aerial reconnaissance may be all that is required to sufficiently demonstrate lack of faulting activity. A guidance manual will be available shortly which will provide greater detail on the study procedures identified in Part 122.

Commenters on the proposed standard expressed concern that large areas of the western United States would be impacted by the proposed standard because of the prevalence of faulting in that region. It is true that the Western part of the U.S. will be more heavily impacted, but this impact is necessary in order to protect human health and the environment. The impact of the seismic standard is somewhat reduced because state regulations, such as those of California, already have restrictions on siting near faults. Further, the standard promulgated today restricts location within 200 feet of a fault, rather than in an entire fault zone. Finally, the standard applies only to new facilities.

The decision to apply the standard only to new facilities was made with several considerations in mind, and is an issue on which the Agency is requesting comment. First, given the relative infrequency of seismic activity, the Agency believes that there is a relatively low potential for an earthquake occurring at an existing facility before those facilities close at the end of their normal lifetime. Thus, the probable environmental impacts of not applying the standard to existing facilities are likely to be low. Second, the Agency is concerned about the practicability of moving existing facilities and about the impact of possible facility closure on hazardous waste capacity.

Since the Agency was unable to include provisions in the standard for designing facilities to withstand the effects of surface faulting, closure or moving would be the only alternatives for existing facilities. Moving or closing existing facilities may be impractical in some cases. For example, on-site storage or treatment facilities may be associated with existing manufacturing operations which must store or treat wastes as an integral part of their operations. Movement or closure of these storage facilities might imply movement or closure of the manufacturing facility. The Agency does not have sufficient data to determine the extent of such impacts, or to justify them at this time.

Off-site storage facilities can be closed or moved, but this would impact existing hazardous waste capacity, possibly in areas where shortages already exist. Since storage typically is associated with other hazardous waste management facilities, such as incinerators, the impact would go beyond storage alone. Should this standard be applied to incineration and land disposal facilities in the future (when further standards under Part 264 are promulgated for these facilities), the impact on capacity would be more direct. Further, in the case of existing landfills, closing a facility (with the waste in place) would not significantly reduce the potential for damage associated with faulting.

Nevertheless, EPA is not fully convinced that the standard should not apply at least to existing storage facilities (or incinerators) and is requesting comment on this issue. In particular, the Agency wishes comment on the number of existing facilities currently located in areas restricted by this standard, and the impact this restriction would have on those facilities and on capacity in the area where they are located. After reviewing this information the Agency will reconsider whether this standard should apply to existing facilities.

Comments were received on the proposed standard which indicated that restricting facilities in active fault zones should be based on the degree of hazard of the waste being managed at the facility and the particular treatment, storage, or disposal method used at the facility. It seems plausible to EPA that some facilities may be able to locate at some distance within 200 feet from a Holocene fault and not pose a threat to human health and the environment in the event of fault displacement. EPA requests comment on what may be appropriate set-back distances from Holocene faults for facilities which contain different operational units and, if variable set-back distances would be justified on the basis of the nature and quantity of waste managed at the facility. EPA also requests that commenters specify their reasoning and justify distances which are suggested with technical data to the degree possible.

b. *Floodplains* (§ 264.18(b)).

The location of hazardous waste management facilities on floodplains

could have several significant adverse effects on human health and the environment. EPA's primary concern involves waste washing out or being carried in flood waters from the active portion of the facility, thereby exposing surface water, ground water, aquatic life, soils, and human health to potential contamination through direct contact with the waste. Wastes can be washed out of surface impoundments, piles, and containers. Tanks, incinerators and other treatment units exposed to flood waters may not be constructed to withstand the hydrostatic and hydrodynamic loads exerted by a flood and could be damaged enough to allow waste leakage or be completely removed from the disposal site.

Various technologies have been developed to deal with flooding problems. Some technologies are designed to protect the facility from flood waters (i.e., not allow flood waters to reach the facility). The most common method of flood protection is the construction of levees, dikes, or flood walls around or along a side of the facility subject to flooding. Such measures would be particularly suited for landfills, surface impoundments, land treatment, and waste piles. Another approach would be flood proofing, i.e., allowing flood waters to come into contact with structures, but preventing damage to these structures. Technologies here would involve proper elevation of structures with appropriate construction of the foundations to withstand the flood water effects, anchoring of storage containers, and the use of permeable fencing that allows passage of flood waters but not objects and debris that would damage the facility.

These techniques have been in common use. Treatment of hydraulic conditions is within the knowledge of qualified engineers. Federal agencies require use of such techniques. Most common are the Army Corps of Engineer programs and the National Flood Insurance Program. The Corps of Engineers issues handbooks on various construction techniques. Similarly, the Federal Insurance Administration which administers the National Flood Insurance Program also provides guidance. Because they deal with conventional structures, many of their techniques deal with flood proofing.

EPA proposed a location standard that would prohibit the placement of a hazardous waste management facility in a 500-year floodplain unless the owner or operator demonstrated that the facility would be designed, constructed, operated and maintained to withstand inundation by a 500-year flood. In response to comments, EPA has revised the floodplain standard. The standard promulgated today addresses the 100-year floodplain rather than the 500-year floodplain. It requires that facilities located in the 100-year floodplain be designed, constructed, operated and maintained so as to prevent washout of hazardous waste from the active portion of the facility. A variance to this standard is allowed where the applicant can demonstrate that procedures are in effect which will cause the waste to be removed safely, before flood waters can reach the facility, to a location where the wastes will not be vulnerable to the flood.

Comments on the Proposed Standard

Of the proposed location standards, the flood standard received greatest comment. While these comments are treated in greater detail in the Background Document on Location Standards, they can be summarized into the following general areas of concern:

1. Many commenters questioned the reasonableness of using the 500-year flood as the flood of concern.

2. Numerous comments focused on whether the standard should prohibit facilities from locating within the floodplain of concern or whether the standard should presume that facilities can safely locate within such floodplain if they are properly built.

3. Some comments raised questions about the appropriateness of allowing facilities to be located within the floodplain of concern only upon a showing that no inundation would occur.

4. Numerous comments focused on whether the flood of concern should vary depending upon the degree of hazard presented by the types and quantities of hazardous waste involved.

5. Some commenters pointed out the difficulties of finding maps demarking the 500-year floodplain and the difficulty of obtaining data on floods to cover a 500-year period.

6. Commenters felt that the standard, if applied to existing facilities, would force the closing of many facilities now located at industrial sites.

Each of these areas of comment is discussed below.

Many commenters stated that the probability of a 500-year flood occurring is too remote to justify the expense and limitation placed on otherwise available sites, and suggested the use of the 100-year flood as the hazard against which facilities should be protected. Most commenters suggested that EPA use the 100-year floodplain for the following reasons: (1) 100-year flood level information is available and verified in many cases, and thus (2) there would be less of a margin for debate in boundary determinations (compared to the 500-year floodplain); (3) it is consistent with the degree of restriction necessary to protect human health and the environment; (4) more land would be available for siting new facilities; (5) it is economically justifiable, and (6) it is consistent with Executive Order 11988—Floodplain Management.

EPA agrees with many of these comments. While the Agency recognizes that a 500-year standard would afford a higher level of protection, at present the Agency does not have sufficient information that would justify a need for the added level of protection over that provided by the 100-year floodplain standard. The 100-year flood is the most widely used standard in various Federal and state programs addressing the hazards associated with flooding. Of twenty four states that regulate floodplains, eighteen use the 100-year flood as the regulatory standard. The Federal Insurance Administration, Federal Emergency Management Agency, and the U.S. Army Corps of Engineers have adopted the 100-year flood as their standard on which to base floodplain management measures.

Until other data are presented to the Agency indicating the need for a different flood level, the 100-year flood has been selected as the minimum flood for this rule. However, EPA does not conclude that this level necessarily is sufficient protection for human health and the environment for all hazardous waste management facility situations. EPA is currently considering issuance of a proposed rule that would allow the Regional Administrator to require more stringent standards where circumstances would so warrant. Such a change though is not part of this rulemaking.

A few commenters questioned whether facilities should be allowed to locate in floodplains at all. Other commenters stated that a ban on location in floodplains would result in the closure of a majority of existing facilities. In the case of on-site facilities, they said that such a ban would result in these industries having to transport their waste some distance from the generation site.

EPA recognizes that hazards may be associated with increased transport of hazardous waste and that a reduction in hazardous waste management capacity could result from a ban on locating in floodplains. Reduced capacity would lead to an increased potential for illegal dumping and stockpiling of waste. Available information has led the

Agency to conclude that technology is available to protect hazardous waste management facilities from washout. Therefore the standard allows for the placement of facilities within the 100-year floodplain, but only after the applicant has made the necessary demonstration that the technologies used at the facility will prevent the washout of hazardous waste.

The proposed standard would have allowed the placement of a facility within a 500-year floodplain if the applicant would demonstrate that no inundation by flood waters would result. Protection from inundation is not the only method of protecting the environment and the public from the effects of flooding. Other measures involve flood proofing, which allows the waters to inundate the facility, but prevents the hazardous waste from leaving the facility. Proper anchoring or elevation of containers may in fact be less expensive than the construction of dikes or flood walls while the same level of protection would be provided. Thus, the inundation provision was dropped in favor of the washout provision with the effect of expanding the means by which owners or operators could comply with the standard.

A number of commenters proposed that the flood standard should vary depending upon the types and of quantities of waste involved. Instead of a 100-year standard a lesser, perhaps a 50-year flood standard, would be appropriate. EPA does not have sufficient data at present to promulgate a standard that differentiates between individual wastes. To arrive at such a standard would also require an analysis of the risk associated with each waste at different degrees of flooding in order to arrive at a unique floodplain standard for each waste.

Availability of Floodplain Maps

Commenters noted the relative scarcity of maps which delineate the 500-year floodplain. They were concerned that such a lack of maps would force owners and operators to conduct their own studies (which they claimed were costly and time-consuming) to determine whether their facilities were within the 500-year floodplain. EPA agrees that the availability of maps may constitute a problem for some facilities, but that problem is now minimized because the standard is for the 100-year floodplain.

The 100-year flood is used as the minimum flood of concern by most State and Federal agencies. This common use has resulted in a steadily growing pool of 100-year floodplain maps. the Federal Insurance Administration is the largest single source of floodplain maps. Maps are available for nearly all flood prone communities which provide either 100-year flood elevations (the Flood Insurance Rate Map) or the boundaries of the 100-year floodplain (the Flood Hazard Boundary Map) from which 100-year flood elevations can be determined.

In areas mapped by the Federal Insurance Administration, delineation of the 100-year floodplain will be determinative as to whether a facility is located within or outside the 100-year floodplain. FIA, when specifying the boundaries of the 100-year floodplain, may omit areas of the floodplain that are less than 200 feet wide. Such areas are considered within the 100-year floodplain for purposes of complying with § 264.18(b)(1). In areas not mapped by the FIA, either the FIA mapping procedure or other equivalent mapping procedures may be used to determine whether the facility is located within the 100-year floodplain.

Some commenters were concerned that the standard would force closure of many industrial facilities. EPA anticipates that although the floodplain standard may require extensive retrofitting of some facilities, closure can be avoided in most cases. If possible, EPA encourages affected facilities to prepare to meet the floodplain standard during the interim status period. It should be noted that this standard only applies to facilities securing permits under Subpart B of Part 122. This means that facilities under interim status need not comply with this standard. Existing facilities receiving permits will be provided schedules in the facility's permit for either compliance with the standards or closure of the facility. These schedules will accomodate existing facilities by allowing operation in accordance with the terms of their permit until the facility can be retrofitted or closed. In the case of facilities that must close, this schedule will prevent abrupt decreases in hazardous waste management capacity and will provide generators with time to find other facilities which are designed to manage their wastes.

c. *Wetlands.*

EPA has actively sought to protect wetland resources because the nation's coastal and inland wetlands are vital natural resources of great hydrological, ecological, economic, and social importance. There are three aspects of facility contruction and operation which should be considered for wetland locations. The first is the impact, without regard to the nature of wastes handled by the facility, that the construction and actual presence of the facility will have upon the wetland environment. The second is the impact of planned discharges from the facility and the third is the potential impact of accidental and unplanned discharges of hazardous waste into the wetland environment.

The proposed location standard for wetlands prohibited facilities from locating in wetlands. A variance to this standard was contained in an accompanying note. Facilities would be allowed to site in wetlands if the owner or operator obtained an NPDES permit and, if dredging or filling of the wetland was associated with the facility, a Section 404 permit. Even though the wetland provision does not appear in the part 264 rules at this time, facilities will be required to obtain NPDES and Section 404 permits under the Clean Water Act if it is appropriate for them to do so. These programs operate independently of RCRA.

In reviewing the proposed rule and comments on it, EPA considered not promulgating a wetland location standard under RCRA, but rather just ensuring that the permit applicant had obtained permits under the NPDES and Section 404 programs if they were required to do so under the Clear Water Act. EPA previously determined that these existing programs adequately protected wetlands from the adverse impacts of the construction and actual presence of the facility, and adverse impacts from planned discharges from the facility. In the later stages of developing the location standards promulgated today, it became apparent that EPA could not go forth with such an approach for three fundamental problems exist. One, the U.S. Army Corps of Engineers (COE) and EPA had not come to an agreement on the appropriate scope of the definition of "fill material". Until this is resolved, the exact set of circumstances under which the owner or operator of a hazardous waste facility would be required to obtain NPDES or Section 404 permits is not known. Two, not all wetlands are "waters of the United States" and therefore, they are not under the jurisdiction of the Clean Water Act. EPA could not rely on either the NPDES or the Section 404 program for these wetlands. The third problem relates to a COE policy of issuing general or nationwide Section 404 permits for some wetlands and certain activities in wetlands, rather than issuing individual Section 404 permits. These wetlands and activities are permitted by class and each action is not scrutinized individually. EPA believes that the suitability of a wetland for siting of a

hazardous waste facility must be determined on a case-by-case basis.

EPA is deferring specific regulation of the siting of facilities in wetlands until it is clear to EPA what the extent of coverage of the NPDES and Section 404 programs will be. EPA expects, however, to retain the presumption against siting facilities in wetlands which was expressed in the proposed rule, and to promulgate standards as necessary to address situations not covered by NPDES and Section 404 programs. EPA will consider determinations made under the NPDES and Section 404 programs so that duplication will be minimized.

EPA believes that in the interim wetlands will be sufficiently protected against the unintentional discharge of hazardous waste through facility compliance with the Part 264 standards. Examples of Part 264 requirements that would protect wetlands in the vicinity of facilities include: maintenance of freeboard at surface impoundments, controls to prevent overfilling of tanks, diversion of run-on and collection of run-off for piles, land treatment facilities, and landfills. Forthcoming regulations to protect ground water and surface water from the adverse effects of land disposal facilities will also protect wetlands. The Part 264 requirements are more fully described elsewhere in this preamble along with the rationale for their selection.

d. *Endangered and threatened species and critical habitats.*

Locating, constructing, and operating hazardous waste facilities, if not adequately regulated, can lead to reductions in populations of endangered and threatened species. Possible impacts include removal of critical habitat, restricting the movement of species, and degrading the environment near the facility (e.g., increasing siltation of rivers, degrading air quality). Thus, EPA believes that it is important to evaluate effects on endangered and threatened species and their critical habitats when a hazardous waste facility is being located or when an existing facility is applying for a permit.

The proposed standard prohibited hazardous waste facilities from locating in areas where they would be likely to jeopardize the continued existence of endangered and threatened species, or where the facility would destroy or adversely modify their critical habitat. Very few comments were received on this provision. One commenter indicated that a separate requirement in RCRA was unnecessary since individuals had to comply with the Endangered Species Act independently of RCRA. Several other commenters questioned EPA's use of the term "is likely to jeopardize". Finally, one commenter proposed that facilities not be prohibited from locating within a critical habitat.

EPA is obligated under Section 7 of the Endangered Species Act to ensure that permitted facilities (not just those permitted under RCRA) are not likely to jeopardize the continued existence of any endangered or threatened species or adversely affect its critical habitat. Therefore, EPA must take some action with regard to its permitting activities. This has been done through § 122.12(c) of the RCRA regulations. (45 FR 33428, May 19, 1980) This provision specifies that permits shall contain conditions consistent with the requirements of the Endangered Species Act of 1973.

The term "is likely to jeopardize" comes directly from the statute. Thus, the commenter's concern that EPA is exceeding the statutory mandate is not well founded.

In response to the final comment: Facilities are not prohibited from locating in critical habitats. If EPA, in consultation with the Department of the Interior or Commerce, determines that no impact associated with the facility will alter the habitat so that the likelihood of the survival or recovery of endangered and threatened species is appreciably diminished, the facility will be permitted to locate in the critical habitat. Since such facilities must meet RCRA standards, the risks of damage to the environment are substantially reduced.

e. *Sole source aquifers.*

The proposed standard prohibited hazardous waste facilities from locating in the recharge zone of a sole source aquifer. These aquifers, designated pursuant to Section 1424(e) of the Safe Drinking Water Act of 1974, are the sole or principal drinking water supply to a large percentage of a populated area. The "Note" to the proposed standard provided for a discretionary approval of location in the recharge zone of a sole source aquifer if it could be demonstrated (at the time of permit issuance) that the facility is located, designed, constructed, operated, maintained, and monitored to prevent endangerment of the sole source aquifer.

A number of comments were received on this proposed standard. Some commenters advocated not only a ban against facilities locating within the recharge zone of a sole source aquifer, but also a ban against any facility locating over the recharge zone of any aquifer. Other commenters approved of the variance provide through the note on the assumption that facilities could be built and managed so that no harmful discharges would occur.

EPA concludes that all sources of water for drinking, irrigation, industry, and agriculture should be protected against contamination by hazardous waste facilities. Further, EPA believes that these sources of water should be provided an equal degree of protection. However, a separate location standard is not deemed necessary at this time because the Part 264 standards and the forthcoming regulations for land disposal facilities provide positive assurances for protection of all water sources. The standards promulgated today are intended to prevent any discharge that could potentially contaminate groundwater.

f. *Buffer zone.*

The proposed standard required that active portions of hazardous waste facilities be located at a minimum of 60 meters (200 feet) from the facility property line. Lesser distances would have been allowed if it could be demonstrated that unexpected releases or discharges of hazardous waste could be controlled before they crossed the facility property boundary.

EPA has reevaluated the need for a buffer zone at hazardous waste facilities in light of the numerous comments received on the proposed standard and a subsequent comparison of the protection afforded by the proposed standard and that provided by the standards in Parts 264 and 265.

Commenters on the proposed standard were concerned that instituting a 200 foot buffer zone at existing facilities would be impossible if additional land were not available or it would result in an undue hardship and increased hazard if surface impoundments and landfills were in violation of the standard and the contained wastes had to be moved back from the property line. Many commenters pointed out that a specific distance is too arbitrary and inflexible to be universally applicable and, therefore, it would be excessive in some cases and insufficient in others.

EPA agrees that it is difficult to specify a single buffer zone distance that is appropriate for, and feasible to institute, at all facilities. Thus, EPA has elected to incorporate needed protective standards into the specific facility standards found in Parts 264 and 265, and not to promulgate a separate buffer zone location standard.

EPA's facility standards published today are designed to prevent and mitigate the effects of fires and explosions which might occur in managing ignitable, reactive, and incompatible wastes. General requirements for the management of ignitable, reactive and incompatible

wastes are specified in Subpart B of this Part. In addition, specific procedures for managing these wastes in piles, containers, tanks, and surface impoundments are included. According to these rules, containers which hold ignitable or reactive waste must be at least 15 meters (50 feet) from the facility's property line, and covered tanks which hold ignitable or reactive waste must be in compliance with the National Fire Protection Association's buffer zone requirements. These standards also provide for separation of piles, open tanks, surface impoundments, and containers if they contain incompatible wastes or materials. Further elaboration on these decisions is found elsewhere in this preamble under sections pertaining to the specific facility standards.

The purpose of the proposed buffer zone standard with respect to spills was to provide room to bring the hazardous waste into control before it crossed the facility's property boundary. Similarly, the proposed buffer zone was to provide a region within which underground leaks can be detected and dissipated or controlled before crossing the property line. The Subtitle C rules have made designation of a location buffer zone standard unnecessary. Spill prevention and containment rules and the current approach to groundwater protection have eliminated the need for a separate buffer zone.

g. *Regulatory Floodway.*

Regulatory floodway was defined in the proposed rules as the channel of a river or other watercourse and adjacent land areas that must be reserved in order to discharge the 100-year flood without cumulatively increasing the flood elevation more than a designated height. Regulatory floodways are designated at the discretion of communities participating in the National Flood Insurance Program (NFIP) managed by the Federal Emergency Management Agency (FEMA).

The proposed standard prohibited hazardous waste facilities from locating in a regulatory floodway because the facility would impede the flood waters thereby increasing the elevation of flood waters and expanding the area flooded. The proposed standard further specified that where regulatory floodways were not designated by FEMA, an owner or operator would have to obtain an analysis using FEMA-approved methods to determine whether the facility would be located within the regulatory floodway if such boundaries had in fact been mapped.

Commenters were divided on the necessity for a regulatory floodway standard. While some thought that the protection provided was desirable, others critized the use of the standard as being too stringent. Others pointed to the lack of information as to the location of regulatory floodways and one commenter stated that this was a concern of the NFIP, not of EPA.

EPA concludes that a regulatory floodway standard would have been appropriate if no other RCRA standards or other governmental regulations provided appropriate protection. The "no washout" 100-year flood standard under § 264.18(b) provides the same level of protection as that achievable by the proposed regulatory floodway standard. Not only must a facility be designed, constructed, operated and maintained to prevent washout from a 100-year flood, in so designing the facility the owner or operator must take into account the effects of increased flood levels at the facility due to the placement of the facility itself. Control of development in regulatory floodways is a responsibility of local government. Since the NFIP requires local controls in these areas if the locality is to participate in the NFIP, EPA considers that any additional action on its part would be unnecessary.

h. *Coastal High Hazard Areas.*

The proposed standard prohibited hazardous waste facilities from locating in coastal high hazard areas. Coastal high hazard areas are those areas subject to high velocity waters including, but not limited to hurricane wave wash or tsunamis as designated by FEMA on Flood Insurance Rate Maps (FIRM) as Zone VI–30. However, a facility could locate in a coastal high hazard area if the owner or operator could demonstrate that measures had been taken to ensure that the facility would not be inundated by high velocity waters.

Because coastal high hazard areas are within the 100-year floodplain, facilities located in these areas are required by the floodplain standard to be protected against washout of hazardous waste by a 100-year flood.

A limited number of comments were received on this standard. Some questioned the need for a uniform standard and proposed either no standard or one that accounts for the degree of hazard involved for each facility. Other commenters supported the opposite position—a complete ban of facilities from areas designated as coastal high hazard. Most commenters pointed to the lack of information for designating areas as coastal high hazard. They proposed that the standard only apply to areas specifically designated by FEMA.

All coastal high hazard areas, whether mapped or not, are within the 100-year floodplain. To the extent that information is available on wave action, the principal additional factor of concern in areas subject to coastal storms, this factor is to be considered when designing, constructing, maintaining and operating a facility to protect against washout. Thus some protection will exist for areas already mapped.

More restrictive standards for facilities located in these areas might be warranted; however EPA does not, at this time have sufficient information to reach this conclusion and to specify the nature of the additional restrictions so warranted. Nor is there sufficient information to justify a ban on the placement of facilities in these areas. Thus, facilities in these areas are subject to the no washout provision of the 100-year floodplain standard.

Because of the lack of information, EPA is requesting comment on the coastal high hazard standard. EPA requests comment on whether facilities should be allowed to locate in coastal high hazard areas and why, and whether a distinction should be made between new and existing facilities in this regard. If commenters believe that the hazards associated with facilities locating in coastal high hazard areas can be adequately reduced by proper design and construction, EPA requests information on what additional parameters need to be considered in the design and construction of the different facility types and the technology which is available to design or mitigate for them. EPA additionally requests information on the number of existing facilities in mapped coastal high hazard areas and to what extent either new or existing facilities are restricted from locating in these areas by other Federal, State, or local statutes.

EPA plans to continue work in this area and may promulgate a final standard at a later date.

i. *Permafrost areas.*

In the preamble to the proposed rules, EPA recognized that permafrost areas are fragile ecosystems with a significant potential for erosion and ground-water contamination. As such, the Agency stated that these areas should be protected from the uncontrolled siting of hazardous waste facilities. However, becasue the only State where permafrost areas are found is Alaska, EPA reasoned that it might be appropriate for the State of Alaska to determine what measures are needed to protect these areas. Comment was requested on the Agency's intent not to promulgate national standards for siting

of hazardous waste facilities in permafrost areas.

EPA received little comment on the issue of who should write a standard for locating in permafrost areas, EPA or the State of Alaska. At present the Alaska Department of Environmental Conservation has no standards regulating siting of hazardous waste facilities in permafrost areas. According to State officials, the Alaska Department of Environmental Conservation is awaiting the completion of studies on permafrost being conducted by the University of Alaska at Fairbanks before considering how such a standard should be written.

EPA recognizes permafrost as an important site condition which warrants a standard. However, the Agency does not have sufficient background information at present to justify a standard and believes that the State of Alaska may be in a better position to develop such a standard. Should Alaska promulgate an adequate standard as part of its State program, EPA will probably not promulgate a standard.

B. Subpart G—Closure and Post-Closure Care

The purpose of the Part 264 and 265 closure and post-closure standards is to ensure that all hazardous waste management facilities are closed in a manner that, to the extent necessary to protect human health and the environment, (1) minimizes the need for post-closure maintenance, and (2) controls, minimizes or eliminates post-closure escape of hazardous waste, hazardous waste constituents, leachate, contaminated rainfall, or waste decomposition products to ground or surface waters or to the atmosphere. There are two types of closure and post-closure requirements: (1) general requirements, which are contained in Subpart G; and (2) particular requirements which are specific to surface impoundments; incinerators; tanks; and other types of facilities. The specific standards are contained in the Subparts for each of these types of facilities and are discussed, in the preamble sections for those Subparts. This section of the preamble discusses the Subpart G general closure and postclosure requirements.

(1.) *Interim Status Regulations (Part 265).* On May 19, 1980, EPA promulgated §§ 265.111 (Closure performance standard); § 265.112 (Closure plan; amendment of plan); § 265.113 (Time allowed for closure); § 265.117 (Post-closure care and use of property; period of care); and § 265.118 (Post-closure plan; amendment of plan) as interim final regulations. The other sections of Subpart G were promulgated as final. Some minor language changes to the interim final regulations have been made to clarify their intent. The discussion below covers only the substantive changes.

a. *Deadline for submission of closure and post-closure plans (§§ 265.112(a) and 265.118(a)).*

The interim final regulations required owners and operators to prepare facility closure and post-closure plans by November 19, 1980. Many commenters contended that this date did not provide enough time to prepare plans and asked for extensions. Other commenters argued that EPA should not require owners or operators to prepare closure plans until they are ready to close their facilities. Still others argued that EPA should not require plans in interim status at all, but only when EPA issues a permit. In rsponse to these comments, EPA extended the deadline to May 19, 1981 (§§ 265.112(a) and 265.118(a)). To notify the regulated community prior to the original November 19, 1980 deadline, this time extension was promulgated separately on October 30, 1980 (45 FR 72039–72040).

EPA believes that the May 19, 1981 date is reasonable. First, owners and operators will have had one year from the promulgation on May 19, 1980 to develop closure and post-closure plans. Furthermore, since the proposed requirements for closure and post-closure plans were published on December 18, 1978 (proposed § 250.43–7), owners and operators will have had 2½ years to consider and reduce to writing appropriate measures for closing their facilities and providing post-closure care for land disposal facilities.

Second, closure and post-closure plans entail procedures which responsible owners and operators should have already thought through in operating their facilities. For example, for container storage facilities which periodically ship the containers off-site for disposal, the closure plan would anticipate a similar shipment procedue at the time of closure. For a landfill, an understanding of how the facility will be closed (e.g., final cover and vegetation) and then maintained and monitored is essential to the efficient and economic placement of wastes and monitoring wells during the landfill's active life. In fact, since many landfills are operated on a cell-by-cell basis, with several cells filled and closed in sequence, the appropriate procedures for closure will not only have been thought through but will also have been implemented at least in part.

EPA is also convinced that the May 19, 1981 date is necessary. First, development of closure and post-closure plans will force owners and operators to analyze their future closure responsibilities as well as their present operating practices as they affect closure and post-closure procedures. Thus, the sooner the plans are developed, the sooner present operating procedures consistent with closure will be developed. Second, since many facilities partially close on an ongoing basis (e.g., close one cell of a landfill at a time), there is a significant present need for closure plans which will assure that these partial closures are properly done. Third, closure and post-closure plans are presently needed because they provide the basis for making the cost estimates which are the foundation for the financial responsibility requirements of Subpart H. Thus closure and post-closure plans are needed now to assure that owners or operators develop sufficient funds to properly close their facilities.

b. *Keeping copies of plans at the facility (§§ 265.112(a) and 265.118(a)).*

The interim final regulations required the owner or operator to keep closure and post-closure plans at his facility. The final regulations retain this requirement (§§ 265.112(a) and 265.118(a)). One commenter, pointing out the importance of plans, questioned whether EPA could ensure that owners and operators prepare plans properly if plans are only kept on facilities' premises. The commenter suggested two different solutions to the problem: EPA could require the plans to be certified by a professional engineer, or it could require the plans to be submitted to the Agency for its review.

EPA has rejected the commenter's proposed solutions. First, EPA lacks the resources to review more than a sample of plans. Thus, requiring submission of plans to EPA would not assure their adequacy. Second, the Agency does not accept the argument that requiring a professional engineer to certify the plans would necessarily improve plans. Many of the most important aspects of plans depend on the owner's or operator's intent and these are not certifiable. For example, the estimate of maximum inventory of waste, which is a major factor in developing closure cost estimates, is not certifiable by an engineer.

EPA has arrived at a different solution to the problem than that suggested by the commenter. Under § 265.74(a) of the final regulation, the Regional Administrator may, at his discretion, require the owner or operator to send in his closure plan to EPA. In addition, EPA staff may review closure plans when performing on-site inspections.

The Agency intends to use these means to review a small random sample of plans and, from this sample, determine the proportion of adequate plans. If a large proportion of reviewed closure plans are inadequate in several Regions, EPA will have to decide whether to devote more resources to address the problem. To address specific problems more immediately, EPA could require the owner or operator of a facility with a poor plan either to submit a modified plan or to submit Part B of the permit application and modify the plan through the permitting process.

c. *Closure plan; amendment of plan (§ 265.112).*

In addition to extending the effective date of closure plan requirements by six months (discussed in paragraph (a) above), EPA made several changes to this section.

The interim final requirement of paragraph (a)(4) that closure plans contain schedules of actual dates for various events has been deleted and replaced, in response to comments, by a more flexible requirement for a schedule showing the time needed to close the facility and to perform intervening closure activities which will allow tracking of the progress of closure.

Paragraph (b), which requires the owner or operator to amend the closure plan whenever "changes in operating plans or facility design affect the closure plan", has been modified to require plan amendment within 60 days of those changes. This will assure conformance of closure plans to changes in actual design and operation as soon as reasonably possible.

The interim final version of paragraph (c) has been modified in several ways. First, the procedures whereby the Regional Administrator approves closure plans have been expanded to allow greater opportunity for both the owner or operator and the public to participate. This includes opportunity for a public hearing (see the more detailed discussion on procedures in paragraph (f) below).

Second, the grounds for the Regional Administrator's approval, modification or disapproval of plans are now explicitly based upon the substantive criteria for closure contained in Part 265.

Third, the regulations specify more fully when closure plans must be submitted to the Regional Administrator. Generally, as the interim final regulations also required, they must be submitted 180 days before the owner or operator "expects to begin closure." This latter phrase is now interpreted in a comment to the regulation to be "within 30 days after the date on which he expects to receive the final volume of waste." The Agency expects that this regulatory interpretation, together with the dates for completing closure once it has begun (§ 265.113), will help eliminate environmental problems caused by inactive but unclosed sites. In addition, the regulation now specifies that a closure plan must be submitted within 15 days after termination of interim status or an order under section 3008 of RCRA that the facility cease receiving wastes or close. This provision, which covers situations where closure may not be anticipated 180 days in advance, will assure expeditious closure of facilities which are inadequately operated. (See also § 265.143(a)(10), which provides that EPA may direct the trustee to pay money out of the trust fund to pay for closure activities in these situations.)

d. *Closure; time allowed for closure (§ 265.113).*

Section 265.113(a) of the interim final regulations required that owners or operators treat, dispose of on-site, or remove from the site all hazardous wastes within 90 days after receiving the final volume of waste.

Several commenters said that it was often impossible to complete treatment of all wastes within a 90 day period. Others said that unexpected events might make it impossible to remove the waste from the site before the end of the allowed time period. EPA agrees with the commenters. The Regional Administrator is therefore authorized by the final regulations to approve a period longer than 90 days provided that "(1) the required or planned activities will, of necessity, take him longer than 90 days to complete, and (2) he has taken all steps to eliminate any significant threat to human health and the environment." This modified language parallels that of paragraph (b), which allows 180 days for closure but also allows a variance.

EPA had rejected suggestions to delete the 90 and 180 days requirements and require the Regional Administrator to determine appropriate time periods on case-by-case basis. First, these time periods are achievable in the majority of cases. Second, the adopted approach minimizes the need for interaction between the Regional Administrator and the owner or operator. It is most efficient to set uniform time periods which are reasonable and generally achievable and to allow variances on a case-by-case basis when these periods are not achievable.

EPA has made one other change to both paragraphs (a) and (b). EPA anticipates that in some instances, an owner or operator may desire to close a facility for economic or other reasons, and begin closure activities, at which time another person may wish to assume operation of the facility. Rather than require the current owner or operator to close the facility in a manner incompatible with continued operation of the site (e.g., closing a half-filled landfill cell), the regulations allow the Regional Administrator to delay completion of closure if there is a "reasonable likelihood that a person other than the owner or operator will recommence operation of the site." An example of "reasonable likelihood" is the submission by the person of a complete permit application to the Regional Administrator plus an indication by the owner or operator of a willingness to transfer ownership or operation to that person.

e. *Post-closure care and use of property (§ 265.117).*

The final § 265.117 differs from the interim final version primarily in that the procedures formerly in paragraph (d) are now located (and considerably rationalized and expanded) in § 265.118.

The major issue raised by commenters with respect to this Section was the establishment of a uniform 30-year post-closure care period, subject to a variance. Various commenters expressed concern that the period was either too long or too short. This concern presumably arose out of a concern that the variance would not provide sufficient flexibility. The expanded procedures for obtaining variances and the more carefully delineated grounds for granting variances spelled out in § 265.118 should allay such concerns. (See section (f) below.)

The Agency has retained the 30-year period as the initial requirement because it may take as long as 30 years for material leaching from hazardous wastes to migrate to the groundwater. Indeed, proper land disposal practice often includes an initial containment period, so that, if properly operated, the facility does not begin to leach into the groundwater for an extended period. For this reason, it is appropriate to set a 30-year period initially to assure that adequate post-closure financial responsibility is assumed by owners or operators.

Of course, if after 30 years of post-closure care, it is demonstrated that additional groundwater monitoring or other care is necessary to protect human health and the environment, the procedures under § 265.118 allow the period to be extended. Similarly, if at any time during the post-closure period it is demonstrated that further care is not necessary to protect human health and the environment, the period may be shortened.

f. *Post-closure plan; amendment of plan (§ 265.118).*

The variance procedures for post-closure requirements and from the 30-year post-closure period have been substantially revised. The interim final regulations contained the following provisions: allowed variances to the 30-year post-closure period only at certain times to certain people, provided only for written comments to the Agency, did not apply to security requirements in § 265.117(b) or to disturbance of containment systems' integrity in § 265.117(c), did not fully articulate the bases for the Regional Administrator's decisionmaking, and, in one respect, asserted an overbroad basis for requiring post-closure care beyond 30 years. Based on several public comments and a careful reanalysis of the regulations, the Agency made the changes discussed below.

The final regulations afford equal opportunity to both owners or operators and the public to participate in the initial approval of the post-closure plan and any subsequent modification of the plan post-closure security requirements, post-closure disturbance of the containment system, or the post-closure period. They also allow petitions for modification to be submitted not at 5-year intervals only (as provided for in the interim final regulations) but rather at any time that relevant information is submitted. This approach eliminates the arbitrary ban on such requests at most times but prevents repetitious nuisance petitions which are not based on new facts.

The final regulations clarify the procedures for approval and modifications of post-closure plans. Before approving a plan, the Regional Administrator not only will allow the submission of written comments but also will hold a public hearing if the hearing might clarify one or more issues concerning the plan. (This procedure has also been added to § 265.112(d) for approval of closure plans.) The same procedures apply to the modification of a post-closure plan or post-closure period after the post-closure period has already begun. Furthermore, the regulations now specify that if any person petitions the Regional Administrator to modify the post-closure plan or period and the Regional Administrator denies the petition, he will send the petitioner a brief written response giving a reason for the denial.

One commenter on the interim final regulations (which, as noted above, provided for written comments but not for public hearings) argued that "variances on closures, shortening of a post-closure period or reopening of a closed disposal facility should be preceded by hearings using the 'substantial evidence' test." EPA disagrees with the implication of this comment that an evidentiary hearing should be required in these situations. As EPA has explained at length in connection with the Consolidated Permit regulations (44 FR 34264–65, June 14, 1979 and 45 RF 33409–11, May 19, 1980), neither RCRA nor the Administrative Procedure Act requires formal hearings for permit issuances. The arguments presented there, that the requirements of due process are flexible and that the procedures may be adapted to the nature of the problem being addressed, apply with equal force to the approval and modification of closure and post-closure plans during interim status. The expansion of procedures in final §§ 265.112 and 265.118 (including situations for which the commenter did not request expanded procedures) to provide an opportunity for a public hearing, rather than an evidentiary hearing, satisfies the fundamental requirement of due process and should allay the concern expressed by the commenter for procedural protection.

Final § 265.118(c) and (e) clarify the grounds on which the Regional Administrator will decide to approve, disapprove or modify a post-closure plan or to modify the post-closure period. EPA has accepted the comment that "noncompliance with any applicable standards or requirements" (interim final § 265.117(d)) is not an appropriate basis for extending the post-closure period. An extension should be based only on relevant environmental factors, and the final regulations reflect this philosophy. Of course, if noncompliance with certain requirements creates physical conditions which in turn create the need for extension of the post-closure period, the period may be extended under the final regulations.

g. *Notice to local land authority and notice in deed to property (§§ 265.119 and 265.120).*

These regulations were finalized on May 19, 1980. However, elsewhere in today's Federal Register, changes to these Sections are proposed to conform to §§ 264.119 and 264.120, which are being promulgated today as interim final. The Part 264 closure and post-closure care requirements are discussed next.

2. *General (Permitting) Regulations (Part 264).* These regulations contain the same substantive requirements as the Interim Status regulations. However, the procedures differ to reflect the fact that plans will be submitted as part of the permit application (40 CFR 122.25) and approved and modified through the permit procedure (40 CFR Part 124) rather than through the less formal procedures of Part 265, Subpart G.

The reader should refer to Part 124 to determine most of the procedures governing these regulations. The Part 124 procedures apply to the following: approval of closure and post-closure plans in § 264.112(a) modifications of these plans in § 264.112(b), approval of longer periods than 90 days and 180 days for performing two stages of closure activities in § 264.113 (a) and (b); modification of the 30-year post closure period in § 264.117(a); continuation of security requirements during the post-closure period in § 264.117(b); and disturbance of the integrity of the containment system during the post-closure period in § 264.117(c).

Certain modifications of plans or requirements may be routinely required during the life of the facility and are of a minor nature. These include changes in estimates of maximum inventory in § 264.112(a)(2); changes in estimates of expected year of closure or schedule for final closure in § 264.112(a)(4); extensions of the 90-day deadline in § 264.113(a); and extensions of the 180-day deadline in § 264.113(b). The Agency believes that the procedures of Part 124 need not apply to these modifications. Accordingly, they have been designated as "minor modifications" in 40 CFR 122.17, and appropriate comments have been inserted in Part 264, Subpart G to alert the reader of this regulation that these modifications are not covered by Part 124.

Since the closure and post-closure plans will be approved when the permit is issued, the owner or operator of a facility is not required (as in Part 265) to submit his plans to the Regional Administrator for approval prior to closure. However, he must notify the Regional Administrator 180 days before he expects to close. This will afford the Regional Administrator an opportunity to assess the need for a permit modification prior to final closure of the facility.

The recently enacted Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (commonly referred to as "Superfund") contains certain provision which relate to the post-closure care and liability requirements of §§ 264.117 and 264.118 for permitted facilities. Section 107(k)(1) provides that the liability established by Superfund "or any other law" for a permitted facility "shall" be transferred to and assumed by the Post-closure Liability Fund five years after closure provided that the facility meets certain

conditions. (The major condition is proper operation of the facility and proper post-closure care in compliance with the facility's permit.) Section 107(k)(3) provides that the Fund "may" be used to pay costs of post-closure care, for facilities which meet the conditions noted above after the period of monitoring required by the RCRA regulations. Neither of these provisions implies that the 30-year post closure period in § 264.117 must be revised. However, in developing regulations under Superfund, EPA will be reviewing § 264.117 to determine whether any modification of the 30-year period or the procedures for a variance of the period should be amended.

Sections 264.119 and 264.120 (Notice to local land authority and Notice in deed to property) are modified somewhat from the Part 265 versions. However, elsewhere in today's Federal Register, EPA is proposing changes to §§ 265.119 and 265.120 to conform them to §§ 264.119 and 264.120, which are being promulgated as interim final. Both the Part 264 and the revised Part 265 versions will be finalized together after consideration of any comments submitted.

Reference in § 265.119 to "local land authority" has been clarified in § 264.119 to mean "local zoning authority or the authority with jurisdiction over local land use." In addition, the Part 264 regulations require that after the survey plat and record of wastes are filed, subsequent changes (e.g., as a result of reopening a cell or opening a new cell) must also be submitted.

In § 264.120, two changes from the interim status standards have been made. First, the notice in the deed must state that the survey plat and record of wastes disposed of have been filed with the appropriate local authority. Prospective purchasers of the property may then check the filed records to learn the precise location of wastes buried at the site.

Second, if the wastes and contaminated materials are removed from the site, the notation on the deed may be removed or, if that is not allowed by local authority, a notation may be added indicating removal of the waste. EPA is particularly interested in public comment on this issue. Would prospective purchasers of property want to know that hazardous wastes were once buried on the property even if the wastes were later removed? Would such information affect the market price and, if so, to what extent? If removal of the notation were undesirable, would that imply that even storers and treaters of hazardous wastes should be required to place notices in deeds?

C. Subpart H—Financial Requirements

Section 3004(6) of RCRA requires EPA to establish financial responsibility standards applicable to owners and operators of hazardous waste management facilities as may be necessary or desirable to protect human health and the environment. EPA has concluded that, at a minimum, financial responsibility performance standards are necessary and desirable to assure (1) that funds will be available for proper closure of facilities that treat, store, or dispose of hazardous waste and for post-closure care of hazardous waste disposal sites; and (2) that a pool of funds will be available during the operating life of the facility from which third parties can seek compensation for injuries to people and property resulting from operation of the facilities. In these regulations the Agency is establishing various requirements which are designed to meet those performance standards. Other needs in financial responsibility related to hazardous waste management are addressed by the recently passed "Superfund" law, the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, Pub. L. 96-510 (December 11, 1980).

The need for assurance of financial responsibility for closure and post-closure care is indicated by the many instances of environmental damage resulting from abandonment of hazardous waste facilities and other failures by owners and operators to provide adequately for closure and post-closure care. (Several such cases are described in the Background Document for the financial requirements.) The likelihood of such a failure is increased by the fact that the economic value of the facility is either at a minimum or nonexistent when closure and post-closure care are expected to commence. For most disposal facilities, post-closure care must extend for 30 years beyond the operating life of the facility. EPA believes that a significant number of owners and operators will lack the ability to provide for adequate closure and post-closure care unless effective requirements for financial assurance are established.

Assurance that a pool of funds will be available from which third parties injured by the operation of a hazardous waste management facility can seek compensation is necessary and desirable, in the Agency's view, because of the potential for injury arising from the operation of those facilities. As discussed in detail in the Background Document, there are numerous instances in which third parties have suffered personal injury and property damage caused by the operation of hazardous waste management facilities. Consequently, the Agency is establishing a requirement that owners and operators must secure a liability insurance policy which covers both personal injuries and property damage resulting from their facilities. Moreover, the inherent risks associated with hazardous waste indicate that such a requirement is desirable.

The Agency has carefully considered numerous alternative financial responsibility mechanisms in developing these requirements. Their development involved a proposal of regulations in December 1978, a reproposal in May 1980, public hearings on the proposals, analyses of the many comments from the public, and a number of investigations of issues raised by commenters and by the Agency itself.

Under the first proposal, issued December 18, 1978 (43 FR 58995, 59006-7), the trust fund was the only means of assuring that funds would be available for closure and post-closure care. The closure trust fund had to be fully funded when established. The post-closure fund, however, was to be funded over the life of the facility or 20 years, whichever was shorter. The owner or operator was to estimate the amounts of the closure and post-closure funds based upon required plans for closure and post-closure care of the facility. The financial assurance provisions were essentially the same for general standards (to be used in issuing permits) in Part 264 and for interim status standards (which apply to existing facilities awaiting final disposition of their permit applications) in Part 265. Only trust funds were allowed because the Agency believed that only by setting money aside in a trust fund could owners and operators adequately assure availability of funds.

The Agency's first proposal also included liability requirements as general standards but not as standards for existing facilities with interim status. EPA based that decision on its belief at the time that insurance would not be available for facilities without permits. The amounts of required liability coverage were $5 million per sudden accident, and, for nonsudden accidents, $5 million per occurrence with a $10 million annual aggregate. In addition to insurance, self-insurance and "other evidence of financial responsibility" were allowed to satisfy the proposed requirement.

Many of the commenters on the original proposal said requiring the closure trust fund to be fully funded when established was so costly it could

put them out of business. A number of commenters also said that other financial mechanisms in addition to trust funds should be allowed. Some commenters thought the amount of the required liability insurance coverage greatly exceeded the level of risk associated with their facilities.

EPA reanalyzed these and other issues and developed a new proposal which was published May 19, 1980 (45 FR 33260–78). In this reproposal, the closure trust fund was allowed to build over the operating life of the facility or 20 years, whichever was shorter, because the Agency believed that requiring owners or operators to fully fund the closure trust immediately could cause some smaller firms to go out of business, and this would contribute to an expected capacity shortage in hazardous waste management. Consequently, both the closure and post-closure trust funds, had a pay-in period of up to 20 years. The reproposal also permitted owners and operators to use the following mechanisms other than trust funds to provide assurance of financial responsibility: surety bonds; letters of credit; a financial test; guarantees of the closure and post-closure obligations of an owner or operator by another entity which meets the financial test, a revenue test for municipalities, and State assumption of responsibility for closure and post-closure care or funding of these obligations. Also, if a State required specific financial assurance mechanisms for closure and post-closure care, the owner or operator could use those mechanisms to meet the Federal requirements as long as the State mechanisms were substantially equivalent to mechanisms specified by EPA.

The reproposed requirements for financial assurance for closure and post-closure care thus contained a range of options, all of which had been suggested by commenters on the first proposal. The principal consideration in selecting the mechanisms and determining their specifications was the effectiveness of the mechanism in assuring availability of sufficient funds when needed for closure and post-closure care. The Agency recognized, however, that in certain circumstances it may be necessary or desirable to balance other considerations against ready access to funds. As noted above, the Agency proposed a 20-year pay-in period for closure and post-closure trust funds because it believed that the environmental risk associated with a capacity shortage in hazardous waste management was greater than that associated with those instances in which there are insufficient funds for closure because the owner or operator is either bankrupt or has abandoned the site before the trust fund was paid up. The Agency also considered avoidance of unnecessary costs to the regulated community, the desirability of allowing flexibility in meeting the requirements, administrative burden on the Agency, and availability of the mechanisms.

The reproposal also included a requirement that owners or operators obtain liability insurance during interim status. Coverage for sudden accidents amounting to $1 million per occurrence with a $2 million annual aggregate was proposed. The Agency added this requirement because, contrary to EPA's previous belief that insurance would not be available for facilities without permits, further investigation showed that many of those firms which followed good business management practices already possessed liability insurance covering sudden accidents, and that it was readily available to other firms. The Agency did not propose requiring coverage for nonsudden accidents because its investigation indicated limited availability of such coverage to firms managing hazardous wastes prior to obtaining permits. (Comments were invited, however, on the desirability of requiring coverage for nonsudden accidents during interim status.) The lower level of coverage for sudden accidents (compared with the previous proposal) was based on a review of damage cases, typical levels of coverage, and State insurance requirements for hazardous waste facilities. As with financial assurance for closure and post-closure care, the reproposal allowed owners and operators to use State-required mechanisms and State guarantees to meet EPA liability requirements to the extent that the State mechanisms were substantially equivalent to EPA-specified mechanisms.

The originally proposed general standard for liability coverage was not included in the reproposal but the period of public comment on it was reopened.

At the same time that the reproposal was published (May 19, 1980), EPA issued final regulations, 40 CFR 265.140, 142, and 144 (45 FR 33243–44), which established interim status standards for estimating the costs of closure and post-closure care. (The effective date for these standards was changed from November 19, 1980, to May 19, 1981, by an amendment promulgated October 30, 1980 (45 FR 72040).) The final regulations exempted State and Federal governments from financial requirements imposed on owners and operators of hazardous waste management facilities. These regulations are discussed in the Background Document entitled Financial Requirements and in the Preamble to the May 19, 1980, publication. They are not discussed again here.

The following sections address the major issues and comments associated with the financial responsibility standards promulgated today.

1. *Financial Assurance for Closure and Post-Closure Care (Major Issues).* In the final regulations, as in the reproposal, the owner or operator of each hazardous waste treatment, storage, or disposal facility must establish financial assurance for its closure. The owner or operator of a disposal facility must also provide financial assurance for post-closure care. He may use one or more of the several mechanisms allowed by the regulations to meet those requirements. The amount of funds assured must at least equal the adjusted cost estimates.

For existing facilities, financial assurance must be established by the effective date of the Part 265 financial assurance requirements. For new facilities, assurance must be established as specified in Part 264 at least 60 days before hazardous waste is first received at the facility for treatment, storage, or disposal.

Commenters raised the following general issues:

a. *Compliance proceedings.*

Commenters said that EPA should be able to direct the use of funds from trusts, surety bonds, letters of credit, and guarantees only after a final judicial determination of a violation or after agreement between EPA and the owner or operator, and that EPA should not be able to call in a bond or draw on a letter of credit after a notice of nonrenewal or cancellation unless a court order is obtained. These limitations are needed, commenters said, to protect the owner's or operator's right of appeal and his credit standing and to ensure that EPA does not expend funds improperly.

The procedures to be used for enforcing compliance with regulations under Subtitle C of RCRA, including Subpart H, are prescribed in Section 3008 of RCRA, which authorizes the Administrator to determine when violations of RCRA and the regulations have occurred and to issue compliance orders. Pursuant to Section 3008 an opportunity for a public hearing is provided before a compliance order or suspension or revocation of a permit becomes final.

The final regulations have clarified procedures relating to cancellation of

financial assurance devices. Although continuous availability of funds is a basic consideration of EPA in developing requirements for financial assurance for closure and post-closure care, the Agency recognizes the desire of financial institutions and surety companies for means of terminating letters of credit and bonds issued on behalf of owners and operators. Consequently the final regulations include provisions for cancellation under limited circumstances. However, the owner or operator will be deemed to be without financial assurance and in violation of these regulations upon receipt by EPA of a notice of cancellation or nonrenewal, and EPA thereupon will begin compliance proceedings under Section 3008 of RCRA. In the event the owner or operator cannot satisfy a compliance order requiring alternate financial assurance, EPA will require funding of a standby trust (described below) by the surety or issuer of the letter of credit.

In order to assure that funds will be available for closure and post-closure care, and that initiation of compliance proceedings does not immediately precipitate termination of surety bonds and letters of credit, all such instruments must provide that no termination shall occur while compliance proceedings are pending, irrespective of the subject matter of the compliance proceedings.

b. *Standby trust fund.*

The final regulation requires that owners and operators who obtain letters of credit or surety bonds to provide the required financial assurance must also establish a standby trust fund at the same time. Under the terms of the letter of credit or surety bond, any funds drawn under those instruments are to be placed directly into the trust fund by the institution making the payment. The Agency is imposing this requirement because without such a depository mechanism any funds drawn under those instruments which are payable to the Regional Administrator would have to be paid into the U.S. Treasury and could not be used specifically to pay for closure and post-closure care of the facility (see 31 U.S.C. § 484). EPA plans to seek authority from Congress to directly receive and disburse funds derived from financial assurance mechanisms under RCRA. If EPA obtains that authority, owners and operators would no longer be required to establish standby trust funds. In the reproposal of May 19, 1980, the Agency allowed both trust funds and escrows to be used to hold funds drawn on letters of credit and surety bonds (escrows for closure funds, trusts for post-closure funds), and they did not have to be established before the time they were needed. Further analysis indicates that trusts are preferable to escrow accounts (see discussion of escrows in section 8 below) for this purpose and that they must be established when the letter of credit or surety bond is obtained to assure that the necessary depository mechanism is available if needed.

c. *Equity among mechanisms.*

Several commenters said that, from an equity standpoint, EPA should allow all mechanisms, not just trust funds, to be built over 20 years.

EPA is allowing owners or operators to select from a variety of financial mechanisms to meet the requirements of these regulations. It is doing so to minimize their cost. Since an owner or operator is free to choose from among the devices, he may select that alternative which seems most advantageous. Thus there is no inequity created.

d. *Restricting means of financial assurance.*

Several commenters said that EPA should not limit owners and operators to the specified mechanisms but instead should allow them to demonstrate financial assurance by any appropriate means. The Agency has decided not to adopt that approach because the implementation of such an open-ended regulation would impose an intolerable administrative burden on the Agency, especially in light of its limited experience and resources in the area of evaluating financial mechanisms. The Agency expects that a large number of owners or operators might seek to demonstrate financial assurance by alternative mechanisms if they are allowed to do so. The Agency believes that in such an event, mechanisms that do not adequately assure that funds will be available in a timely manner will inadvertently be accepted. This will result in inadequate protection of human health and the environment and, in addition, an inconsistent and possibly inequitable administration of these requirements. Consequently, the Agency concluded that it must require specific mechanisms for financial assurance and has allowed those to be used which adequately provide financial assurance and are feasible. EPA will continue to be receptive to proposed additions to these mechanisms and may add to, subtract from, or alter the currently allowed mechanisms after it examines such suggestions and its experience in implementing these regulations.

Some commenters suggested that requiring standard language for trusts and other instruments is a mistake, since financial institutions have different informational requirements. EPA believes that standard language is necessary for the same reasons that standard mechanisms are needed. The Agency simply does not have the resources or expertise to review every trust or other instrument to determine whether it adequately assures the availability of funds for closure or post-closure care. The Agency believes that the mechanisms allowed by the final regulation will be acceptable to most, if not all, financial institutions. They were developed in consultation with the American Banking Association, the Surety Association of America, other trade associations, financial institutions, and other financial experts.

2. *Trust Funds.* The trust provisions of the final regulation include several changes from the provisions of the reproposal. The most significant change is a redesign of the funding sequence.

As described above, under the first proposal issued December 1978 the Agency required that the closure trust fund be fully funded when established. The Agency selected the fully funded trust to provide financial assurance whether closure takes place as planned or closure becomes necessary prematurely due to economic difficulty or as a result of a government agency's order based on problems associated with the operation or maintenance of the facility. Immediate full funding of the trust fund represents a significant financial burden to the regulated community, however, in that it requires the owner or operator to set aside a large sum of capital at one time. This burden assumes an added significance under current tax laws, which do not allow payments into these trusts to be considered a deductible business expense because no expense occurs in a tax sense until the funds are used for closure.

The environmental impact of this economic burden might be substantial. It could tend to drive companies out of hazardous waste management and discourage new companies from entering the field, thus reducing the national capacity for hazardous waste disposal at a time when we may be short of sites which are acceptable from a health and environmental standpoint.

The Agency responded to this problem in the reproposal of May 19, 1980, by allowing a pay-in period of 20 years or facility life, whichever is shorter, for both closure and post-closure trust funds. Also, as already noted, several alternative mechanisms were allowed which are expected to be substantially less costly to the regulated community.

In the final regulation for interim status, EPA continues to allow both closure and post-closure trust funds to build over 20 years or facility life, whichever is shorter. Interim status is supposed to be a period of transition for hazardous waste facilities from no Federal hazardous waste regulation to fairly complex Federal hazardous waste regulation. As such, EPA wants the transition to be gradual. The Agency has set the buildup period for trust funds to prevent the dislocations and capacity problems that might occur from a faster buildup of trust funds.

For interim status facilities which become permitted, the owner or operator must fund the balance of the trust funds over the term of the initial permit (a maximum of 10 years under § 122.9 of this Chapter). At the end of this term, the Agency may decide not to renew the permit. Based on that consideration, the Agency decided to establish a pay-in period equal to the term of the permit. The Agency does not want to be in the position of having to consider whether to allow a poorly managed site to remain in operation so that it could continue to build its trust funds to afford closure and post-closure care. The trust should therefore be fully funded at the end of the term of the permit to assure that proper closure and post-closure care can be carried out.

EPA will require that trust funds for new facilities also be built over the life of the permit. New facilities, like existing facilities, present a potential for premature closure during the fund buildup period. Again, an apparent simple solution is full funding up front. The Agency need not be concerned about dislocations induced among new facilities by too stringent a pay-in requirement as it does with existing facilities. A decision for immediate full funding, however, sets up a significant differential in RCRA compliance costs between new and existing facilities whose owners or operators need to use trusts to meet the financial requirements. EPA believes it may be counterproductive to establish an immediate pay-in requirement for new facilities, especially when old facilities can build trusts over time. This would encourage the continued use of existing facilities and discourage the building of new sites conforming to current technical standards.

The 20-year pay-in period, which was in the reproposal and is now allowed only during interim status, was criticized by some commenters. They pointed out that the public might have to bear a significant portion of total closure and post-closure costs over that time due to the failures of firms. With a faster buildup, however, there are also closure and post-closure obligations which would fall to the public from firms which close immediately when faced with the higher costs. The Agency believes that some closure and post-closure costs will be borne by the public regardless of the pay-in period.

In an analysis prompted by the comments on the pay-in period, EPA found that, because of uncertainties in the expected normal business failure rate for firms that will be getting trust funds and the expected rates of closure induced by different pay-in periods, the optimum pay-in period could be anywhere from 5 to 20 years. If the Agency required a buildup rate during interim status faster than 5 percent a year, and subsequent evidence of bankruptcy rates showed that the annual 5 percent buildup was, in fact, justified by the data, it would be too late to prevent induced closures by reducing the pay-in rate. On the other hand, if EPA chose the 5-percent rate and bankruptcy data showed a higher rate to be more appropriate, the Agency could adjust the buildup rate at little cost. Moreover, the Agency estimates that the amount of closure and postclosure expenses to be paid for by the public does not vary greatly from a 5 percent per year pay-in rate to a 20 percent per year rate, but the additional cost to the regulated community is substantial for the higher rate. This analysis, then, is consistent with the Agency's decision to allow slower pay-in period during interim status at this time.

EPA recognizes that full assurance of funds for closure and post-closure care will not be provided through the trust fund in the event of premature closure. EPA is presently studying a variety of private sector and governmental programs, including mutual and pooled fund approaches, which will address this problem. The Agency welcomes comments in this regard. It is likely that EPA will request legislation in this area from the Congress in the near future. In the event a legislative, administrative, or private sector remedy to the problem of premature closure is not forthcoming, it is likely that EPA will review the present trust fund mechanism and require a significantly shorter pay-in period.

Among the other changes from the reproposal was the addition of qualifications for trustees. In the reproposal, a "bank or other financial institution" could serve as the trustee. In the final regulation, trustees must be banks or other financial institutions that have authority to act as trustees and whose trust operations are regulated and examined by Federal or State agencies. EPA made this change because institutions that are examined and regulated by Federal or State agencies must meet certain standards that should increase the reliability and security of trustee institutions.

In the reproposal, the Agency did not establish certain specific requirements regarding the trust agreement (for instance, how monies in the trust fund were to be invested) because it believed that these issues would either be covered by State trust law or were best resolved by agreement between the owner or operator and the trustee.

Some commenters strongly objected to this approach and said that financial institutions would not act as trustees for these trusts if the trust instrument did not contain provisions specifying the responsibilities and rights of the trustees. The Agency developed a standard trust agreement which incorporated the necessary provisions with the assistance of the American Bankers Association and other commenters. One of the clauses which was amended was the investment clause. In developing this clause, the Agency's primary concern was protection of the corpus of the fund. A secondary concern was to allow the trustee to invest the funds to earn a rate of return that will at least keep up with inflation. This concern is especially important for the post-closure period. In the final regulation the trust agreement prohibits investment in the securities of the owner or operator and their affiliates, but otherwise generally allows investments in accordance with a "prudent man" rule. The rule requires the trustee to invest with the judgment and care that persons of prudence would exercise in managing an enterprise of like character and aims. Investment in certificates of deposit or other time or demand deposits with the trustee institution is specifically allowed to the extent they are insured by an agency of the State or Federal government. EPA added this last provision because it believes that financial institutions may be more willing to accept small trust funds if the owner or operator agrees to such an investment.

EPA's concern about the willingness of financial institutions to act as trustees of small trust funds was based on comments by many of the larger banks in the country. Some closure cost estimates will be under $10,000. Many of the larger banks said they would not act as trustees for funds containing only small amounts and quoted acceptable

minimums which ranged from $20,000 to $5 million. Small trust funds, in their view, are not worthwhile because their administrative costs and potential legal expenses outweigh potential profits. However, some of the smaller banks said they would accept small trust funds and believe they are comparable to the Individual Retirement Accounts (IRA) and Keogh accounts that are established to provide retirement income. The Agency was informed that more banks would be willing to act as trustees for the smaller trust funds if the funds could be commingled for investment purposes but that such commingling might not be consistent with Federal securities laws. To encourage financial institutions to act as trustees for small trusts, EPA requested the Securities and Exchange Commission to issue a "no action" letter concerning commingling. The Agency received such a letter from SEC dated October 20, 1980.

3. *Surety Bonds.* In the May 19, 1980, proposal, three types of surety bonds were allowed. They guaranteed performance of closure, or payment of a lump sum into a post-closure trust fund at the time of closure, or performance of post-closure care. It was intended that such bonds would be allowed for both interim status and general standards. It has become apparent, however, that performance bonds are not appropriate for interim status. Performance bonds are intended to guarantee performance of a specified duty. During interim status, closure and post-closure plans will not normally be closely examined by the Regional Offices until shortly before closure. The Regional Administrator at such time may find that major changes are called for in the closure or post-closure plans. The actual required performance for the particular facility therefore may not be specified in any detail during most of the term of the bond. Consequently in the final regulations for interim status only surety bonds that guarantee payment into standby trust funds for closure and post-closure care are allowed. In the general standards, performance as well as financial guarantee bonds are allowed since the closure and post-closure plans will be reviewed as part of the permitting process.

Surety companies and other commenters identified two features of the closure and post-closure obligations that will discourage sureties from writing the bonds: the obligations are for terms much longer than surety bonds have traditionally been written for, and the costs are not set—they will shift with inflation and changes in the closure and post-closure plans. The Agency has not found a way to structure the bonds so as to reduce the effects of these basic conditions without jeopardizing the adequacy of financial assurance provided by the bonds.

Under the cancellation provisions in the reproposal, the surety could cancel a bond only if at least 90 days' advance notice is given. If during the first 30 days after the notice the owner or operator failed to establish other financial assurance, the Regional Administrator could order closure of the facility, thus triggering the bond guarantee. The surety could therefore cancel successfully only if the owner or operator could establish other financial assurance.

In the final regulations, the cancellation provisions have been revised: (1) The bond cannot be cancelled while a compliance procedure is pending. (2) Nonconformance with the financial assurance regulations is deemed to commence whenever continuity of financial assurance is threatened due to impending cancellation of the bond by the surety (i.e., upon receipt of a cancellation notice from the surety). (3) The role of Section 3008 procedures in regard to compliance orders, closure orders, and collection of the penal sum after noncompliance has been clarified. In particular, if the owner or operator fails to establish financial assurance in the period allowed by the compliance order, the surety must deposit the amount of the penal sum into the standby trust fund established by the owner or operator. The latter change was made so that financial assurance can be maintained without the need to require closure.

As these bonds represent a new risk experience for the surety companies, availability will be limited at first, with economically stronger companies more likely to receive coverage. As surety experience with these facilities and bonds increases, availability may increase as well.

4. *Letters of Credit.* A letter of credit is an agreement by the institution issuing the letter that it will make available to the beneficiary a specific sum of money during a specific time period on behalf of its customer. The beneficiary can draw on the credit by presenting to the issuing institution the documents specified in the letter. In the final regulation, an owner or operator may satisfy the financial assurance requirement by obtaining the issuance of a letter of credit, addressed to the Regional Administrator, in the amount which equals or exceeds the closure or post-closure cost estimate. The term of the letter of credit must be at least 1 year, and it must contain a clause which provides for automatic extensions. The issuing institution may terminate the letter only by sending a notice of nonrenewal to the Regional Administrator and to the owner or operator at least 90 days prior to the automatic renewal date. Like the surety bond, the letter of credit can be drawn on if the Regional Administrator determines that the owner or operator has failed to meet closure or post-closure requirements or following a notice of nonrenewal and a Section 3008 determination that the owner or operator is in violation of the financial requirements. By the terms of the instrument, the letter cannot be cancelled while a compliance procedure against the owner or operator is pending.

The issues raised regarding letters of credit were, for the most part, the same as those for surety bonds. Some commenters suggested that the term is too long, that the owner's or operator's obligations are subject to increases thus requiring frequent changes in the letter of credit, and that such letters of credit are rarely if ever written. As with the bonds, it appears that only large, highly creditworthy firms may be able to obtain these instruments on an unsecured basis.

In the reproposal, letters of credit could be used to assure funds for closure, assure payment of a lump sum into a post-closure trust fund at the time of closure, or assure availability of funds during the post-closure period. The reproposal contained a separate set of requirements for each of these uses. In the final regulation the letter of credit may be used for the same purposes, but one set of requirements covers both instances in which letters of credit are used to assure funds for post-closure care.

Numerous commenters said that the letter of credit form in the reproposal should be simplified. They suggested that detailed references to the regulations be eliminated because they were concerned that the references might be interpreted to impose a responsibility on the issuing institution to assure that the owner or operator complies with the regulations. Many bankers also suggested that EPA delete from the letter all references to the escrow account into which funds drawn under the instrument would be deposited. With the aid of the American Bankers Association, other institutions, and a legal expert on letters of credit, the Agency developed a less complex letter of credit and eliminated from it most references to the regulations.

While the letter contains a reference to the standby trust into which funds paid under the letter will be deposited (rather than the escrow account specified in the reproposal), this was done to ensure a direct transfer into the owner's or operator's trust fund and to avoid problems associated with the requirements of 31 U.S.C. 484.

Under the reproposal, only letters of credit issued by Federal Reserve System (FRS) banks would be accepted by the Agency. EPA proposed this restriction because it believed that FRS banks had greater stability and reliability and that only member banks could issue letters of credit for periods longer than 1 year. The Agency learned, however, that nonmember banks can issue letters of credit for more than 1 year. Moreover, there appears to be no significant difference in stability and reliability between FRS banks and other financial institutions which are examined and regulated. Consequently, in the final regulation, letters of credit from any financial instituituion which has authority to write letters of credit and whose letter-of-credit operations are regulated and examined by Federal or State authorities are acceptable.

5. *Revenue Test for Municipalities.* In the reproposal, municipalities, as defined in RCRA, could demonstrate financial assurance by passing a revenue test. A municipality passed the test by having annual general tax revenues which were 10 times the cost estimates to be covered. The test was intended to identify those local governments which have a tax base sufficient to readily support the costs of closure and post-closure care.

The proposed revenue test was the subject of numerous comments. While some commenters thought it was a reasonable approach, others felt that municipalities should be required to provide the same forms of assurance that other entities must provide. They cited the delays in funding of closure that could occur if cities failed to plan adequately for meeting closure costs.

Several commenters thought that a test which requires a local government to have only 10 times the cost estimates was inadequate. They contended that many cities would find it extremely difficult to reallocate in any year 10 percent of their budget to cover closure and post-closure costs. One commenter suggested that the multiple be increased to 20.

Several commenters objected to the test because it limited revenues to be counted to the property, income, and sales taxes. They suggested that fees, contract payments, and any other income should be included. Other commenters suggested alternatives to the test be allowed, including municipal bond ratings, bond pledges, annual audits, and requirements for enterprise accounting.

Because of the complexity of the issues regarding the revenue test, the Agency could not analyze them adequately in time for this promulgation. The Agency expects to announce its decision on whether it will promulgate the revenue test within the next few months. At the same time the Agency will also announce its decisions regarding the financial test and self-insurance, which are described below. The Agency decided to proceed with today's promulgation of financial responsibility standards despite the fact that these key decisions are yet to be made because of the need to begin assuring financial responsibility for hazardous waste management and also the need to meet the court-ordered schedule for issuing RCRA regulations. In planning how they will meet the financial responsibility requirements promulgated today, owners and operators should not consider the revenue test, financial test, or self-insurance as available or imminently available options at this time.

6. *Financial Test and Guarantee.* The proposed financial test allowed firms to meet the financial assurance requirement by demonstrating they had more than $10 million in net worth in the U.S., a ratio of total liabilities to net worth not greater than 3 to 1, and net working capital in the U.S. of at least two times the value of all their closure and post-closure cost estimates. An entity meeting the financial test could also guarantee closure and post-closure obligations of another entity. The Agency received many comments on this issue. They included suggestions that the test was too stringent, that it was too lenient, and that the criteria were either inappropriate or arbitrary. They suggested different values for the criteria and numerous alternative criteria such as bond ratings, a cash flow test, positive net income, the ratio of quick assests to current liabilities, and fixed assets in the U.S. (rather than net worth or working capital in the U.S.). Many commenters also raised questions about the proposed requirements for establishing that the test criteria were met. As with the revenue test, the Agency could not complete its study of the issues in time for this promulgation. As noted above. the Agency's decisions regarding the financial test and the guarantee based on the financial test will be announced at the same time as the decision on the revenue test.

7. *Variations in Use of Mechanisms.* The reproposal allowed owners and operators to use more than one type of mechanism to provide financial assurance for a facility, to use one mechanism to cover multiple facilities, and to use one mechanism to cover both closure and post-closure care. A number of commenters expressed approval of these provisions because of possible savings in costs to the regulated community. The final regulations allow these variations with some qualifications and clarifications.

An owner or operator using multiple instruments may include a surety bond guaranteeing payment but not a surety bond guaranteeing performance of closure or post-closure care. The latter type of bond is excluded because of the potential complexity of combining the performance option in the bond with funds from other instruments in case of default.

The final regulation states that if an owner or operator uses a trust fund and a letter of credit or surety bond, he may use the trust fund in place of the standby trusts required for letters of credit and surety bonds. If an owner or operator uses only letters of credit of surety bonds, only one standby trust fund is required for all instruments. Requiring a separate standby trust for each instrument means added costs for the owner or operator and added administrative burden for the Agency.

A letter of credit may not be used to cover the facilities in more than one Region because increases and decreases in the coverage of the credit, even if they concern only one of the facilities covered, would in some cases depend on the consent by all the Regional Administrators who are addressees of the letter. Such procedures are likely to delay the change in the credit amount and could add to the administrative burden of the Regional staff. The restriction to one Region does not apply to the other instruments, since only the approval by the Regional Administrator for the Region in which the affected facility is located need be obtained in order to decrease the coverage, and increases may be made without prior approval or return of existing instruments.

Combining financial assurance for closure and post-closure care in one instrument is allowed for the letter of credit and the trust fund but not for surety bonds. Unlike the other instruments, the surety bonds must, in order to specify the conditions of the guarantees, differentiate between what is to be done to assure closure and post-

closure care. The Agency believes that combining the closure and post-closure language in one bond form would add to its complexity and risk confusion.

8. *Other Mechanisms.* EPA believed that escrow agreements might be useful and therefore actively solicited information about them. Most of the commenters said there is little difference between trust funds and escrows and therefore there is little point in offering both. Trust funds appear to be preferable because the law of trusts places obligations upon trustees to protect the interests of the beneficiary (i.e., EPA in this case). An escrow agent is responsible only for what is specified in the escrow agreement. The Agency believes it would be extremely difficult to draft an escrow agreement that adequately specifies all the actions that the Agency would want the escrow agent to take in all situations to assure that the instrument serves its intended purpose. Some commenters said that if the escrow agreement is carefully worded escrowed funds could be safer from creditors' claims than trust funds, but other commenters and the Agency's analysis indicated that trust assets are better protected. Under trust law, legal title to property in a trust is transferred from the grantor to the trustee. With an escrow agreement legal title is not transferred to the escrow agent; since the grantor retains legal title while property is in escrow, such property is more likely to be subject to creditor's claims than property in a trust. Some commenters said fees for escrow accounts tend to be lower than for trusts, but other commenters said that, if an escrow agreement were written to be comparable to the trust agreement, the fees would also be comparable. Based on the information obtained, EPA believes trust funds are preferable to escrows and has decided not to add the escrow agreement as an option.

Commenters' suggestions for other financial assurance mechanisms included allowing owners and operators to deposit funds, certificates of deposit, or other property with EPA. EPA currently lacks authority, however, to directly receive and spend funds for closure and post-closure care.

9. *Liability Requirements.* The final interim status and general standard liability regulations require owners or operators of hazardous waste treatment, storage, and disposal facilities to demonstrate financial responsibility for claims arising from sudden accidents. In addition, owners or operators of surface impoundments, landfills, and land treatment facilities will be required, over a 3-year phase-in period, to demonstrate financial responsibility for claims arising from nonsudden or gradual occurrences.

Several important changes are incorporated into the final liability requirements as a result of comments received and further analysis by the Agency. First, EPA is modifying its approach to nonsudden liability coverage by extending the requirement for nonsudden coverage to interim status facilities, limiting the initial applicability of this requirement to impoundments, landfills, and land treatment facilities only, and phasing in the nonsudden requirement over 3 years. Second, EPA is reducing the amount of liability insurance required to $1 million per occurrence with a $2 million annual aggregate for sudden events and to $3 million per occurrence with a $6 million annual aggregate for nonsudden liability coverage. Third, EPA is adding a variance procedure to the final requirements to allow owners or operators who can demonstrate that the levels of required coverage are not consistent with the degree and duration of risks at their facilities to seek an adjusted level of required coverage. Finally, EPA is including provisions to allow the Regional Administrator to increase the level of required coverage if the degree and duration of risks at a facility or group of facilities warrants a higher level of coverage and to extend the nonsudden requirement to treatment and storage facilities that pose risks of nonsudden damage.

Many of these changes reflect EPA's commitment to rely to the extent possible on the insurance industry to provide liability coverage for hazardous waste management facilities. EPA believes that liability insurance is the most appropriate mechanism for assuring the public that there will be a pool of funds available from which third parties can seek compensation for claims arising from the operations of hazardous waste management facilities. On the other hand, EPA recognizes that liability coverage for these facilities, particularly for nonsudden occurrences, poses special problems to the insurance industry because of the lack of experience with a regulated waste management industry and the potential hazards associated with managing hazardous wastes. These problems may jeopardize the wide availability of liability insurance to the regulated community.

By phasing in the nonsudden requirement over 3 years, starting initially with larger firms which the Agency believes can more readily obtain nonsudden coverage, and by requiring a minimum level of coverage that EPA believes will protect human health and the environment and allow smaller insurers to provide the required coverage, EPA is seeking to encourage a broad market for nonsudden liability coverage. EPA intends to monitor the implementation of the nonsudden insurance requirement during the phase-in period, and will consider steps to increase the availability of nonsudden coverage or alternatives to an insurance requirement if it appears that the insurance industry is unable to provide the required coverage.

The changes in these final regulations also reflect EPA's wish to extend protection to the public during the interim status period. EPA had not previously included a nonsudden liability requirement in the interim status standards since it believed that liability insurance for nonsudden events during interim status would not be available. Recent discussions with the insurance industry indicate that nonsudden coverage will be offered to interim status facilities, but it will take several years for the industry to respond fully to the demand for this coverage. The insurance industry has indicated that several of the larger waste management firms already have nonsudden coverage, and that larger firms will, in general, be able to obtain this coverage more readily than smaller firms.

EPA believes that the benefits of requiring nonsudden coverage during interim status are substantial. Many commenters pointed out that interim status facilities pose risks of nonsudden accident that are the same or even greater than that posed by permitted facilities. Other commenters argued that the insurance industry, through its routine inspection and monitoring practices, would provide valuable oversight of hazardous waste management facilities during the interim status period, when EPA itself will be devoting the bulk of its resources to issuing facility permits. EPA agrees with these comments.

In preparing these final liability requirements, EPA has reconsidered both the amount and type of coverage required for hazardous waste management facilities in its effort to tailor regulations consistent with the degree and duration of risks associated with the ownership and operation of these facilities. Many commenters objected to EPA's initial proposal of $5 million liability coverage per occurrence, arguing that this amount was too high and did not reflect the risks posed by their operations. Other

commenters stated that their storage or treatment operations posed no risk of nonsudden accident.

EPA's analysis of damage cases involving waste management facilities confirms that $5 million coverage may be too high in many instances, and that surface impoundments, landfills, and land treatment facilities pose the greatest threat of nonsudden accident. These final regulations require $1 million per occurrence coverage for sudden events and $3 million per occurrence coverage for nonsudden events, and limit the nonsudden requirement to surface impoundments, landfills, and land treatment facilities (e.g., the same facilities for which ground-water monitoring is required). The Agency believes that the degree and duration of risks associated with waste management facilities, with very few exceptions, necessitates at least the amount of liability coverage required by these regulations. Hence, while EPA has included a variance in both the interim status and general standards for owners or operators who demonstrate that the level and type of required coverage are inconsistent with the degree and duration or risks associated with their facilities, EPA expects that very few facilities will be eligible for such a variance. The burden of proving that such a variance is warranted will be on the owner or operator requesting it. To some extent, variations in degree and duration of risk will be reflected in the premiums charged by insurance companies.

The Agency recognizes that many facilities may pose risks that warrant higher levels of liability coverage than the minimum level required. Also, some treatment and storage facilities may pose nonsudden risks. The final regulations therefore allow the Regional Administrator to make upward adjustments of the level of required coverage and to extend the nonsudden requirement to a treatment or storge facility. In making these adjustments, the Regional Administrator will take into consideration factors such as the type of wastes being handled at the facility, the nature of the treatment, storage, or disposal operation, the proximity of the facility to population centers, the quantity and use of ground water underlying the facility, and the number of facilities covered by one insurance policy. Furthermore, EPA intends to evaluate the level of coverage as experience with a regulated waste management industry accumulates. The Agency believes the $1 million/$2 million level for sudden accidents and $3 million/$6 million for nonsudden accidents are proper starting points but may consider revising the required levels if experience or inflation seem to warrant such revisions.

Several other changes are also incorporated into the final liability requirements. EPA had previously proposed limiting the allowable deductible in an owner's or operator's insurance policy. The final regulations set no limit on the deductible but instead require an agreement by the insurer, through an EPA-approved policy endorsement, that the insurer will pay honored claims within the limits of the policy. This allows the insurer and the insured to negotiate a deductible under which the insured will reimburse the insurer for claims paid but assures the public that "first-dollar" coverage will be available regardless of the financial condition of the insured.

EPA had also previously proposed self-insurance requirements for permitted facilities which limited self-insurance to 10 percent of equity; no self-insurance provisions were included in the proposed interim status liability requirements. EPA reevaluated these proposals and is now considering self-insurance provisions for inclusion in both the interim status and general standards. EPA expects to decide whether to add self-insurance provisions to the liability requirements within several months. If self-insurance provisions are adopted, EPA intends to adjust their effective date to make it conform to the effective date of the liability reqirements published today.

Finally, the Agency requests comments on several potential issues in the liability requirements. These issues concern the limits of coverage of liability policies as defined by the exclusions in the policies. EPA has reviewed several insurance policies which could be used to satisfy the requirements of these regulations and finds that the policies typically exclude certain events or damages from coverage. These exclusions may include liability respecting genetic damage and liability arising from noncompliance (either knowing or unknowing) with applicable laws, rules, or regulations. The Agency is concerned that these exclusions may significantly limit the scope of coverage of the policies, and requests comments on whether EPA should allow such exclusions in policies obtained to satisfy the requirements of these regulations.

10. *Incapacity of Issuing Institutions.* A section was added to the final regulations (§§ 264.148 and 265.148) to make clear what must be done by the owner or operator when the institution issuing a bond, letter of credit, or insurance policy goes bankrupt or is otherwise incapacitated. The owner or operator is required to obtain other financial assurance or liability coverage within 60 days.

11. *Applicability of State Financial Requirements.* The Agency recognizes that differences between State and Federal financial responsibility requirements might result in duplication and unnecessary costs to owners and operators. In those States that receive authorization to operate a hazardous waste regulatory program in lieu of the Federal program, there will be no duplication since only the State's requirements would apply. However, in those States which have not obtained Federal authorization, the owners and operators would be subject to Federal hazardous waste regulations and also to any State hazardous waste regulations that are in effect. To avoid unnecessary duplication and costs, the Agency included a section in the reproposed regulations (§ 265.149) that allows owners or operators to use State mechanisms to meet the Federal financial requirements if such mechanisms provide assurances that are substantially equivalent to those of mechanisms specified in the Federal requirements.

The Agency has retained this provision in the final regulations with several changes. Where the owner or operator was allowed to use "State-authorized" mechanisms, the term has been changed to "State-required." This means that the owner or operator may use a State mechanism if that is required by the State; if he has the option to meet the State requirements by using mechanisms specified in these regulations, he must use that option. This change will reduce the burden upon EPA to evaluate various mechanisms allowed by States to determine their equivalence to Federal mechanisms. Another change was the addition of a requirement that evidence of the establishment of a State-required mechanism be sent to the Regional Administrator so that the Agency could review the adequacy of these mechanisms. Inclusion of a reporting requirement was overlooked in the reproposal. A third change was substitution of "equivalent to or greater than" for "substantially equivalent" in referring to the financial assurance that the State mechanisms must provide. The Agency intends that they should not be less effective than the EPA-specified mechanisms and has decided that the revised wording better conveys this intent.

12. *State Assumption of Reponsibility.* In the May 19, 1980, proposal, if a State assumed legal responsibility for an owner's or operator's compliance with the closure or post-closure requirements or liability requirements or assured that funds would be available to cover such requirements, the owner or operator would be in compliance with the requirements if the State's assurances were substantially equivalent to meeting the requirements. The owner or operator had to send a letter to the Regional Administrator describing such guarantees and citing the State regulations providing for the guarantees. These provisions were part of the section covering applicability of State financial requirements. Since the State guarantee is potentially an important mechanism, and does not belong under the heading for State financial requirements, the State guarantee provisions have been put into a separate section (§§ 264.150 and 265.150). In the final regulations, the notification to EPA that the facility is coverd by a State guarantee must be signed by the State agency rather than the owner or operator, to save the need for verification by EPA. "Substantially equivalent" has been changed to "equivalent to or exceed" to make it clear that the degree of assurance should be no less than that provided by the other mechanisms allowed by these regulations.

D. Subpart I—Containers

The container management regulations promulgated on May 19, 1980 included only interim status rules. The general requirements promulgated today include the same requirements as the interim status regulations. The rationale for their inclusion is as discussed in the May 19, 1980 Preamble and in the Background Document published in support of the May 19 regulations. Some minor changes have been made in the course of making the interim status standards part of the general requirements. In some cases, the Agency plans to make the same changes to the interim status requirements.

In addition to counterparts to the interim status standards, the general regulations include containment requirements and a closure provision. These are discussed in the following paragraphs in the same sequence they appear in the regulations.

1. *Applicability* (§ 264.170). On November 25, 1980 the Agency amended the Part 261 requirements (45 FR 78524–78529) to clarify when and to what extent empty containers are hazardous wastes. This was done largely by incorporating what had been widely scattered provisions into a new § 261.7. Basically, this amendment says that the residues left in a container, when it has been emptied in accordance with specified procedures, are not considered to be hazardous wastes. Thus, these residues and the containers (drums, etc.) which hold them are not subject to these Part 264 requirements.

The interim status requirements published May 19, 1980 contained a comment referring to the provisions of Part 261. It was located at the end of § 265.173 on the management of containers. The Part 264 counterpart of that requirement has been modified to reference the new § 261.7 and it has been located in § 264.170, the applicability section. Since it discusses a limit on which containers the Subpart I regulations are effective, it belongs more appropriately in the applicability section. The Agency plans to make similar changes to the interim status comment currently in § 265.173.

2. *Condition of Containers* (§ 264.171). This regulation requires that hazardous wastes be taken out of leaking or corroding containers and that they be recontainerized or otherwise appropriately handled. This is designed to avoid releases to the environment.

EPA believes that a design standard for containers would be a useful addition to or replacement for this performance standard. The present regulation is general which may lead to inconsistent interpretations of the term "good condition". A design standard should be easier to interpret.

The Agency believes also that the requirements for design of containers specified in the Department of Transportation regulations for transportation of hazardous materials may be appropriate for purposes of waste storage as well (See 49 CFR 171 through 179). Some of these DOT requirements are already incorporated in the hazardous waste packaging requirements (§ 262.30) for generators who will ship wastes offsite. Before applying the DOT requirements for containers to permitted storage facilities, however, EPA wishes to examine more closely the appropriateness of the various DOT requirements for containers which will not be transported.

EPA invites comments on the suitability of the current standard, on the concept of replacing it with appropriate DOT requirements, on the applicability of the various DOT requirements, and on any other suggestions for improving this requirement.

3. *Containment* (§ 264.175). As discussed in the "General Issues" of this Preamble (Section III B), the regulations for storage facilities, of which container storage areas are one type, require a primary containment device, an inspection program where practical to detect leaks and deterioration, and where primary containment devices are easily damaged or difficult to inspect, a secondary containment system. In container storage, the container itself provides primary containment, i.e., it holds the waste, preventing escape. In this regard it serves the same purpose as a tank, the liner to a surface impoundment, and the concrete pad or other device underlying a pile. Secondly, it is practical to inspect container storage areas to detect leaks, excessive corrosion, or damage to containers so that wastes can be recontainerized before the damaged container fails, or, failing that, the escaped wastes can be cleaned up before they disperse widely into the environment.

In comparison to a tank, however, it is relatively easy to damage drums and most other kinds of containers. Containers are relatively thin-walled, can be punctured by fork lift trucks, and are prone to break open when dropped or knocked over. They tend to corrode or otherwise deteriorate relatively rapidly both from the inside as a result of reaction with the waste, and from the outside as a result of exposure to the environment. The Agency believes therefore, that it is prudent to require a secondary containment system under container storage areas. The containment system will catch leaks, spills, container failures, and precipitation which becomes contaminated, and hold it while its hazardousness can be determined.

Specifically, the containment system must have a base underlying the containers which is sufficiently impervious and continuous to hold spilled or leaked wastes or accumulated rainfall until it can be removed. Typically, the Agency believes this base will be constructed of concrete or asphalt but latitude has been incoporated to allow for other materials of construction. The important consideration is that the containment system in its entirety be capable of collecting and holding escaped wastes and contaminated precipitation.

EPA believes it unwise to allow drums or other containers to stand in accumulated rainfall, or leaked or spilled wastes. This leads to accelerated deterioration of the containers and interferes with inspections. The containment regulations therefore require that the base be sloped or otherwise designed to drain to a

collection system so that one hour after a leak or storm, no standing liquid (puddles) will remain on the base in contact with the container. Typical construction consists of gentle sloping, often with grooves, to facilitate drainage to gutters or trenches which serve either to hold the liquids or conduct them to a sump or tank where they are held until they can be tested to determine if they are a hazardous waste. The Agency realizes, however, that it is common practice, especially in small storage areas, to place containers on pallets so that the containers do not sit directly on the base. In this case, since the containers do not sit in the accumulated liquid, a drainage and external collection system is not necessary. This alternative is allowed provided of course that the liquids collected on the base would not rise to contact the containers. This constitutes a simpler type collection system in which liquids accumulate directly on the base, normally contained by a concrete curb. Of course, some provision must be made for removing the collected liquids from time to time.

Whether the collection system is external to the base or part of it, it must have sufficient capacity equal to ten percent of the capacity of the maximum number of containers holding liquids which may be stored at the facility at any one time. In the case of a few large containers, the capacity must equal the largest container. The Agency does not believe it necessary to provide containment capacity for all or even nearly all of the many containers which may be present. Short of a major disaster, it is unlikely that more than a few would be damaged at once or simultaneously begin to leak. This does not of course hold true where only a few or perhaps only one container is present. Since the rupture of only one container could be more than the required 10% of capacity, the containment device must be designed to hold the contents of the largest container. The Agency will be monitoring the adequacy of the 10% rule and, if it should prove to be insufficiently protective, will propose modifications as may be warranted by experience.

The regulations also require that precipitation drainage (run-on) into the containment system be prevented, unless the collection system has the excess capacity to handle it. The purpose of this requirement is to minimize overload of the secondary containment system and containment overflow. In addition, any spilled or leaked waste and accumulated precipitation is required to be removed from the collection area as quickly as is necessary to prevent overflow. Overflow of the containment system is simply not permissible unless it has been determined that the overflow is not a hazardous waste. Whether run-on may enter the containment area depends on the capacity of the collection system, the frequency at which the waste can be removed, the magnitude of rainfall events, and the geography of the drainage area. Where an owner or operator desires to allow run-on, a judgement will be made during permit application review concerning the capability of the collection system to handle it.

The proposed requirements of December 18, 1978 stipulated that each storage area have an impervious and continuous base (§ 250.44(e)), and that container storage areas be equipped with a spill confinement structure (§ 250.44–2(c)). The proposed standards also stated that the Regional Administrator could require ground-water monitoring if he determined there was a potential for discharge (§ 250.44(d)).

In response to comments, the Agency has deleted the proposed ground-water monitoring requirement from the General Standards. The Agency believes that the performance standard of § 264.171, the inspection standard of § 264.174, and the containment system of § 264.175, which requires that base and collection system be sufficiently impervious to contain the waste, will prevent leakage to the groundwater making a ground-water monitoring program superfluous.

Commenters suggested an exemption from the containment requirement for existing facilities claiming that it is unpractical to construct containment structures under existing containers. The Agency believes that since containers are portable and can be moved while a base is constructed, the requirement does not place an unreasonable technical or economic burden on existing facilities. Therefore, no exemptions for existing facilities have been provided.

Several commenters argued that containment was unnecessary since containers are constructed of sturdy "impermeable" material. The Agency believes that spills and leaks due to corrosion or damage in handling will occur at most container storage areas. The Agency knows of many instances where leaking and damaged containers have been stored with apparent disregard for the impact of such practices. Compliance with Subpart I should mitigate these practices. Without secondary containment, such leaks and spills runoff to surface waters or trickle through permeable soil to ground-water.

4. *Compatibility* (§§ 264.172 and 264.177). A new paragraph (c) has been to the § 264.17 basic compatibility requirements which is in addition to the comparable interim status requirements of Part 265. It requires that owners and operators have documentation that they are complying with the compatibility requirements of § 264.17 (a) and (b). It also indicates that trial tests, waste analyses, literature reviews and similar activities my be necessary to develop this documentation.

A comment has been added to § 264.177 alerting the reader to the documentation requirement of § 264.17(c). A similar comment will be added to § 265.177 when a new companion section is issued (§ 265.17(c)) for interim status.

Both §§ 264.172 and 264.177 deal with incompatibility—both the incompatibility of a waste with a container which can cause accelerated corrosion and premature failure and the incompatibility of wastes with each other which can cause dangerous emissions, violent reactions, fires, explosions, and other undesirable and uncontrolled reactions. A number of commenters asked for clarification, pointing out that all materials corrode or undergo only mild reactions at reduced concentrations, and so on. These commenters wanted to know the limits—how rapid must corrosion be before it is too rapid, how violent a reaction is too violent.

The Agency has not been able to place numerical limits on incompatibility; there are too many variables. Thus, some judgment is involved. In considering the incompatibility of wastes with containers, it is the Agency's intent that the waste not react with the materials of construction of the container at a rate which would cause the container to fail before the waste is scheduled for removal. This is not only a variable situation but is difficult to predict. The Agency believes, however, that with common sense and a little elementary chemistry, most people can avoid serious incompatibility problems which would lead to rapid failure. It is these noticeable and dangerously accelerated reactions that the Agency is addressing in § 264.172.

With regard to two or more incompatible wastes, the situation is also not clear cut. As concentrations diminish, for example, the reaction rates decrease until it is questionable whether a hazard is posed. By reference to § 264.17(b), § 264.177 refers to the generic requirement for ignitable,

reactive, and incompatible wastes. By using the terms "extreme," "violent," and "uncontrolled," § 264.17(b) indicates unusual or severe reactions. By use of the term "threaten human health," § 264.177(b) indicates that the reaction must, to some real extent, pose a hazard. In the gray areas, the exercise of judgment is unavoidable.

The Agency is developing guidance which will provide assistance to the permitting officials and the regulated community in assessing waste compatibility.

5. *Closure.* No specific closure standard under Subpart I (Part 265) was promulgated on May 19, 1980. The general closure standard (Part 265, Subpart G) is applicable, however. It requires that wastes be removed from storage facilities at closure and that structures and equipment be disposed of or decontaminated (§ 265.114). However, for purposes of clarification and to be consistent with the closure requirements of tanks (Subpart J), for which specific closure requirements were promulgated on May 19, closure standard specific to container facilities has been added to Part 264. The Agency plans to add the same specific requirements to Part 265 as well.

The rules promulgated today require that all hazardous wastes and hazardous waste residues be removed from the containment system. If any liners, bases or any other areas of the containment system cannot be decontaminated, they must be removed. In addition, any contaminated soil surrounding or in the vicinity of the containment system must also be removed or decontaminated.

E. Subpart J—Tanks

In December 1978, EPA proposed rules for storage of hazardous waste in tanks. In May 1980, EPA promulgated interim status regulations for treatement and storage of hazardous waste in tanks (Part 265, Subpart J). Today, EPA is promulgating general (permit) standards for tanks (Part 264, Subpart J). The interim status requirements for tanks will be finalized later. The Agency is currently working to develop general standards for chemical, physical and biological (C/P/B) treatment. Several of the Part 264 C/P/B treatment requirements may be applicable to treatment in tanks.

The following preamble discussion explains the Part 264 requirements for tanks in the order that they appear in Subpart J. All of Subpart J is being promulgated as an interim final rule and comments are requested. In addition, throughout this section of the preamble comments are requested on major issues and proposals. For example, the Agency is requesting comments on a ban on underground tanks, options for secondary containment, options for requiring cathodic protection, and a proposal for banning the use of tanks located in the ground water. The Agency requests that comments include adequate information, data, and explanations to support positions taken.

1. *Applicability* (§ 264.190). The general standards for tanks being promulgated today (Part 264, Subpart J) do not apply to facilities that treat or store hazardous waste in covered underground tanks that cannot be entered for inspection. The requirements do apply to partially or fully below-ground tanks which can be entered for inspection from the surface. EPA is considering a complete ban on treating or storing hazardous waste in underground tanks which cannot be entered for inspection. The Agency knows of several damage cases where leaks in underground tanks have remained undetected for years. In another damage case, the rupture of an underground tank resulted in the release of over 100,000 gallons of sodium cyanide to the surrounding area contaminating nearby surface and ground water. The Agency knows of no sure method for preventing such disasters in underground tanks that cannot be entered for inspection. The Agency solicits comment on the option of banning the use of such tanks for storage or treatment of hazardous waste. EPA requests that commenters opposed to such a ban provide evidence that adequate methods exist for protecting underground tanks from corrosion or erosion, inspecting underground tanks, and detecting and containing leaks from underground tanks. EPA also solicits information on the current use of underground tanks to treat and store hazardous waste and the means used to ensure ground-water protection. Until the Agency promulgates a final rule pertaining to underground tanks, hazardous waste facilities with existing underground tanks may continue to operate under interim status, but existing and new covered underground tanks cannot receive RCRA permits.

2. *Design of tanks* (§ 264.191). The Agency has adopted a three part strategy for regulating hazardous waste storage: (1) proper design and operation for primary containment, (2) inspections to assure the integrity of primary containment, and (3) secondary containment. The following discussion relates to the § 264.191 design requirements for tanks. Operating requirements, inspections, and secondary containment will be addressed later in this preamble.

The RCRA standards for storage in tanks proposed in December 1978 included a requirement that tanks be of sturdy and leak-proof construction in accordance with the Occupational Safety and Health Administration regulations for storage of flammable and combustible liquids (29 CFR § 1910.106). Commenters stated that OSHA's requirements applied only to storage of flammable and combustible liquids and hence EPA's application of the requirements to other hazardous materials was inappropriate. In addition, EPA's current definition of tanks includes concrete and fiberglass tanks whereas the OSHA requirements are oriented toward steel tanks. EPA agrees with the comment that a requirement for "leak-proof" construction is vague and unrealistic given the effects of long term corrosion and erosion. Therefore, the requirement has been substantially revised.

The current standard states that tanks must have sufficient shell strength and, for closed tanks, pressure controls (e.g., vents) to assure that they do not collapse or rupture. The Regional Administrator will establish a minimum tank shell thickness in the permit which must be maintained by the owner or operator. In establishing this requirement, the Regional Administrator will consider available information, which in most cases will include published industrial design standards. The Regional Administrator will also use design standards in evaluating the overall design of the tank. The Regional Administrator will evaluate such items as the foundation and structural support of the tank, pressure controls (e.g., vents), and tightness of seams. The owner or operator will submit information as to the design used (or to be used) in constructing the tank as part of the permit application. He may do so by reference to a published design standard. Design standards for steel tanks have been published by the American Petroleum Institute, Underwriters Laboratories, and American Society of Mechanical Engineers. Design specifications for concrete tanks have been published by the American Concrete Institute. When a design standard is not available, the Regional Administrator will rely on any other available engineering information in establishing a minimum thickness for the tank shell and in evaluating the design of the tank. In making such determinations, the Regional Administrator will consider the height,

width, and materials of construction of the tank and the specific gravity of the waste which will be placed in the tank in establishing a minimum thickness. These factors are normally specified in industrial design standards.

The owner or operator is expected to maintain the minimum shell thickness specified by the Regional Administrator throughout the operating life of the tank. There are several options from which the owner or operator can choose for maintaining shell thickness:

(1) Design the tank with shell thickness in excess of that specified by the Regional Administrator and monitor any wall thinning to ensure that the original margin for corrosion or erosion is not exceeded,

(2) Line, coat or otherwise protect the tank in a manner which would prevent wall thinning due to corrosion or erosion, or

(3) Place only those wastes or materials in the tank which will not corrode, erode, or abrade the walls of the tank.

Regardless of the option chosen by the owner or operator, periodic inspections are required to under § 264.194(b) to verify compliance with the § 264.191 requirements.

3. *General operating requirements* (§ 264.192). In May 1980, EPA requested comments on the propriety of including the general operating requirements (§ 265.192) as interim status standards. Comments were received on both the § 265.192(b) compatibility requirement and the § 265.192(c) freeboard requirement.

Commenters stated that the requirement that wastes and treatment reagents not corrode the tank (§ 265.192(b)) was unreasonable since some corrosion was expected in the normal use of the tank. In response to these comments, EPA has substantially reworded the comparable § 264.192 requirement to clarify that incompatible reactions (such as accelerated corrosion) or other type of deterioration (such as erosion of concrete tanks) are to be prevented through the use of coatings, liners or other means of protection (§ 264.192(a)).

Comments stated that the 2 foot freeboard requirement for uncovered tanks (§ 265.192(c)) was too inflexible and, in some instances, unnecessary. In response to these comments, the Agency has revised the comparable § 264.192 requirement to stipulate that the owner or operator must maintain sufficient freeboard to prevent overtopping due to wind or wave action or precipitation. In addition, the interim status requirement for waste feed cutoff or by-pass systems (§ 265.192(d)) has been reworded to become a general requirement for prevention of overfilling (§ 264.192(b)).

The May 1980 interim status requirement that treatment and storage of hazardous waste in tanks be in compliance with § 265.17(b) has not been included in Part 264 since it was redundant with the §§ 264.198 and 264.199 requirements.

EPA intends to make similar revisions to the § 265.192 requirements later.

4. *Waste analysis and trial tests.* In May 1980, EPA requested comment on the propriety of including the waste analysis and trial test requirement (§ 265.193) in the interim status standards. Commenters stated that the requirement was too inflexible in that it required trial tests whenever a new waste was stored or treated, or a new treatment process used, if documented information on similar treatment or storage was not available. Commenters felt engineering judgment should be used in deciding whether trial tests are necessary.

The Agency disagrees that engineering judgment alone is sufficient in such cases. EPA has concluded, however, that detailed waste analysis could provide enough information to make trial tests unnecessary in some cases. Therefore, the Agency has not included a specific waste analysis and trial test requirement in the Part 264 tank standards. Rather a requirement has been included in the § 264.17 standard for treatment, storage, and disposal of ignitable, reactive, and incompatible wastes which require documentation, waste analyses, or trial tests as necessary to assure compliance with that Section. In addition, § 264.13 requires that the owner or operator conduct sufficient waste analyses to obtain all information needed to comply with the requirements of Part 264. Comments have been added to §§ 264.198 and 264.199 to remind the reader of the §§ 264.13 and 264.17 requirements. EPA intends to make similar revisions to Part 265, Subpart J, at a future date.

5. *Inspections* (§ 264.194). The general standard for routine inspections (§ 264.194)(a)) is nearly identical to the § 265.194(a) interim status requirement. However, several technical revisions have been made to provide consistency with the § 264.192 operating requirements. The words "discharge control equipment" found in § 265.194(a)(1) have been changed to "overfilling control equipment" to reflect the fact that discharge control equipment is not mentioned in § 264.192. The § 265.194(a)(5) requirements for inspection of discharge containment structures has been reworded in § 264.194(a) to require inspections of areas immediately surrounding the tank, since discharge confinement structures are not mentioned in § 264.192.

The Agency has clarified that the § 264.194(a)(4) requirement for inspection of the tank applies only to above-ground portions of the tank. The Agency intends to make similar revisions to the § 265.194 requirements in the future.

In addition, a more detailed new requirement has been added to ensure that owners and operators periodically assess the condition of their tanks to locate leaks and cracks not detectable through a routine inspection of the exterior of the tank and to assure compliance with the tank design requirement (§ 264.191). As part of these comprehensive inspections, the owner or operator will measure the thickness of the tank at representative points. These measurements can be made using a variety of ultrasonic devices which are currently on the market. In most cases, the tank must be emptied for internal inspection. The frequency of these inspections is to be based on the owner's or operator's determination as to the rate of possible deterioration of the tank. As specified in the requirement, the material of construction of the tank, type of corrosion or erosion protection used, and the characteristics of the waste being stored are the factors to be considered in making this determination. The Regional Administrator will review the schedule and procedures for these comprehensive inspections as part of the inspection schedule required under § 264.15(b).

Paragraph (c) of § 264.194 requires that the owner or operator specify in the contingency plan required under Subpart D of Part 264 procedures and timing for expenditious removal of leaked or spilled waste and repair of the tank. The paragraph (c) requirement is necessary to assure that owners or operators are prepared and able to respond to tank spills and leakage in a manner which will minimize human health and environmental damage.

A comment has been added to § 264.194 which notifies the reader that § 264.15(c) requires that all deficiencies detected during inspections be remedied.

A standard which is similar to the § 264.194(b) requirement is proposed elsewhere in today's Federal Register for interim status.

6. *Closure* (§ 264.197). The interim status requirement for closing tank facilities (§ 265.197) was promulgated as a final rule on May 19, 1980. An identical

standard has been incorporated in the general standards for tanks (§ 264.197). The rationale for its inclusion in the Part 264 general standards is the same as the rationale presented on May 19, 1980 for inclusion in the interim status standards.

7. Ignitable, Reactive, and Incompatible Wastes (§§ 264.198 & 264.199). The interim status requirements for treatment and storage of ignitable and reactive wastes in tanks (§ 265.198) were promulgated as an interim final rule on May 19, 1980; no comments were received.

Requirements identical to those contained in §§ 265.198 and 265.199 for ignitable, reactive, and incompatible wastes have been included in the general standards (§§ 264.198 and 264.199). The rationale for their inclusion in the Part 264 general standards is the same as the rationale presented on May 19, 1980 for inclusion in the interim status standards. Comments have been added under §§ 264.198 and 264.199 notifying the reader that waste analyses or trial tests must be conducted under §§ 264.13 and 264.17 to ensure compliance with requirements pertaining to ignitable, reactive, and incompatible wastes, or documented evidence must be provided on similar storage or treatment of similar wastes. As required by the § 264.73 operating record requirements, results of waste analyses and trial tests and documented information must be placed in the operating record.

EPA intends to amend §§ 265.198 and 265.199 with similar comments at a future date.

8. Secondary Containment. The standards proposed on December 18, 1978 included requirements that storage areas have impervious, continuous bases (§ 250.44(e)) and that above-ground tanks be equipped with spill confinement structures (e.g., diking systems) (§ 250.44–1(b)).

Several commenters stated that a secondary containment system with an impervious base is unnecessary since tanks are constructed of sturdy, impermeable materials.

In response to these comments, the Agency knows of numerous damage cases which show that tanks are subject to leaks, caused by stress cracks, corrosion or erosion, and spills caused by careless addition of waste to the tank or plumbing misconnections and failures. The Agency has specified tank design, operating, and inspection requirements as the first line of defense against discharges from tanks. However, EPA believes that secondary containment for tanks may also be necessary to adequately protect human health and the environment in some circumstances.

EPA is not promulgating secondary containment requirements today. However, EPA is currently considering several options for secondary containment for tanks. These options are discussed below. EPA requests comments on the need for and effectiveness of each of these options in protecting human health and the environment, on their technical and economic feasibility, and on other alternatives. Based on the comments received, EPA intends to propose secondary containment requirements for tanks as an addition to Part 264 in the future. The options are:

(1) Complete containment. Under this option, the secondary containment system would consist of an impervious base underlying the tank(s) in the storage area. The system would be required to have adequate capacity to contain the volume of the largest tank in the storage area. The purpose of this system would be to completely contain all spills and leaks until they are removed. This option is similar to the requirements proposed in December 1978, and applies primarily to above-ground tanks. Complete containment for partially or fully buried tanks would consist of a double shell, or a liner and leachate detection, collection, and removal system under the tank.

(2) Variable containment. Under this option the owner or operator would submit a plan for secondary containment which would provide varying levels of containment based on the likelihood of a spill or leak in any given area of the facility. Such a plan would normally provide for impervious ground areas in the vicinity of valves, pumps, and pipe attachments, and in some situations, around the base of the tank. An impervious base underlying the tank would not normally be a part of such a plan. The purpose of this option would be to contain the large majority of spills and leaks which are most likely to occur around valves, pumps, and plumbing fixtures. However, this option would not provide containment of spills caused by tank rupture or of leaks occurring through tanks bottoms or below-ground portions of tank shells. This option could, however, be required in conjunction with option 3 to provide increased protection.

(3) Run-off collection for containment of catastrophic failures. The secondary containment system would consist of a diking or drainage system with the capacity to contain the volume of the largest tank in the storage area. The system would not include an impervious base and would not protect ground water from leaks and spills. The purpose of this system would be to prevent waste spilled in a major tank failure from traveling across the surface to surrounding areas or surface waters.

9. Tanks in the Water Table. EPA is considering a ban on the storage or treatment of hazardous waste in tanks placed in the water table. Past experience demonstrates that leaks caused by corrosion or erosion occur with much higher frequency in tanks placed in the ground water. Internal inspection of tanks placed in the ground water is nearly impossible since a tank so placed will often float when emptied. In addition, the risk of significant ground-water contamination due to a leak is substantially increased if waste is being discharged directly to the ground water. EPA believes there is no compelling reason why hazardous waste storage or treatment tanks should be placed in the water table.

Comments are requested on this issue. The Agency particularly requests comments pertaining to the impact of this approach in geographical areas with water tables close to the land surface. EPA suggests that commenters opposed to the ban provide human health and environmental justifications, as well as economic justifications, for their position. EPA further suggests that actual examples be used, when possible, to support comments on this issue.

10. Cathodic Protection. Two general systems of cathodic protection for steel tanks are currently in use. In the sacrificial anode system a magnesium anode is connected in circuit with the structure which hence becomes the cathode. Since the loss of metal ions (corrosion) occurs at the anodic area, the structure is protected. Sacrificial anode systems are useful in protecting coated tanks but are limited by their low driving voltage and hence may not be effective in protecting uncoated tanks. Impressed current (or rectifier) systems use a power supply to cause current to flow through the soil to the structure. Impressed current systems require substantially higher initial expenditures than sacrificial anode systems.

Corrosion protection through coatings and cathodic protection is generally used only when structures are subject to corrosive conditions. Soils are generally considered corrosive if they possess a resistivity of less than 10,000 ohm-cm. Other factors, such as pH, moisture content, and sulfide content, also affect corrosivity.

EPA is considering requiring cathodic protection for steel tanks which are partially buried in corrosive soil. The Agency requests information on: (1) cathodic protection systems which have

proven effective for partially buried tanks, (2) specific criteria to be used in determining when such systems are necessary, and (3) design standards for cathodic protection systems and for tanks equipped with cathodic protection.

11. *Air Emissions.* A proposed requirement for controlling air emissions from tanks (§ 264.200) is discussed in a separate part of this Federal Register.

F. Subpart K—Surface Impoundments

Today's publication of regulations for surface impoundments under Subpart K of Part 264 is applicable to a limited sub-set of the facilities which are defined as surface impoundments in § 260.10. That sub-set is those surface impoundments which are or have been designed to prevent discharge into the land and ground water, and to surface waters (except discharges authorized by an NPDES permit). Additional regulations will be published in the future to cover surface impoundments which may discharge into the land and ground water, and surface impoundments which are to be closed with waste left in place. The scope of the coverage of these regulations is explained in the discussion of § 264.220, Applicability. Owners and operators of new surface impoundments that are not designed to prevent discharge into the land to comply with this Subpart cannot obtain a RCRA permit, and existing surface impoundments that are not brought into compliance with these regulations must remain on interim status subject to Subpart K of Part 265 until amendments are published in the future.

These regulations are the basis for permits to be issued by the Agency to owners and operators of surface impoundments who apply by filing Part B of the RCRA permit application in accordance with § 122.25.

On May 19, 1980, the Agency published interim status standards for surface impoundments as Subpart K of Part 265. Comments received on that promulgation have been useful in preparing these regulations and will be referenced as appropriate. Comments received on the initial regulations proposed on December 18, 1978 (43 FR 58982–59016) are also discussed. Additional discussions of the regulation and the comments are contained in the background documents.

1. *Regulatory Approach.* Surface impoundments (also known as pits, ponds, or lagoons) are designed to hold liquid wastes and wastes containing free liquids. Leakage to ground water generally poses the most serious threat to human health and the environment from impoundments, but air emissions from volatile wastes and surface water contamination as a result of overtopping the impoundment or dike failure can also be serious problems.

Today's promulgation addresses ground water and surface water concerns. The general approach, as discussed earlier in the preamble, is to require primary containment and inspection, and where inspections cannot be readily or reliably performed, a secondary containment system. The Agency is still working on a regulatory approach to air emissions from surface impoundments.

Surface water concerns are addressed by standards which prohibit overtopping the impoundment, require maintenance of a specified freeboard, require that the structural integrity of dikes be certified by a qualified engineer and preserved by protection from perennial woody plants and burrowing mammals and by protective cover, and require inspections at specified frequencies. In addition, the regulations require a device or method to shut off waste flow into the impoundment, and the diversion of run-on away from impoundments. Above ground secondary containment is not required and inspection is used to ensure that actual or potential discharge is readily identified and corrected.

Ground water concerns are addressed by standards which require: a primary liner system in contact with the waste which is designed to prevent discharge from the impoundment during the life (i.e., active life and closure period) of the facility, which meets certain performance requirements, and which is inspected and tested as appropriate during construction and installation. A leachate detection, collection, and removal system beneath the primary liner system is also required to detect failure of the primary liner system and to prevent discharge into the land. This system must be inspected at least once each operating day and operated to remove any liquids which accumulate in it. A containment system evaluation and repair plan to be implemented in the event of a liner failure or evidence of a possible liner failure must also be prepared.

2. *Applicability* (§ 264.220) The substance of this section has been discussed in previous paragraphs. In Part 264, EPA has decided to address surface impoundments in two separate promulgations: (1) surface impoundments which are used for storage, or storage and treatment, and (2) surface impoundments which are disposal facilities. In the context of this discussion the terms storage and disposal are used with respect to the land. A surface impoundment used "to treat or store hazardous waste" might discharge to the air or the surface waters (if authorized by an NPDES permit), but may not discharge into the land or through the land into ground water.

This distinction is being made in Part 264 in order to facilitate the permitting and regulation of the nonleaking impoundments which are functionally equivalent to tanks (and basins). The regulation of land disposal facilities is more complex than storage facilities, especially with respect to ground water protection and monitoring, post-closure care, and closure and post-closure financial responsibility. The Agency is actively working on the Part 264 regulations to address disposal into the land.

3. *General Design Requirements* (§ 264.221). This section of the regulations addresses the design requirements for (1) freeboard, (2) waste in-flow shut off systems, and (3) liners and leachate detection, collection, and removal systems. The first and third requirements are discussed later in the preamble under sections with these titles.

The purpose of the waste in-flow shut off system is to enable the flow of waste into the impoundment to be immediately stopped in the event of overtopping or liner failure, as required in § 264.227(c)(1). The method or device available for flow control depends on how wastes are deposited in the impoundment. For example, if the flow is by batch delivery, then the cessation of furthur deliveries is sufficient. If the flow is by gravity flow or via an automatic feed system, whether continuous or intermittent (e.g., pipes, open channels, hoses, conveyors, or other similar conveyance systems), then a cut-off device (e.g., a valve or gate) must be available to immediately cut off flow into or divert flow from the impoundment.

4. *General Operating Requirements* (§ 264.222). This section of the regulation addresses operating requirements for (1) overtopping and freeboard, (2) leachate detection, collection, and removal systems, (3) protection of earthen dikes, and (4) run-on diversion. The first two requirements are discussed later in the preamble.

Many perennial woody plants have root systems which displace earthen materials and can weaken dikes or berms. Of particular concern are woody plants (bushes and trees) which may be uprooted because of wind, snow, or saturated soil conditions, thereby destroying sections of the dike. Burrowing mammals (e.g., rats, moles, woodchucks, and ground hogs) can also

displace earthen materials upon which the structural integrity of the dike is dependent, or create channels through which liquid wastes or leachate can escape or leak, or rainwater can be channeled causing further erosion and weakening of the dike. For earthen dikes with grass covers, mowing is one of the most effective means of controlling woody plants. Mowing also makes the presence of burrowing mammals obvious so that they can be controlled and eliminated by trapping or poisoning. If burrowing mammals are controlled on a continuing basis, they will not have the opportunity to create large burrows which would require extensive remedial action to ensure the integrity of the dike. A requirement for weekly inspection of dikes and berms is included in § 264.226(b)(2).

Paragraph (e) requires that run-on be diverted away from surface impoundments. Some surface impoundments are excavated into the ground and therefore do not have raised dikes for structural support. If this is the case and the surrounding topography is such that run-on may flow into the impoundment; culverts, ditches, or other devices such as berms must be built and maintained to divert run-on away from the impoundment. Where dikes are used they can serve to divert run-on, but they must be protected from erosion.

5. *Containment Systems* (§ 264.223). This Section of the regulations addresses requirements for (1) earthern dikes and (2) liners and leachate detection, collection, and removal systems. These are discussed later in this preamble.

As in the Part 265 regulations, earthen dikes must have a protective cover to minimize wind and water erosion and to preserve the structural integrity of the dike. Three examples of materials (i.e. grass, shale, or rock) that could be used as a protective cover are suggested in the regulation.

6. *Inspections and Testing* (§ 264.226). This Section of the regulations addresses inspections of (1) liner systems during installation or construction (including testing), (2) overtopping, freeboard, liner, and leachate detection systems at least once each operating day at facilities which contain free liquids, (3) dikes and berms at least once a week, and (4) the structural integrity of any dike prior to the impoundment being placed or returned to service in terms of the ability of the dike to withstand liquid pressures and the weakening effect of earthen materials being scoured due to leakage.

Since the liner system in contact with waste is the primary containment device, and since the effective operation of the leachate detection, collection, and removal system is dependent on the liner beneath it, it is very important that liner systems be inspected and tested during construction and installation to ensure that they are properly installed and are free of damage and imperfections. Such quality control has proven invaluable in identifying or ensuring against liner problems at numerous installations. Items such as holes, cracks, thin spots, foreign materials, seams and joints, and tears or blisters can be identified by visual inspection during construction or installation. Testing for thin spots, foreign materials, and seams and joints may also be necessary depending on the type of liner installed or constructed. Earth material liners must be tested after emplacement for compaction density, moisture content, and permeability. Such testing may have to be repeated before the impoundment is placed in service to ensure that the materials will function as expected. An example would be a clay liner system. Clay is quite impermeable when it is saturated with water, but is pervious and tends to crack when dry. These items, which are listed in the regulations, have all been frequently identified as critical factors in determining how well various types of liner systems perform as containment devices. They, as well as additional installation and construction concerns, are discussed in detail in the EPA report "Lining of Waste Impoundment and Disposal Facilities", SW/870, September 1980. This report also references other sources of information including that available from the manufacturers of liner materials.

As in the Part 265 regulations, inspections must be performed to check for adequate freeboard to avoid overtopping, and for evidence of overtopping at least once each operating day. This inspection is only required in Part 264 when the impoundment contains free liquids. Impoundments which contain liquids or sludges containing free liquids or which are exposed to precipitation all contain free liquids at least part of the year. Facilities protected from precipitation and which do not contain liquids or sludges containing free liquids, empty facilities, or facilities located in high evaporation and low rainfall areas may not contain free liquids during portions of the year.

Part 264 also requires daily inspection of the leachate detection, collection, and removal system for the free flowing condition of the collection system and for the presence of liquids which could indicate liner failure. Failure to maintain a free flowing condition in the collection system by removing leachate or other liquids that collect in the system as they accumulate could create backwater in the collection system. Backwater, or the creation of hydraulic head above the liner beneath the collection system, would impair the efficiency of the containment system. The presence of liquids in the collection system could indicate primary liner system failure, or other impoundment failure such as ground water entering the leachate detection, collection, and removal system. If liquids do appear in the leachate detection, collection, and removal system, it must be determined whether or not that appearance is an indication of a failure of the containment system. The means by which this will be determined must be defined in the containment system evaluation and repair plan required by paragraph (d) of § 264.227.

As in the Part 265 regulations, the impoundment including dikes and vegetation surrounding the dike must be inspected at least once a week. Berms has been added in Part 264 to the listing of the types of structures which must be inspected. A requirement for inspections "after storms" has also been added. This provision for inspections after storms is considered necessary since storm events could place additional stress on the dikes, berms, and vegetative cover. In addition, the phrase "to detect any leaks, deterioration, or failures in the impoundment" has been modified in Part 264 to read "to detect any evidence of or potential for leaks from the impoundment and erosion of dikes." Often, one of the first indications of a leak from an impoundment is a change in the character of the surrounding vegetation (flourishing or dying plants) resulting from additional moisture, nutrients, or phytotoxic elements in contact with the root zone. This type of change is observable and can be recognized as evidence of a potential leak long before the leak itself is observable. Dikes and berms are also to be inspected at least once a week for evidence of perennial woody plants and burrowing mammals (i.e., for compliance with § 264.222(d)). One of the most effective inspection techniques for grass covered earthen dikes and berms is a mowing program which automatically controls woody plants and makes the presence of burrowing mammals apparent.

Although the liner system provides for primary containment in a surface impoundment, the support (base) for the

liner provides the structural integrity. For those impoundments which are not excavated in the ground, dikes are required to support the liner on the sides of the impoundment. An earthen dike, since it serves to impound the liquid behind it, is structurally and functionally equivalent to an earthen dam.

The design of earthen dams is a well developed art within the practice of engineering. The main elements of design to prevent structural failure are based on the resistance provided by the mass of the dike to the force exerted by the pressure head of the liquid behind the dike and the systems provided in the dike to avoid weakening of the dike due to scouring caused by the passage of liquids through it.

Paragraph (c) of this Section calls for a certification of the structural integrity of dikes by a qualified engineer. Such a certification would require the engineer to be familiar with the design and construction of the dike.

The required certification must establish that the structural integrity of the dike will be maintained even in the absence of a liner system and if the liner were breached. Both of these conditions could arise in an impoundment, and it would be under such circumstances that a dike would be most prone to massive failure.

Earthen dikes in direct contact with the liquid they impound cannot be constructed to be perfectly tight (i.e., impervious) and under such circumstances, liquid will seep through all earthen dikes. This seepage, unless carefully controlled by design, will tend to scour the downgradient face of the dike structure causing it to slough. If the velocity of the escaping liquid is sufficient to dislodge and carry soil grains away, channels of flow will develop (called piping). Liner leakage resulting in scouring and piping could lead to massive failure.

The elements of design and construction to avoid scouring and piping involve the type and placement of materials used to construct the dike. The interior of the dike (the core) and the lowermost exterior portion of the dike (the toe) may be constructed of different materials or with different methods of placement. Cores may be present or absent depending on the size of the dike and the forces it must withstand. Cores are often designed to be less pervious than the bulk of the dike to control the pattern of seepage flow. Cut-off walls (i.e., a core emplaced or extended into the natural base beneath the dike) are also sometimes used to direct seepage flow within the dike or base.

There are a number of techniques which are commonly used to reduce the flow velocity of escaping liquids at the toe of a dam or dike (where flow lines tend to merge increasing flow velocity) below that which could scour the materials of which the impounding structure is constructed. One of the most common is to use rock to construct the toe. Flow net analysis is usually used to estimate flow velocity through the dike taking into account the relative perviousness of the dike structure and core, the base on which it is built, and the toe design.

The initial certification may require extensive analysis for large dikes or be quite simple for small dikes. It requires professional attention. Once the initial certification has been made, recertification (even of large dikes) should be quite simple requiring only a verification that changes have not occurred. Certification is required at the time of permit issuance or reissuance and in the event of a "positive indication" of a failure requiring the surface impoundment to be removed from service.

7. *Containment System Repairs: Contingency Plans* (§ 264.227). This Section requires remedial action in the event a surface impoundment containment system fails or seems likely to fail. Action may be initiated by observations during inspections, testing of liner materials, or known occurrences which could compromise the integrity of the system. Appropriate remedial action will vary with circumstances, and the regulation requires that a containment system evaluation or repair plan be prepared and submitted with Part B of the RCRA permit application, as part of the contingency plan required by Subpart D.

Two types of remedial response are required. The first is a maintenance type of response, which must be detailed in the plan, that is to be initiated in the event of any indication of a possible failure or a situation which could be expected to cause or lead to a failure. The second is an emergency response to a positive indication of a failure. The regulation requires the impoundment to be removed from service upon a positive indication of a failure.

The appearance of liquids in the system does not necessarily mean failure of the liner. With some designs (e.g. soil liners), some liquid can be expected to appear in the system. The amount and characteristics of the liquid which would indicate failure would depend on the liner system design. Expected amounts and quality of liquids over time, and levels which would indicate failure, must be described in the remedial action plan.

In the regulation, a distinction is made between liquids and waste. The term waste is used to describe the appearance of liquids which are derived from the waste (leachate) and waste which is not attenuated by passage through the liner system. If leachate appears in the detection system, it is an indication that the containment life of the system has expired and the impoundment must be removed from service. If unattenuated waste appears in the system, it would be a positive indication of liner system failure and emergency response would be triggered.

Liquids which appear in the detection system may not be leachate (i.e., not derived from the waste). Liquids could appear as they are displaced from the primary liner system as waste (leachate) migrates through the liner. Liquids could also appear as a result of ground water migrating through the bottom liner below the leachate detection, collection, and removal system. This could occur in some circumstances even if the ground water table did not rise above the liner. Liquid could also enter the system laterally and derive from rainwater infiltration. The distinction between liquids and waste is not precise as a matter of regulatory language, and the distinction must be established by testing any liquids which do appear. The testing program, which can be expected to vary with the type of waste being handled, must be specified in the containment system evaluation and repair plan.

Once an impoundment has been removed from service, the regulation requires a complete repair and a certification by a qualified engineer that the system has been restored to meet the approved design specifications.

8. *Closure* (§ 264.227). Since these regulations address only those surface impoundments which will not discharge into the land (i.e., those which treat or store hazardous waste) closure logically requires the removal of hazardous waste and hazardous waste residues. Most of the comments received on proposed § 250.45–3(e) are applicable to surface impoundments which discharge into the land, and will, therefore, be addressed when regulations applicable to impoundments which may leak are promulgated. Some relevant comments were received regarding the impracticality of removing waste and waste residues from large impoundments, and the proposed requirement to fill emptied impoundments with inert material.

Although a large impoundment may present special problems (e.g., machinery may have to be placed on the impoundment liner at closure) the

Agency believes that these problems are not insurmountable and that the inherent benefits which accrue by removing all waste and waste residues is justified for surface impoundments used for storage and treatment. Since all hazardous wastes and residues must be removed at closure, the requirement for inert fill material has been dropped in these regulations.

Section 264.228 specifically requires the removal of all hazardous waste and hazardous waste residues at closure from the impoundment, containment systems components, and appurtenant equipment and structures. This means the above mentioned system components and appurtenant equipment and structures must be either decontaminated or removed and handled as a waste which is presumed to be hazardous unless it is established that it is not.

Closure with wastes left in the impoundment is not allowed in the regulations promulgated today, but will be addressed in surface impoundment regulations yet to be promulgated by the Agency.

9. *Special Requirements for Ignitable or Reactive Waste.* (§ 264.229). Section 264.229 prohibits the placement of ignitable or reactive wastes in a surface impoundment, unless the waste is made non-ignitable or non-reactive as defined in §§ 261.21 and 261.23 while also complying with § 265.17(b). An exception provided for in the regulations is an impoundment that is used solely for emergencies. In addition, § 264.229 allows the placement of ignitable or reactive waste in a surface impoundment if the waste is protected from ignition or reaction.

Ignitable or reactive wastes require continuing protection from conditions which would cause them to ignite or react. One important factor is that in a surface impoundment mixing of wastes is inherent. Unless such wastes are rendered non-ignitable or non-reactive, the operator of a surface impoundment may find it difficult to properly manage such wastes in a surface impoundment. Reactive wastes may be especially difficult to manage since surface impoundments are directly exposed to the environment. Some surface impoundments are operated to concentrate and collect floating oils that may be ignitable. Such practices are acceptable in protected surface impoundments when ignition sources will not be present. Consequently, the Agency will allow the management of ignitable or reactive wastes in surface impoundments that are protected from any material or conditions which may cause them to ignite or react.

10. *Special Requirements for Incompatible Wastes.* (§ 264.230). This Section of the regulation is identical to § 265.230 promulgated on May 19, 1980. The potential dangers from the mixing of incompatible wastes include extreme heat, fire, explosion, violent reaction, production of toxic mists, fumes, dusts, or gases, and damage to the structural integrity of the surface impoundment. Clearly the potential impacts on human health or the environment which could result from such conditions must be avoided.

11. *Freeboard.* Section 264.221 requires that a surface impoundment be designed to provide at least 60 centimeters (2 feet) of freeboard, or a specified amount of freeboard of other than 60 centimeters, if this specified amount is documented to be sufficient to prevent overtopping. The amount of freeboard provided must prevent overtopping under all conditions of operation and be specified in the permit by the Regional Administrator.

The strong trend towards the use of a 2-foot freeboard in designing surface impoundments is demonstrated by the fact that this requirement is included in at least six State regulations and in several engineering texts and handbooks as recommended practice. The Agency received numerous comments on the May 19, 1980 regulations concerning freeboard and thus has reconsidered the issue of freeboard. The Agency has decided that, in some cases, surface impoundments with less than 60 centimeters of freeboard would not be overtopped and thereby be in compliance with the objective of the regulation.

Some of the factors that may reduce the likelihood of overtopping and justify an alternative to the 60 centimeters freeboard requirement for surface impoundments are: size and shape which reduces susceptible to significant wind action; strength and direction of wind and the amounts of precipitation (average and maximum) at the location of the surface impoundment; depth and shape of the edge of impoundment, which influence wave action; and the presence of interior baffles to minimize the effect of wind and waves. These types of factors may be addressed in documenting the adequacy of freeboard under the alternative in § 264.221(a)(2). In applying for a permit specifying a freeboard of other than 60 centimeters, the owner or operator must document the adequacy of the alternative by engineering calculations which address the factors specified in § 264.222(a). As mentioned in the May 19 preamble (45 FR 33202), the Agency feels level controls should be used in conjunction with, not in place of, minimum freeboard to assure no overtopping. The Agency still maintains this attitude.

The Agency believes that not preventing the overtopping of surface impoundments and relying on an above ground secondary containment system to collect liquid which overtops a dike is undesirable and unnecessary. Control problems associated with overtopping and secondary containment devices include: the random locations where overtopping could occur due to wind action necessitating peripheral collection systems around the entire facility rather than at the location of discrete pipes or weirs; splashing of overtopping liquids; potential adverse impact due to erosion caused by overtopping liquids on the structural integrity of the dike; and the difficulty of ensuring that a secondary containment device is of adequate capacity and would be sufficiently impermeable to collect and contain all overtopping.

12. *Liners and Leachate Detection, Collection, and Removal Systems.* Liner systems are the key element necessary to achieve containment. Liner systems are required both above and beneath the leachate detection, collection, and removal system. These systems must be collectively designed, operated, and maintained in a manner which will prevent any discharge of waste or leachate into the land during the life of the impoundment. The design life of the primary liner system must exceed the period of time that hazardous wastes and hazardous waste residues will remain in the impoundment. Since wastes and residues must be removed from the impoundment at closure, this means the life of the impoundment ends when wastes are removed at closure. In designing the primary liner system and applying for a permit, the owner or operator must state the estimated life of the impoundment (i.e., the year when all wastes and residues will be removed from the impoundment) as part of the closure plan and demonstrate that the liner will contain the wastes (i.e., prevent waste leakage or discharge) for that period. For soil liners or admixed liners (e.g., Portland cement concrete, bituminous concrete, soil cement, etc.) this means predicting the flow rate through the material. Since impoundments contain liquid wastes, this prediction must be based on saturated flow. Such a prediction can be made according to Darcy's law. Darcy's law was derived to express the relationship between the hydraulic gradient and the velocity of water flowing through uniform sands. As

applied to evaluate liner systems, it is a function of three measurable factors: the thickness of the liner, the saturated permeability of the liner (which will vary with the viscosity of the waste), and the hydraulic head of the waste. Although not applicable to surface impoundments containing free liquids, predictions may also be made for leachate migration due to capillary action under unsaturated conditions. When synthetic membrane liners are used, which cannot be evaluated by application of Darcy's law, the owner or operator must provide test data or documented information to show long-term stability of the liner under the conditions to which they will be exposed. The resistence of membrane liners to deterioration depends on their compatibility with the waste or leachate and other conditions (e.g., ultraviolet or sunlight exposure). Design information is available in two EPA reports. They are SW/870, "Lining of Waste Impoundment and Disposal Facilities"; and SW/869 "Landfill and Surface Impoundment Performance Evaluation".

The liner systems must meet some general performance standards specified in § 264.223(c). These standards are a departure from the detailed design specifications contained in the December 18, 1978, proposed regulations (43 FR 59011–13). In response to comments, the Agency has developed regulations which are performance rather than design oriented in order to provide flexibility. Advancement in the state-of-the-art evidenced by the above referenced publications indicate that design flexibility and performance oriented standards are an appropriate approach.

The leachate detection, collection, and removal system must be located above the water table. The primary purpose of the system is to detect and contain leachate which migrates through or breaches the primary liner. The system includes a liner system beneath the collection system to ensure that the system will function effectively and prevent discharge into the land. The system therefore functions as a secondary containment system in the event the primary containment system fails. The system must be located above the water table to protect the integrity of the liner beneath the collection system which could be breached or floated (displaced) by ground water and to ensure that large volumes of ground water will not enter the detection system and mask the presence of leachate. This type of system will allow the detection of leachate or waste due to liner failure early enough to enable early repair or emptying of the impoundment and the prevention of discharge into the land. The Agency believes this is a good general design to meet the objective of hazardous waste storage or treatment and storage in surface impoundments.

The standard prohibiting wastes which react adversely with the liner(s) uses the plural parenthetically to refer to reactivity with all liners used in the containment system.

13. *Waste Analysis and Trial Tests.* As discussed in the preamble to the May 19, 1980 regulations, the purpose of the waste analysis requirements for surface impoundments (§ 265.225) was the same as for tanks (§ 265.193). That purpose is described as being to prevent accidents and haphazard experimentation with new wastes or new treatment techniques. The commenters on the May 19, 1980 promulgation regarded the requirements as too detailed while also being redundant with § 265.13. The Agency agrees with respect to the general standards and believes that the addition of § 264.17(c), coupled with the general waste analysis requirements of § 264.13, adequately cover this matter. Thus, as is the case with waste piles and tanks, a specific waste analysis provision for surface impoundments used for storage or treatment is now redundant, and no such provision is included in the Part 264 general standards.

G. Subpart L—Waste Piles

Since the proposed RCRA Subtitle C regulations of December 1978 contained no specific requirements for waste piles, the Part 265, Subpart L, interim status standards published in May of 1980 were promulgated on an interim final basis, with the exception of § 265.250, Applicability. Comments were therefore solicited on the waste pile regulations, but few were received. No comments were received on the requirements respecting protection from wind (§ 265.251), waste analysis (§ 265.252), ignitable or reactive waste (§ 265.256), and incompatible wastes (§ 265.257). Accordingly, the Agency intends to finalize §§ 265.251, 265.256, and 265.257 without change. Section 265.252 will be deleted as discussed below.

Most of the interim status requirements are being adopted as general standards in Part 264. The rationale for their inclusion is the same as for the interim status regulations as discussed in the May 19, 1980 publication and associated background documents. Some changes were made to the containment requirements (§ 264.253), and requirements for general design (§ 264.251), general operation (§ 264.252), base inspections during installation (§ 264.254), containment system repairs (§ 264.255), and closure (§ 264.258) have been added. In addition, regulations specifically relating to periodic inspections of piles are being proposed separately as an addition to the general standards and the interim status standards (§§ 264.254 and 265.254).

The regulations for which comments were received, or which were added or modified, are discussed below. A discussion of the proposed periodic inspection standards for waste piles is given elsewhere in this Federal Register.

1. *Applicability* (§ 264.250). The general standard for applicability of the waste pile requirements (§ 264.250) is similar to the interim status provision, except that the alternative for managing a pile of hazardous waste as a landfill under Subpart N has been deleted. This alternative was deleted because: (1) the Part 264, Subpart N, landfill standards are not being promulgated at this time, and (2) the Agency wants to emphasize that these Part 264, Subpart L, regulations deal only with storage and treatment practices in waste piles, and thus that such waste piles require containment.

A comment to this section points out, however, that the Agency intends to supplement these regulations in the future to address other types of waste piles including piles that are not designed and operated to prevent discharge and piles that are closed with waste left in place. The Agency believes these types of waste piles constitute disposal rather than storage or treatment, and are best dealt with under an engineering analysis approach. Meanwhile, until additional regulations are promulgated, all waste piles that are authorized by permit must comply with the Part 264, Subpart L, regulations promulgated today.

The interim status standard for applicability of the waste pile requirements (§ 265.250) was promulgated as a final rule, and no comments were solicited. Nonetheless, some comments on this rule were received.

Commenters maintained that since some waste piles are very small and are held for very short periods of time (frequently less than two weeks), both inside and outside buildings, that these piles should be exempt from the requirements of Subpart L of Part 265, and from the permit requirements of RCRA Subtitle C or at a minimum that these piles should be conditionally exempt just as containerized or tanked waste stored for less than 90 days is conditionally exempt under § 262.34 (Accumulation Time).

The Agency disagrees with the commenters' position that the volume, location or length of storage of waste piles merits an exemption from the requirements of Subpart L. The volume or location of hazardous waste treated, stored, or disposed is not a factor in the applicability of any of the RCRA Subtitle C treatment, storage, or disposal standards unless the waste is produced by a small quantity generator. There is no environmental basis for making such a distinction that is not inherently arbitrary.

The Agency continues to believe that short-term accumulation of hazardous waste in piles is fundamentally different than similar accumulation in containers or tanks. Section 262.34 specifies that hazardous wastes stored for less than ninety days may be exempt from the permit requirements of RCRA Subtitle C if they are containerized, among other things. This containerization controls release of hazardous substances and allows for relatively easy inspection for leaks. Piles do not provide this same level of protection. Even though it might initially appear that piles stored inside buildings might be "containerized" and therefore not subject to such impacts as wind dispersal, precipitation, and run-on, this is not necessarily the case. For example, a "building" may not be fully enclosed—it may not have a roof or may only have three sides. A pile stored in such a "building" would, therefore, be subject to both wind dispersal and precipitation. In addition, the ventilation systems of many buildings might allow waste that is in a particulate form to be picked up from the pile and circulated throughout the building. This could present a hazard to worker health and to the environment.

Further, the Agency feels that waste stored in piles could result in leaching or run-off of hazardous waste, hazardous waste constituents, or hazardous waste by-products from decomposition even in the absence of precipitation and run-on, and regardless of waste pile location or duration of storage.

Finally, the Agency sees no need for the exemption from RCRA Subtitle C permits, as requested. The commenters may have assumed that a separate permit would be required for each pile. However, this is not the case. All storage locations at a given facility can be covered with a single permit. Thus, the permit requirements are not burdensome, as was claimed by the commenters.

2. *Objectives and Organization.* In keeping with the storage concept (as discussed earlier in this preamble), the Agency believes that storage or treatment of hazardous waste in piles authorized by permit should be conducted in a manner that prevents discharge into the land, surface water, and ground water during the life of the pile. Hazardous waste, hazardous waste constituents, or hazardous waste by-products from decomposition can be discharged from a waste pile into the land, surface water, or ground water via (1) wind dispersal, (2) water erosion caused by precipitation or run-on, (3) leachate or run-off entering the soil beneath or around a pile, or (4) leachate or run-off moving along the land surface. The first two discharge mechanisms are addressed by general design and operating requirements (§§ 264.251, and 264.252). The last two discharge mechanisms are specifically addressed by containment systems requirements (§ 264.253). Thus, these Part 264 waste pile regulations are structured somewhat differently than the comparable interim status standards in order to clarify the objectives of the regulations, and also to improve their consistency with other Subparts.

3. *General Design Requirements* (§ 264.251). The Part 264 general design requirements for waste piles state the objectives to be achieved by the pile design. These objectives are (1) to control dispersal of the waste by wind, where necessary, or by water erosion (e.g., by windstorms, precipitation, or run-on), and (2) to prevent discharge into the land, surface water, or ground water during the life of the pile.

The Agency anticipates that the owner or operator of a waste pile will design the pile to meet these requirements, and submit the design information to the Regional Administrator with Part B of his permit application for review, modification as necessary, and final determination as part of the permit process. For example, the owner or operator must, where necessary, include wind dispersal controls (such as enclosing the pile in a shed) in the waste pile design. Every waste pile design must include provisions for controlling dispersal of waste by precipitation, run-on, or other water erosion (e.g., a wall, berm, or dike). The second design requirement is to be achieved by use of a containment system as specified in § 264.253 (see discussion on "Containment Systems" below).

As noted earlier, the Agency intends to supplement these waste pile design requirements in the future to address other types of waste piles including piles that are not designed to prevent discharge and piles that are closed with waste left in place.

4. *General Operating Requirements* (§ 264.252). The Part 264 general operating requirements for waste piles are: (1) to control wind dispersal of waste where necessary, (2) to divert run-on away from the pile, and (3) to collect and control leachate and run-off from the pile. Two of these operating requirements were included in other sections of the interim status standards and are merely transferred. The control of wind dispersal (§ 264.252(a)) is comparable to the interim status requirement for protection from wind (§ 265.251), but worded differently because the Agency anticipates that the Regional Administrator will impose specific control practices (e.g., cover or frequent wetting) as permit conditions, where necessary. The requirement to divert run-on away from a waste pile (§ 264.252(b)) is required for either option in the interim status containment provision (§ 265.253).

The operating requirement that leachate and run-off from a waste pile must be collected and controlled (§ 264.252(c)) derives from the containment objective of these Part 264 standards. Although there may be rare situations where the leachate or run-off from a pile of hazardous waste is not itself a hazardous waste and thus where uncontrolled discharges from the pile may be allowed, or situations where hazardous leachate or run-off may be discharged in a manner that protects human health or the environment, such cases are properly the subject of the supplemental Part 264 waste pile regulations to be issued in the future, as mentioned earlier. Until these additional regulations are promulgated, all waste piles that are authorized by permit must collect and control leathate and run-off from the pile. The owner or operator must then determine whether or not the leachate or run-off is a hazardous waste and manage it accordingly.

5. *Containment Systems* (§ 264.253). Under these Part 264 rules, storage and treatment of hazardous waste in both new and existing piles requires both primary containment designed to prevent discharges into the land, surface water, or ground water during the life of the pile and inspection to ensure integrity of the primary containment. The Agency believes that secondary containment is not necessary for waste piles on the premise that free liquids do not typically or routinely impose a significant hydraulic head on the primary containment system. The potential for major discharge through the primary containment system is, therefore, significantly reduced.

The specific requirements for containment in piles are to collect and control leachate and run-off prior to

their removal, and to place the pile on a base that will prevent leachate and run-off from entering the soil beneath or around a pile. Two options are provided for the pile base, as discussed below.

Commenters on the interim final Part 265 waste pile containment rule (§ 265.253) argued that the prevention of run-on should not be required if leachate and run-off are collected. The Agency disagrees. The Agency continues to feel that it is important to prevent run-on to waste piles even if leachate and run-off are collected, in order to ensure that leachate or run-off collection systems will not be overloaded and that the pile will not be washed out in the event of a major storm. It is probable in any event that part of the leachate and run-off collection system (i.e., the curb, wall, or dike) will also prevent run-on, thereby minimizing the cost of preventing run-on.

The first waste pile base option requires a sturdy base underlying and in contact with the waste pile that is made of a liner (or liners) that will prevent discharge into the land, surface water, or ground water during the life of the pile. To comply with this requirement, the base material(s) and design must be based on the liner(s) thickness, the permeability of the liner(s), and the characteristics of the waste or leachate to which the liner(s) will be exposed. Further, the liner(s) must be of sufficient strength and thickness to prevent failure due to puncture, cracking, tearing, or other physical damage from equipment used to place waste in or on the pile, or to clean and expose the liner surface for inspection.

The material(s) and design for this waste pile base option have not been specified in order to provide flexibility to the pile owner or operator. The major difference between this base option and the alternate discussed below is the ability of the base to accommodate periodic removal of the waste pile to allow inspection of the liner surface. Given that heavy equipment (e.g., bulldozers or front-end loaders) may have to be used for waste pile removal, the Agency expects that in many cases this base option will consist of reinforced concrete with appropriate coating(s) or synthetic membrane liner(s), to prevent leachate seepage. The Agency does not believe that natural or compacted soil liners provide an adequate base for hazardous waste piles. A compacted clay liner, for example, must be saturated to provide waste containment. In a waste pile, a clay liner would not be in contact with liquids at all times, as it would be in a surface impoundment, and thus would be likely to dry out, crack, and lose its containment properties.

The second waste pile base option is included primarily to accommodate those situations where it is impractical to remove the waste periodically to allow inspection of the liner surface. The base in contact with waste must be designed to prevent discharge as in the first option, but a leachate detection, collection, and removal system is also required beneath the base to detect, contain, collect, and remove any discharge from the base. The leachate detection, collection, and removal system is not intended to be part of the primary containment system, but rather a substitute for periodic inspection of the base. Further discussion of liners coupled with a leachate detection, collection, and removal system can be found in the preamble section on surface impoundments.

Section 264.253(b) amplifies the requirements for waste pile base materials and specifies that the base foundation must be capable of supporting the loads placed or moving on the base to prevent failure of the liner(s) due to settlement or compression.

Section 264.253(c) specifies that the waste pile containment system (including the base and the leachate and run-off control system) must be protected from plant growth (such as woody plants or trees) which could puncture any component of the system, and thereby provide an avenue for discharge.

Lastly, § 264.253(d) specifies that a containment system must have a containment life equal to or greater than the life of the pile. Given that many waste piles may be removed periodically for inspecting the base or for other purposes, the Agency intends that components of the containment system, such as the base coating(s) or liner(s), can be replaced during the life of the pile if this is necessary.

6. *Inspections and Testing* (§ 264.254). Inspection of the primary containment system for piles was not included in the RCRA Subtitle C rules proposed in December 1978, nor specifically included in the Part 265, Subpart L, requirements promulgated on May 19, 1980. The Agency believes periodic inspection and testing requirements for waste pile containment systems should be specified explicitly, since neither a secondary containment system nor ground-water monitoring is required for waste piles. Periodic inspection and testing of the waste pile base necessarily involves removing the waste from the base. This would be a significant new regulatory requirement. Therefore, the Agency has proposed these rules elsewhere in todays Federal Register for both Parts 264 and 265.

The Agency also believes that the waste pile base should be inspected during its construction or installation to detect imperfections and damage, and, for manufactured liner materials, to ensure tight seams and joints, so that the base will in fact contain waste when placed on it. While such an inspection makes sense and is commonly done, the Agency believes the requirement should be made explicit in the regulations due to its importance. Further, the Agency believes this requirement for inspecting the waste pile base during construction or installation is not burdensome. Therefore, the requirement is being promulgated in Part 264 as an interim final rule under § 264.254(a). The Agency solicits comment on this rule, and on its potential inclusion in the Part 265 interim status standards.

7. *Containment System Repairs: Contingency Plans* (§ 264.255). In addition to inspecting the waste pile base during its construction or installation, and periodic inspections of the containment system, the Agency believes the containment system should be inspected whenever there is any indication of its possible failure. Further, whenever there is a positive indication of containment system failure, the waste pile should be removed from service, and its containment system should be repaired immediately, or the waste pile should be closed.

Consequently, the Agency has included a requirement for remedial action (§ 264.255) in accordance with a previously prepared contingency plan whenever a waste pile containment system fails or seems likely to fail. This requirement for waste piles is a direct analog to a similar requirement for surface impoundment containment systems (§ 264.227), and the same rationale and conditions generally apply. Therefore, the reader is directed to the discussion of § 264.227 in the preamble section of Subpart K, surface impoundments, for futher explanation of this requirement.

8. *Closure* (§ 264.258). Under interim status, there are no specific regulations for the closure of waste pile facilities, although the topic was discussed in the preamble to Subpart L. The general closure standard (Part 265, Subpart G) requiring that wastes be removed from storage facilities at closure (§ 265.113(a)), was applicable. This fact was perhaps not obvious to the regulated community. For purposes of clarification, a closure requirement specific to waste piles (§ 264.258) has now been added to the Part 264 general

standards. The new provision explicitly requires the removal of waste piles and pile residues at closure. Any component of the containment system containing or contaminated with hazardous waste or residues must be decontaminated or removed. The Agency intends to include a similar provision in the interim status standards.

9. *Waste Analysis.* As noted in the preamble to the May 19, 1980 rule, the basic purpose of the interim status standard for waste analysis for waste piles (§ 265.252) is to prevent inadvertent mixing of incompatible wastes in piles and to assure that ignitable or reactive wastes are protected from sources of ignition. The Agency believes that the addition of § 264.17(c), coupled with the general waste analysis requirements under § 264.13, adequately covers this matter. Thus, a specific waste analysis provision for piles is now redundant, and no such provision is included in the Part 264 general standards. EPA intends to delete § 265.252 from the interim status standards for the same reasons.

H. Permitting Requirements

EPA is promulgating changes to the consolidated permit regulations under 40 CFR Part 122, Subpart B. The changes reflect today's promulgation of facility standards under Part 264. The revisions to the Part 122 regulations are issued on an interim final basis. Public comment is solicited on the provisions of these regulations.

Most of the modifications included in this publication are in § 122.25 which deals with the information which must be submitted on Part B of the permit application. But minor changes have also been made to other sections of Part 122.

1. Permit Modification. (§§ 122.15 and 122.17). Section 122.15 has been modified by the addition of several grounds for permit modification which correspond to new closure and post-closure requirements in Part 264, Subpart G and new financial liability requirements in Part 264, Subpart H. Sections 264.112(b) and 264.118(b) require modification of closure plans whenever facility design or operator changes would effect closure or post-closure activities. The Director may determine under § 264.147(d) that a downward variance in the level of financial responsibility is applicable or under § 264.147(e) that an upward adjustment of the level of financial responsibility is required. In addition, prior to closure, an opportunity is provided in §§ 264.113 and 264.117 (a), (b), and (c) for the Director to extend the time allowed to close a facility to modify the post-closure period (which is 30 years unless modified by the Director), continue security requirements (which do not apply to the post-closure period unless explicitly made applicable, or allow disturbance of the integrity of the containment system. Several of these permit modifications have been designated in revised § 122.17(e) as minor modifications. See today's preamble discussion of Part 264, Subparts G and H for further information.

2. Application Requirements for Part B (§ 122.25). The proposed December, 1978 regulations identified six general information categories for inclusion in Part B of the permit application. These included a master plan for the facility, geological data, hydrological data, a description of the climate at the site, a list of position or job descriptions, and a list of performance bonds and other financial instruments.

The general approach created a great deal of confusion. Many commenters thought the Part B application requirements were vague and that costs to prepare Part B's will be excessive because they contain a lot of irrelevant information. There were comments questioning EPA's authority to request some of the information and recomendations that EPA better define which information items are required for specific types of facilities (e.g., incinerators).

EPA agreed with these comments and restructured the Part B information requirements. Each Part B information requirement is now tied to a standard in Part 264. Further, the structure of the Part B requirements now parallels the structure of the technical standards in that Section. The Part B requirements are structured into general requirements that apply to all facilities and specific requirements for individual types of facilities (e.g., tanks, piles, incinerators).

On May 19, 1980, EPA published a list of general Part B information requirements. The Part B information requirements being promulgated today include these requirements, expand the list of general information requirements, add specific information requirements for the types of facilities covered by the Part 264 standards being promulgated today. The Part B information requirements will be amended in the future as necessary to reflect additional standards in Part 264 at the time these standards are promulgated.

The proposed regulation indicated that the Part B information items listed in the regulation would be the minimum information that would be required in a Part B application. Commenters suggested that the regulation be amended to make it clear that the Part B items listed are all the information that is required and not minimum requirements. EPA agrees with the suggestion. Since the Part B requirements are now tailored to the Part 264 standards the information items listed in the regulation cover only those items necessary for EPA to determine whether the facility complies with those standards. Commenters also suggested that requests for additional information be limited to situations where the Agency needs additional information to clarify information previously submitted. The Agency agrees with this point. Section 124.3 provides that the Agency will limit requests for additional information to those situations where this additional information is essential for the Agency to complete its review of the permit application. For some of the Part 264 standards EPA will not be able to determine the extent of additional information that is needed until after it has reviewed the applicant's initial submittal. For example, where the Director finds that a facility did not use recognized design standards for tanks containing hazardous waste, as required under § 264.191, then the applicant may be required to provide additional information on the design, construction, operation, and maintenance of the tank.

One comment held that EPA can only request in Part B the more general information listed in Section 3005(b) of RCRA. The Agency disagrees. More detailed information is needed for the Agency to assess compliance with the Part 264 standards.

The proposed regulation required a topographic map with a scale of one inch equal to not more than 200 feet and a contour interval not greater than five feet for the area within one thousand feet of the boundaries of the facility. Commenters raised two points on this requirement. First, the regulations should be amended to allow flexibility in the contour intervals used. It was pointed out that in some areas, such as steep mountain areas, larger intervals should be used, otherwise the topographic map will be a solid black line. Second, a scale of one inch equals 200 feet is unreasonable for large facilities. The Agency agrees with the first point and the final regulations allow applicants to use reasonable contour levels in mountain areas. On the second point, one inch equal to not more than 200 feet has been retained as the general standard scale because the Agency believes this scale will provide a reasonable size map for most facilities. The Agency will allow the use of other scales on a case by case basis.

Recognizing that site specific conditions may vary, the regulations provide alternative means of demonstrating compliance with the location standards in § 264.18. For example, § 122.25(a)(11) may require information about the seismic activity of a site ranging from 3,000 feet from the site to a radius of five miles from the site. EPA intends to shortly make available a guidance/permitting manual which will provide greater detail on the study procedures identified.

In terms of floodplain data, comments suggesting the wide availability of maps showing the 100 year floodplain and the growing expertise in designing for the 100 year flood were factors that influenced EPA's decision to require, as a minimum, information about the 100 year floodplain rather that the 500 year floodplain as originally proposed. (For a more detailed discussion of the changes in the § 264.18 location standards see Section VII A–3 of this preamble).

There was a comment recommending that the Part B application be expanded to cover a discussion of alternative sites considered by the applicant, since some sites are clearly preferable to others. There is no specific requirement in RCRA for an analysis of alternative sites; rather EPA will pass judgment on the acceptability of proposed sites. EPA believes that its Part 122 and Part 264 regulations provide adequate protection for human health and the environment and that Agency analyses of alternative sites is neither within that Agency's mandate nor would it provide additional protection.

Section 122.12 requires that all permits be issued in a manner that is consistent with other Federal laws, such as the Endangered Species Act and the Coastal Zone Management Act. The Acts cited in § 122.12 place an affirmative duty on EPA to insure that the goals of each of the statutes, if applicable, are complied with in issuing RCRA permits. EPA believes that the best source of information to insure compliance with these Acts will be the permit applicant in many cases. Thus, the Part B information requirements include a provision [§ 122.25(a)(20)] that applicants may be required to submit information as may be necessary to enable EPA to carry out its duties to uphold other Federal laws. It is in the best interest of the applicant (1) to consider the potential impact of the facility on these special environmental areas, and (2) to provide, in the permit application, information on these environmental areas as stipulated in pertinent statutes, regulations, or guidance documents.

Commenters recommended that EPA require that the Part B application be prepared by or under the supervision of a registered professional engineer. EPA believes that this requirement is unnecessary since much of the information required in Part B does not warrant preparation or review of a registered professional engineer (for example, financial information, training information, and waste analysis plans). Rather, the final regulations have been amended to only require that certain technical data be certified by a registered professional engineer. The Agency expects, however, that many applicants will use a registered professional engineer to prepare or review the other Part B items even though it is not required by the regulations.

The proposed regulation contained provisions for the Director to waive certain Part B application requirements if the information was not applicable to the facility and was not needed to establish compliance with the Part 264 standards. The Agency received numerous comments and recommendations on how the waiver provision should be administered. Because the Part B requirements are now tailored to the Part 264 standards they become applicable only when the companion Part 264 standards are applicable. The Agency believes the waiver provision is no longer needed and it has been deleted from the final regulation.

The Agency recognizes there may be cases where applicants will not be able to provide all the Part B information that is required for their type of facility. For example, design plans and specifications or construction plans may be incomplete or non-existent for some existing facilities. Applicants must make a good faith effort to supply all of the necessary information. Applicants should explain why certain information cannot be supplied. In reviewing permit applications, EPA will take into account situations as described above in reaching a judgment as to whether the permit application is complete.

Several commenters expressed concern that six months might not be enough time to prepare and file some Part B information. There were other comments suggesting that EPA set time frames for submitting part B on a case by case basis and that time waivers for filing Part B be granted where there is good cause. Neither the proposed or final regulations limit the time for submitting Part B information. Both regulations provide for applicants to have at least six months to prepare their Part B. The Agency has reviewed each of the information requirements in the Part B information list and feels that none of the items should take longer than six months to prepare. The Agency will use six months as a general rule of thumb for preparation of Part B. Any applicant can explain in the permit application why it may take longer to submit certain pieces of information. EPA will allow extensions on a case by case basis. (EPA will be reluctant to allow extensions in cases where facilities are suspected of causing harm to human health or the environment).

One comment recommended that facilities be able to incorporate by reference information contained in permit applications for other facilities, where such facilities are substantially similar in design or operation. The Agency will allow applicants to do this on a case by case basis and only where the applicant demonstrates that the information to be referenced is available to the Agency and relevant to the facility under review.

Commenters suggested that EPA should articulate in the regulations the specific standards it will use in determining when a facility should file its Part B application. Commenters suggested that one of those standards should be the hazard posed by the facility. The Agency will use the following general priority policy for processing permit applications: potentially high risk existing facilities (i.e. those suspected of causing harm, located in sensitive areas, handling highly hazardous materials, or of suspect or novel design) and new facilities will be given the highest priority; the next priority will be existing facilities with potential for consolidated permits; followed by exemplary existing facilities (i.e. those thought to be in full compliance), and then all other existing facilities. Because there must be flexibility in this scheme to allow for adjustments based on the timing of the promulgation of the technical standards, Regional Office and State needs and problems, and resources or other factors, EPA probably will stray from strict implementation of this policy. Therefore, the Agency does not think the priority should be published as part of the regulation.

3. Permit Conditions (§ 122.29). Section 122.29 has been expanded to require that each RCRA permit specify the wastes or classes of wastes to be handled at the facility, a description of how they will be handled (i.e. what processes, methods, or units will be utilized), and the design capacities of each treatment, storage and disposal

unit. Section 122.24 (f) and (g) already requires that the applicant submit this information in Part A of the RCRA permit application. This amendment clarifies that the Director, when issuing a permit, specify these conditions in the permit. This specifically permits or allows the permittee to manage the wastes and quantities by the methods set forth in the application. The permit may, however, contain different wastes or amounts or methods of handling from those set forth in the application, based upon the Director's determinations, under the Parts 264 and 266 standards of acceptable practices.

Unlike tanks, land disposal facilities, and incinerators, containers may be adequately regulated without permit restrictions on the types of wastes to be handled in each particular container. Provided that the permittee complies with basic requirements such as the controls on mixing incompatible wastes and containers, he may, under the permit, store any waste in any containers. Section 122.29 requires only that the classes of wastes generally stored in containers at the facility be identified. This information will be useful in cases of emergencies.

VIII. Regulatory Analysis

In support of the regulations promulgated on May 19, 1980, the Agency prepared draft economic and environmental impact statements, a Reports Impact Anslysis, an Operations Resources Impact Analysis, and an Evaluation Plan. All covered only the interim status regulations (except the Operations Resources Impact Analysis which covered the entire program) and each was based on preliminary drafts of the regulations. Final revisions of the interim status economic and environmental impact statements will soon be available and revised versions of the Operations Resources Impact Analysis and the Evaluation Plan have been developed. Evaluation of the regulations will include analysis of the effectiveness of the required reports.

Because of the accelerated schedule on which the regulations promulgated today were produced, it has not been possible to develop the extensive background materials which accompanied the previous promulgation. Before work can commence in earnest on these analyses, reasonably complete and reasonably final drafts of the regulations must be available. Such drafts only became available within six weeks of the publication of these regulations. Nevertheless, the Agency has conducted analyses of the costs of the general standards for new treatment and storage surface impoundments, tanks, and piles. Additionally, EPA is writing a draft Environmental Impact Statement which is scheduled for completion in April 1981. The Reports Impact Analysis has been combined with the OMB Reports Clearance Application and will be submitted to the Office of Management and Budget for review.

Except for the Evaluation Plan, copies of these documents are, or will soon be, available for review in the EPA regional office libraries and at the EPA headquarters library, Room 2404, Waterside Mall, 401 M Street, S.W., Washington, D.C. 20460. The Evaluation Plan is available for review only at the EPA headquarters library.

A. Economic Analysis

The economic evaluations indicate that there are both costs and benefits associated with the RCRA Subtitle C regulatory program.

1. *Benefits.* The Subtitle C regulatory program will reduce the damage to human health and the environment from improper management of hazardous waste. The following is a brief list of some of the many expected improvements:

- Ground-water pollution from leaching of toxic pollutants from improperly designed and managed tanks, waste piles, landfills, and surface impoundments will be reduced.
- Poisoning and injury due to direct contact with randomly dumped wastes will be reduced.
- Pollution of surface waters from hazardous waste stored or disposed of in fields and on riverbanks will be reduced.
- Illicit dumping of waste in farm fields, wooded areas, along roadsides, and in ditches and streams will be reduced.
- Emission of toxic gases from improperly run incinerators will be reduced.
- Accidents, mistakes, and malfunctions at hazardous waste management facilities, which could affect people near the site, will be reduced in number and in severity, due to improved training of personnel, monitoring and inspections, and required emergency equipment.
- Contingency plans will spell out procedures to ensure rapid and effective responses to emergencies to minimize any danger to off-site residents and the environment.
- Facilities will be decontaminated or otherwise secured at closure, and disposal sites will be monitored and maintained after closure, to reduce the possibility of future adverse impacts on human health or the environment.

The Agency believes these improvements will be substantial and noticeable. The expected improvements are not easily quantifiable, however, since records of past practices and problems are extremely limited. In addition to the major economic benefits expected from decreases in human health problems and in pollution of our air, land, and water, EPA expects an improvement in economic efficiency and equity, and substantial direct savings from avoiding clean up costs in the future.

An economy functions efficiently and equitably when the price of goods produced in the society reflects the actual social and private costs of production (i.e., when the costs are internalized). Until now, in most States, firms could dispose of wastes in environmentally unsafe ways at a cost substantially less than that for adequate disposal. Thus, the price of goods often did not reflect the full social cost of production.

These Pre-RCRA practices for managing hazardous waste created economic inequities. The true costs of disposal often fell randomly on individuals affected by improper management or on the public at large, since tax revenues were used to clean up inadequate facilities. It would be more equitable for the costs of adequate hazardous waste management to fall on the consumers and producers of the products which generate the hazardous waste.

Pre-RCRA management practices also caused economic inefficiencies. Because the price of goods did not reflect the cost of properly managing the waste produced as part of the manufacturing process, these goods were priced too low relative to other goods. Because prices were lower than the true social cost of producing the product, consumers were able to buy more of these goods than they could if proper waste management costs were included in the product price. Thus, companies manufactured and sold more of these products and generated more hazardous waste than was economically efficient. Furthermore, because companies did not have to either pay the cost of proper waste management or pass it along to customers, the incentives to develop technology and process changes to lessen the quantity of hazardous waste generated or to recover the waste as a useful material were weaker than if proper waste management were required. Additionally, companies which properly managed their wastes were at a competitive disadvantage to competitors who did not.

The RCRA Subtitle C regulations will ensure that those generating hazardous waste will pay appropriately for their safe management. Most of this incremental cost will be passed on to consumers, while some may be borne by the generator, particularly where price increases are held down in some way (e.g., by foreign competition or competition with other products). In either case, the economy will be more efficient and equitable because those receiving the benefits will also pay the incremental costs, and prices will serve as a more efficient allocator of resources.

In recent years, with increasing frequency, society has been forced to properly dispose of waste that was previously disposed of haphazardly. The best known example of this is Love Canal in New York, where 20,000 tons of waste were buried over a period of years. A severe health hazard in the area due to wastes seeping into house basements and surfacing in backyards caused society to take remedial action. The cost to the State and Federal governments is currently about $36 million for clean up, relocating residents, health and environmental testing services, and other expenses associated with the disaster, and the figure is still increasing. Thus, society is spending about $1,800 per ton in its effort to clean up waste improperly disposed of, and more will be spent before the area is returned to normal. Further, the $1,800 per ton figure excludes human health costs and suffering, which might easily outweigh actual dollar costs. Given that average disposal costs after the entire RCRA regulatory program is in place will be much less than $1,800 per ton, it clearly pays to do the job right in the first place.

Given that damages from improper hazardous waste management often take decades to surface, society may be paying dearly for past waste mismanagement for many years to come. Further, without a regulatory program, new problem sites would continue to be developed. Ultimately, clean up of all of these sites could cost billions of dollars.

2. *Costs and Impacts.* The Agency has not yet been able to estimate incremental costs and impacts of the Part 264 general standards for treatment and storage surface impoundments, tanks, and the other management methods promulgated today. This results from the fact that most hazardous wastes can be managed satisfactorily in a variety of ways. For example, wastes from chlorine production from the diaphragm cell process are amenable to resource recovery, chemical treatment, landfilling, and deep well injection. The methods chosen by a given company will depend to a major extent on the cost of each option; the costs, in turn, directly depend on the regulations governing each option. Thus, until the regulations covering all waste management options are available, the total incremental cost and impacts on any one method cannot be determined. At present, regulations governing the general (permit) standards for the land disposal options (surface impoundments, land treatment, and landfills) have not been developed and, thus, the total incremental costs and impacts of the regulations promulgated today cannot be determined.

Although total costs and impacts cannot be determined yet, EPA is building the model which allows these determinations. Inputs to this model are quantities of waste by waste stream and industry, unit costs of waste management, lists of feasible management methods for each waste stream, and capacity for existing management processes. The output from the model is the total incremental cost of the regulation.

The incremental costs over current practice of managing hazardous waste are now being determined. These are the incremental costs of treating (or storing or disposing) of waste by a given method (e.g., in a tank, or in a surface impoundment) which is in compliance with the regulations. Preliminary costs have been developed for tanks, treatment and storage surface impoundments, and waste piles. In the following analyses these costs are presented on an incremental annualized basis. Because they are incremental, they represent the additional cost of waste management imposed by the Part 264 general status regulations (over and above the costs imposed by the Part 265 interim status standards) on those owners or operators required to obtain a RCRA permit for storage or treatment of hazardous waste. Because they are annualized, they represent the cost (in 1980 dollars) the owner or operator would incur if he incurred the same cost each year.

a. *Tanks.* The Part 264, Subpart J general regulations will cause the cost of treating and storing hazardous wastes in tanks under a RCRA permit to increase slightly over and above the costs imposed by the interim status regulations. The sections of the regulations that cause the additional cost require the owner or operator to develop a schedule and procedure to assess the condition of tanks, and require that tanks meet industrial design standards where these are available. The incremental cost will be higher if the tank must be recoated to comply with the design standards, or if the tank must be decontaminated to be inspected. The Agency believes that most tanks will not have to be recoated to comply with design standards or decontaminated for inspections. The following table shows the annualized incremental cost of complying with the regulations (Part 264, Subpart J) for tanks of various sizes at facilities with various numbers of tanks, under a RCRA permit.

Table 1.—*Annualized incremental cost per tank of compliance with part 264, subpart J for tanks*

[Annualized incremental cost]

	No recoating		Recoating decontamination
	No decontamination	Decontamination	
1 tank per facility (gallons):			
10,000	$176	$1,176	$1,860
20,000	176	1,476	2,553
50,000	176	2,376	4,359
5 tanks per facility (gallons):			
10,000	58	1,058	1,742
20,000	58	1,358	2,435
50,000	58	2,258	4,241
10 tanks per facility (gallons):			
10,000	44	1,044	1,727
20,000	44	1,344	2,420
50,000	44	2,244	4,226
50 tanks per facility (gallons):			
10,000	32	1,032	1,715
20,000	32	1,332	2,403
50,000	32	2,232	4,215

b. *Surface Impoundments.* As a result of the treatment and storage surface impoundment regulations issued today, (Subpart K of Part 264), the cost of treating and storing hazardous wastes in surface impoundments under a RCRA permit will increase in most cases. Over and above the interim status regulations, these regulations may cause additional cost by requiring the owner or operator, if he is required to have a RCRA permit under Part 264, Subpart K, to remove all hazardous waste and contaminated liners from the impoundment at closure; to manage all dredged wastes in a permitted facility; to build impoundments with a liner and leachate detection, collection, and removal system; to operate the system to remove leachate; to divert surface water and run on away from the impoundment (although most diked facilities already comply with this requirement); and in the event of failure of the containment system, to repair the system before using the impoundment.

Although the impacts of these requirements cannot yet be estimated for reasons discussed earlier, at first glance it would appear that they will be substantial. Such is probably *not* the case. These regulations apply only to storage and treatment impoundments (i.e., to those which are designed to contain the wastes). Regulations covering disposal impoundments (i.e., those that discharge into the land or ground water) will be promulgated later. Since few existing impoundments are designed for containment, few are expected to seek permits as storage and treatment impoundments and only those that do would be subjected to the regulations. Many new facilities may also choose to meet the requirements of disposal impoundments when they are promulgated. The only facilities which will have to design to the standards promulgated today are those which must be designed and built prior to the effective date of the disposal impoundment regulations. This is expected to be a small group.

Major parameters affecting the cost of compliance with these Part 264 regulations for surface impoundments are the size of the impoundment, the rate at which sludge accumulates on the bottom, and the type of liner (membrane or clay). The following table summarizes the annualized (over 20 years) incremental costs of compliance with Part 264, Subpart K, for treatment and storage surface impoundments with clay liners and membrane liners, based on the assumption that either no sludge accumulates on the bottom of the impoundment, or that the sludge that accumulates is not a hazardous waste.

Table II.—*Annualized incremental cost of compliance with Part 164, Subpart K, for treatment and storage surface impoundments without hazardous sludge accumulation*

[Annualized incremental cost in thousands of dollars]

Impoundment size	Clay liner	Membrane liner
Acres:		
1	8	14
5	31	56
10	61	107
25	145	255

If sludge does accumulate, and if the sludge is a hazardous waste, then annualized incremental cost of compliance with the regulation will be larger. Table III shows the annualized incremental cost of compliance for impoundments with different sludge accumulation rates.

Table III.—*Annualized incremental cost of compliance with Part 264, Subpart K, for treatment and storage surface impoundments with hazardous sludge accumulation*

[Annualized incremental Cost [1] in thousands of dollars]

Impoundment size	Sludge accumulation rate		
	Low	Medium	High
Acres:			
1	63	100	136
5	307	584	851
10	813	1,208	1,776
25	1,989	2,977	4,407

[1] All costs assume an owner or operator will use a trust fund to comply with the financial requirements. This assumption increases the costs considerably. For example, if an owner or operator used a letter-of-credit to meet the financial requirement, the entry for the 25 acre impoundment with a high sludge accumulation rate would be $3,104. These costs also assume that the sludge is a hazardous waste, and that its disposal has an incremental cost of $50 per ton. EPA made this assumption for analytical purposes. After the EPA promulgates Part 264 landfill regulations, the incremental cost of landfilling might well be less than $50 per ton. These cost also include the costs shown in Table II.

The impoundment with a low sludge accumulation rate has an influent with 125 milligrams of solids per liter of influent, that with a medium rate has 250 milligrams per liter, and that with high rate has 500 milligrams per liter.

Over the 20 year life of a 5 acre impoundment with a medium sludge accumulation rate, about 250,000 tons of sludge accumulate, are dredged; and are disposed of; the corresponding sludge quantity for the 25 acre impoundment with a high accumulation rate is almost 2 million tons. Thus, the costs presented in Table III are large because the analysis assumes that the tremendous quantities of sludge which accumulate at the bottom of treatment and storage surface impoundments, must be managed as a hazardous waste when it is periodically dredged. The cost of managing dredged sludge drives these estimates. For treatment and storage impoundments in which little or no sludge is produced, the incremental costs are very much less.

Table IV presents the incremental cost per ton of storing or treating hazardous waste in a surface impoundment with sludge accumulation under a RCRA permit, in compliance with the Part 264, Subpart K regulations issued today. Because these unit costs explicitly account for the quantity of sludge, they do not appear so large. Unit costs for surface impoundments without hazardous sludge accumulation are very much less.

Table IV.—*Incremental Unit Costs of Compliance with Part 264, Subpart K for Treatment and Storage Surface Impoundment With Hazardous Sludge Accumulation*

[Cost per ton [1]]

Impoundment size	Sludge accumulation rate		
	Low	Medium	High
Acres:			
1	$67.43	$50.70	$40.53
5	60.34	45.35	36.59
10	78.40	44.76	36.15
25	78.01	44.42	36.02

[1] All costs assume an owner or operator will use a trust fund to comply with financial requirements. This assumption increases the cost considerably.

c. *Waste Piles.* The Part 264, Subpart L general regulations will also cause the cost of storing or treating waste in piles under RCRA permit to increase over and above the cost of storage or treatment under the interim status regulations. Under the general regulations a waste pile must have a waste containment system. The containment system must be either sufficiently strong to support equipment so that the waste may be moved to inspect the liner (sturdy impermeable base design) or the system must have a liner and leachate collection, detection, and removal system (liner design). The incremental cost of compliance with Part 264, Subpart L, under a RCRA permit for each type of waste pile containment system is shown in Table V for different sized waste piles.

Table V.—*Annualized Incremental Cost Per Pile of Compliance With Part 264, Subpart L, for Waste Piles*

Size of pile	Sturdy impermeable base	Liner and leachate system
Metric tons:		
340	$493	$875
850	812	1,232
1,700	1,194	1,648
3,400	1,766	2,308

B. Reports Analysis

At the time of promulgation (May 1980), the Agency analyzed the paperwork burden imposed by the Phase I requirements on the regulated community. The estimated burden for those requirements was 1,424,000 hours initially, and 2,322,000 hours on an annual basis, including planning, recordkeeping, and reporting activities. The Phase I requirements were designed to contain most of the information gathering requirements which are necessary. They are applicable during

both the interim status period and after permits are granted.

There are, however, some additional planning, recordkeeping, and reporting activities associated with the Phase II requirements promulgated today. The Agency is analyzing the added burden of these new regulations and will have a summary available soon in the EPA regional and headquarters libraries. Preliminary estimates have been summarized as follows:

Table VI.—*Information Burden Requirements*

Requirement	Hours			
	Phase I (May 1980)		Phase II (December 1980)	
	Initial	Recurring	Initial	Recurring
Subpart B (location)			10,219	
Subpart G (closure and post-closure)			29,500	
Subpart H (financial)			97,295	24,555
Subparts I, J, and L (storage)			4,252	24,806
Other	1,424,000	2,322,000		
Total	1,424,000	2,322,000	143,376	74,489

Most of the additional information burden of the general (Part 264) regulations is associated with preparation of Part B of the permit application (§ 122.25).

No burden has been estimated for the surface impoundment requirements (Subpart K) promulgated today. This stems from the Agency's belief that few existing surface impoundments and only a small group of new facilities will seek permits under these regulations. Thus the aggregate burden is very small on a national basis.

IX. Relationship to Polychlorinated Biphenyl Management

In the Preamble to the RCRA promulgation of May 19, 1980 (45 FR 33173), the Agency indicated its intent to incorporate the polychlorinated biphenyl (PCB) disposal regulations issued under the authority of the Toxic Substances Control Act (TSCA) into the RCRA hazardous waste regulations. The Agency has been working on this task, but it has turned out to be more difficult than expected. The PCB requirements are largely design and management oriented standards which lay down specific requirements. The RCRA regulations on the other hand, are more performance oriented and thus are made up largely of more general operating objectives rather than specific management requirements. EPA has not completed integration of the two regulatory programs but plans to do so in the near future. In the interim, the management of PCB's remains under the TSCA PCB regulations promulgated on February 17, 1978 (43 FR 7150) and May 31, 1979 (44 FR 31514).

X. OMB Review

Under the Federal Reports Act of 1942, the Office of Management and Budget (OMB) reviews reporting requirements in proposed forms and regulations in order to minimize the reporting burden on respondents and the cost to government. Although EPA has initiated discussions with the staff of OMB, time has prevented the completion and submission to OMB of the reporting requirements, and supporting materials, contained in these regulations. These regulations, pursuant to Section 3010(b) of the Act, do not take effect until six months after their promulgation. EPA anticipates that OMB review will be completed well before the reporting requirements take effect.

XI. Supporting Documents

The Agency has developed or will prepare two sets of documents in conjunction with the facility standards.

A. Background Documents

Seven background documents support these regulations, providing response to public comments and rationale for how and why the regulations have come to be written the way they are. In conjunction with the references listed in them, these documents provide the basis for and defense of the promulgated regulations.

For the most part, they are the same background documents issued in support of the May 19, 1980, promulgation, but they have been expanded to include: (a) summaries and responses to comments on the May 19 interim final, interim status regulations; (b) summaries and responses to comments on the propriety of certain May 19 regulations as interim status requirements; (c) summaries and responses to comments on the proposed (December 1978) general standards; and (d) rationale for the general standards promulgated today. The following documents directly support the regulations promulgated today.

Background Documents

General Facility and Location Standards
Closure and Post-Closure Care
Financial Requirements
Storage, Containers, and Piles
Tanks and Chemical, Physical, and Biological Treatment
Surface Impoundments

Copies of these documents are available for review in the EPA regional office libraries and at the EPA headquarters library, Room 2404, Waterside Mall, 401 M Street, S.W., Washington, D.C. 20460.

B. Guidance Documents

These regulations and those issued May 19, 1980, provide a complete set of requirements for managing hazardous wastes in many types of facilities. However, reliance on performance standards and the incorporation of case-by-case consideration of many factors provide considerable flexibility to accommodate new technologies, special needs of specific locations, and variations in waste characteristics.

To assist both owners and operators of facilities and regulatory officials, EPA is preparing a series of design and operation manuals. These will not have the effect of regulations, but will provide guidance on how facilities may be designed and operated to meet the standards. Other manuals will also provide guidance on what modifications and variations are likely to be effective under the variance procedures. They will be organized to correspond closely to the regulations and will be based on the collective knowledge of the Agency, the literature, and experts throughout the world. Manuals will also be prepared for testing, training, and monitoring.

EPA is preparing the following manuals in support of the entire hazardous waste regulatory program.

RCRA Guidance Manuals

Waste Analysis Plans
Contingency Plans
Ground-water Assessment Plans
Operating Records
Variance to Security Requirements
Variance to Ground-Water Monitoring Requirements
Variance to Post-Closure Care Requirements
Demonstration for Growing Food Chain Crops
Guidance for Subpart G, Closure and Post-Closure Care
Guidance for Subpart H, Financial Requirements

Personnel Training Guidance Manual
Permit Writers Guidance Manual: Containers
Permit Writers Guidance Manual: Tanks
Permit Writers Guidance Manual: Piles
Permit Writers Guidance Manual: Chemical, Physical and Biological Treatment
Permit Writers Guidance Manual: Thermal Treatment
Permit Writers Guidance Manual: Incineration
Permit Writers Guidance Manual: Site Selection
Permit Writers Guidance Manual: Waste Compatibility
Permit Writers Guidance Manual: Ground-Water Monitoring
Engineering Handbook for Hazardous Waste Incineration
Evaluating Cover Systems for Solid and Hazardous Waste
Hydrologic Simulation on Solid Waste Disposal Sites
Landfill and Surface Impoundment Performance Evaluation
Lining of Waste Impoundment and Disposal Facilities
Management of Hazardous Waste Leachate
Guide to the Disposal of Chemically Stabilized and Solidified Wastes
Closure of Hazardous Waste Surface Impoundments
Design and Management of Hazardous Waste Land Treatment Facilities
Soil Permeability Test Manual
Leachate quality from a Hazardous Waste Facility
Landfill Closure Manual
Ground-Water Monitoring for Owners or Operators of Treatment, Storage or Disposal Facilities

Dated: December 31, 1980.

Douglas M. Costle,

Administrator.

Title 40 CFR Parts 264, 265, and 122 are amended as set forth below.

The following sections are being promulgated on an interim final basis (see Preamble for discussion):

PART 264

Subpart B—General Facility Standards

264.17 General requirements for ignitable, reactive, or incompatible wastes.
264.18 Location standards.

Subpart G—Closure and Post-Closure

264.110 Applicability.
264.111 Closure performance standard.
264.112 Closure; Plan; amendment of plan.
264.113 Closure; time allowed for closure.
264.114 Disposal or decontamination of equipment.
264.115 Certification of closure.
264.117 Post-closure care and use of property.
264.118 Post-closure plan; amendment of plan.
264.119 Notice to local land authority.
264.120 Notice in deed to property.

Subpart H—Financial Requirements

264.140 Applicability.
264.141 Definitions.
264.142 Cost estimate for facility closure.
264.143 Financial assurance for facility closure.
264.144 Cost estimate for post-closure monitoring and maintenance.
264.145 Financial assurance for post-closure monitoring and maintenance.
264.146 Use of a mechanism for financial assurance of both closure and post-closure care.
264.147 Liability requirement.
264.148 Incapacity of institutions issuing letters of credit, surety bonds, or insurance policies.
264.149 Applicability of State financial requirements.
264.150 State assumption of responsibility.
264.151 Wording of the instruments.

Subpart I—Use and Management of Containers

264.170 Applicability.
264.171 Condition of containers.
264.172 Compatibility of waste with container.
264.173 Management of containers.
264.174 Inspections.
264.175 Containment.
264.176 Special requirements for ignitable or reactive waste.
264.177 Special requirements for incompatible wastes.
264.178 Closure.

Subpart J—Tanks

264.190 Applicability.
264.191 Design of tanks.
264.192 General operating requirements.
264.194 Inspections
264.197 Closure.
264.198 Special requirements for ignitable or reactive waste.
264.199 Special requirements for incompatible wastes.

Subpart K—Surface Impoundments

264.220 Applicability.
264.221 General design requirements.
264.222 General operating requirements.
264.223 Containment systems.
264.226 Inspections and testing.
264.227 Containment system repairs; contingency plans.
264.228 Closure.
264.229 Special requirements for ignitable or reactive waste.
264.230 Special requirements for incompatible wastes.

Subpart L—Waste Piles

264.250 Applicability.
264.251 General design requirements.
264.252 General operating requirements.
264.253 Containment systems.
264.254 Inspections and testing.
264.255 Containment system repairs; contingency plans.
264.256 Special requirements for ignitable or reactive waste.
264.257 Special requirements for incompatible wastes.
264.258 Closure.
Appendix V—Examples of potentially incompatible waste.
Appendix VI—Political jurisdictions in which compliance with § 264.18(a) must be demonstrated.

PART 265

Subpart G—Closure and Post-Closure

265.112 Closure plan; amendment of plan.
265.113 Closure; time allowed for closure.
265.117 Post-closure care and use of property.
265.118 Post-closure plan; amendment of plan.

Subpart H—Financial Requirements

265.141 Definitions.
265.143 Financial assurance for facility closure.
265.145 Financial assurance for post-closure care.
265.146 Use of a mechanism for financial assurance of both closure and post-closure care.
265.147 Liability requirement.
265.148 Incapacity of institutions issuing letters of credit, surety bonds, or insurance policies.
265.149 Applicability of State financial requirements.
265.150 State assumption of responsibility.
265.151 Wording of the instruments.

Part 122

122.15 Modification or revocation and reissuance of permits. (Paragraph (a)(7) only.)
122.17 Minor modifications of permits. (Pararaph (e)(2) only.
122.25 Contents of Part B. (All except Paragraphs 9a)(1)-(a)(10).)
122.29 Establishing RCRA permit conditions. (Paragraph (a) only.)

PART 264—STANDARDS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES

a. Amend Table of Contents as follows:

1. Add to Subpart B—General Facility Standards:

Sec.
264.17 General requirements for ignitable, reactive, or incompatible wastes.
264.18 Location standards.

2. Revise § 264.36 in Subpart C—Preparedness and Prevention:

264.36 [Reserved]

3. Add the following:

Subpart G—Closure and Post-Closure

264.110 Applicability.
264.111 Closure performance standard.
264.112 Closure plan; amendment of plan.
264.113 Closure; time allowed for closure.
264.114 Disposal or decontamination of equipment.
264.115 Certification of closure.
264.116 [Reserved]
264.117 Post-closure care and use of property.
264.118 Post-closure plan; amendment of plan.
264.119 Notice to local land authority.
264.120 Notice in deed to property.

b. Revise Subpart B—General Facility Standards as follows:

1. Revise § 264.10, to read as follows.

§ 264.10 Applicability.

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

(b) Section 264.18(b) is applicable only to facilities subject to regulation under Part 264, Subparts I, J, K, and L.

2. In § 264.13, revise the comment to paragraph (b)(3) and add paragraph (b)(6) as follows.

§ 264.13 General water analysis.

* * * * *

(b) * * *

(3) * * *

[*Comment:* See § 260.21 of this Chapter for related discussion.]

* * * * *

(6) Where applicable, the methods which will be used to meet the additional waste analysis requirements for specific waste management methods as specified in § 264.17.

3. Add the following comment at the end of § 264.14.

§ 264.14 [Amended]

[*Comment:* See § 264.117(b) for discussion of security requirements at disposal facilities during the post-closure care period.]

4. Add the following sentence to § 264.15, paragraph (b)(4);

§ 264.15 [Amended]

* * * * *

(b) * * *

(4) * * *

At a minimum, the inspection schedule must include the terms and frequencies called for in §§ 264.174, 264.194, 264.226, and 264.254, where applicable.

5. Add the following comment at the end of § 264.16(a).

§ 264.16 [Amended]

(a) * * *

[*Comment:* Part 122, Subpart B, of this Chapter requires that owners and operators submit with Part B of the RCRA permit application, an outline of the training program used (or to be used) at the facility and a brief description of how the training program is designed to meet actual job tasks.]

6. Add the following new §§ 264.17 and 264.18, which are issued as interim final rules:

§ 264.17 General requirements for ignitable, reactive, or incompatible wastes.

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

(b) Where specifically required by other Sections of this Part, the owner or operator of a facility that treats, stores or disposes ignitable or reactive waste, or mixes incompatible waste or incompatible wastes and other materials, must take precautions to prevent reactons 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 paragraphs (a) or (b) of this Section, the owner or operator must document that compliance. This documentation may be based on references to published scientific or engineering literature, data from trial tests (e.g., bench scale or pilot scale tests), waste analyses (as specified in § 264.13), or the results of the treatment of similar wastes by similar treatment processes and under similar operating conditions.

§ 264.18 Location standards.

(a) *Seismic considerations.* (1) Portions of new facilities where treatment, storage, or disposal of hazardous waste will be conducted must not be located within 61 meters (200

feet) of a fault which has had displacement in Holocene time.

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

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

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

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

[*Comment:* Procedures for demonstrating compliance with this standard in Part B of the permit application are specified in § 122.25(a)(11). Facilities which are located in political jurisdictions other than those listed in Appendix VI of this Part, are assumed to be in compliance with this requirement.]

(b) *Floodplains.* (1) A facility located in a 100-year floodplain must be designed, constructed, operated and maintained to prevent washout of any hazardous waste by a 100-year flood *unless* the owner or operator can demonstrate to the Regional Administrator that procedures are in effect which will cause the waste to be removed safely, before flood waters can reach the facility, to a location where the wastes will not be vulnerable to floodwaters.

[*Comment:* The location where wastes are moved must be a facility which is either permitted by EPA under Part 122 of this Chapter, authorized to manage hazardous waste by a State with a hazardous waste management program authorized under Part 123 of this Chapter, or in interim status under Parts 122 and 265 of this Chapter.]

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

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

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

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

[*Comment:* (1) Requirements pertaining to other Federal laws which affect the location and permitting of facilities are found in § 122.12 of this Chapter. For details relative to these laws, see EPA's manual for SEA (special environmental area) requirements for hazardous waste facility permits. Through EPA is responsible for complying with these requirements, applicants are advised to consider them in planning the location of a facility to help prevent subsequent project delays.]

§ 264.36 [Reserved]

c. Amend Subpart C by removing and reserving § 264.36.

d. Revise Subpart E as follows:

1. In § 264.73, add the following comment after paragraph (b)(2), revise paragraphs (b)(3) through (b)(6) and add (b)(7) to read as follows;

§ 264.73 [Amended]

* * * * *

(b) * * *

(2) * * *

[*Comment:* See § 264.119 for related requirements.]

(3) Records and results of waste analyses performed as specified in §§ 264.13 and 264.17;

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

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

(6) For off-site facilities, notices to generators as specified in § 264.12(b); and

(7) All closure cost estimates under § 264.142, and, for disposal facilities, all post-closure cost estimates under § 264.144.

2. In § 264.75, revise paragraphs (e) and (f) and add paragraphs (g) and (h) to read as follows;

§ 264.75 [Amended]

* * * * *

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

(f) [Reserved]

(g) The most recent closure cost estimate under § 264.142, and, for disposal facilities, the most recent post-closure cost estimate under § 264.144; and

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

3. Revise § 264.77 to read as follows:

§ 264.77 Additional reports.

In addition to submitting the annual report and unmanifested waste reports described in §§ 264.75 and 264.76, the owner or operator must also report to the Regional Administrator:

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

(b) [Reserved]; and

(c) Facility closure as specified in § 264.115.

e. Add new Subparts G, H, I, J, K, and L to Part 264 as follows; these Subparts are issued as interim final rules:

Subpart G—Closure and Post-Closure

§ 264.110 Applicability.

Except as § 264.1 provides otherwise:

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

(b) Sections 264.117–264.120 (which concern post-closure care) apply to the owners and operators of all hazardous waste disposal facilities.

§ 264.111 Closure performance standard.

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

(a) Minimizes the need for further maintenance, and

(b) Controls, minimizes or eliminates, to the extent necessary to prevent threats to human health and the environment, post-closure escape of hazardous waste, hazardous waste constituents, leachate, contaminated rainfall, or waste decomposition products to the ground or surface waters or to the atmosphere.

§ 264.112 Closure plan; amendment of plan.

(a) The owner or operator of a hazardous waste management facility must have a written closure plan. The plan must be submitted with the permit application, in accordance with § 122.25(a)(13) of this Chapter, and approved by the Regional Administrator as part of the permit issuance proceeding under Part 124 of this Chapter. In accordance with § 122.29 of this Chapter, the approved closure plan will become a condition of any RCRA permit. The Regional Administrator's decision must assure that the approved closure plan is consistent with §§ 264.111, 264.113, 264.114, 264.115 and the applicable requirements of §§ 264.178, 264.197, 264.228, and 264.258. A copy of the approved plan and all revisions to the plan must be kept at the facility until closure is completed and certified in accordance with § 264.115. The plan must identify steps necessary to completely or partially close the facility at any point during its intended operating life and to completely close the facility at the end of its intended operating life. The closure plan must include, at least:

(1) A description of how and when the facility will be partially closed, if applicable, and finally closed. The description must identify the maximum extent of the operation which will be unclosed during the life of the facility, and how the requirements of §§ 264.111, 264.113, 264.114, 265.115, and the applicable closure requirements of

§§ 264.178, 264.197, 264.228, and 264.258 will be met;

(2) An estimate of the maximum inventory of wastes in storage and in treatment at any time during the life of the facility. (Any change in this estimate is a minor modification under § 122.17);

(3) A description of the steps needed to decontaminate facility equipment during closure; and

(4) An estimate of the expected year of closure and a schedule for final closure. The schedule must include, at a minimum, the total time required to close the facility and the time required for intervening closure activities which will allow tracking of the progress of closure. (For example, in the case of a landfill, estimates of the time required to treat and dispose of all waste inventory and of the time required to place a final cover must be included.)

(b) The owner or operator may amend his closure plan at any time during the active life of the facility. (The active life of the facility is that period during which wastes are periodically received.) The owner or operator must amend the plan whenever changes in operating plans or facility design affect the closure plan, or whenever there is a change in the expected year of closure. When the owner or operator requests a permit modification to authorize a change in operating plans or facility design, he must request a modification of the closure plan at the same time (see § 124.5(a)). If a permit modification is not needed to authorize the change in operating plans or facility design, the request for modification of the closure plan must be made within 60 days after the change in plans or design occurs.

[*Comment:* Changes in estimates of maximum inventory and of the estimated year of closure under § 264.112(a) (2) and (4) may be made as minor permit modifications under § 122.17(e)].

(c) The owner or operator must notify the Regional Administrator at least 180 days prior to the date he expects to begin closure.

[*Comment:* The date when he "expects to begin closure" should be within 30 days after the date on which he expects to receive the final volume of wastes. If the facility's permit is terminated, or if the facility is otherwise ordered, by judicial decree or compliance order under Section 3008 of RCRA, to cease receiving wastes or to close, then the requirement of this paragraph does not apply. However, the owner or operator must close the facility in accordance with the deadlines established in § 264.113]

§ 264.113 Closure; time allowed for closure.

(a) Within 90 days after receiving the final volume of hazardous wastes, the owner or operator must treat, remove from the site, or dispose of on-site, all hazardous wastes in accordance with the approved closure plan. The Regional Administrator may approve a longer period if the owner or operator demonstrates that:

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

(ii)(A) The facility has the capacity to receive additional wastes;

(B) There is a reasonable likelihood that a person other than the owner or operator will recommence operation of the site; and

(C) Closure of the 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.

(b) The owner or operator must complete closure activities in accordance with the approved closure plan and within 180 days after receiving the final volume of wastes. The Regional Administrator may approve a longer closure period if the owner or operator demonstrates that:

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

(ii)(A) The facility has the capacity to receive additional wastes;

(B) There is reasonable likelihood that a person other than the owner or operator will recommence operation of the site; and

(C) Closure of the 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 inactive facility.

[*Comment:* Any extension of the 90 or 180 day period in this Section may be made as a minor modification under § 122.17. Under paragraphs (a)(1)(ii) and (b)(1)(ii) of this Section, if operation of the site is recommenced, the Regional Administrator may defer completion of closure activities until the new operation is terminated.]

§ 264.114 Disposal or decontamination of equipment.

When closure is completed, all facility equipment and structures must have been properly disposed of, or decontaminated by removing all hazardous waste and residues.

§ 264.115 Certification of closure.

When closure is completed, the owner or operator must submit to the Regional Administrator certification both by the owner or operator and by an independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved closure plan.

§ 264.116 [Reserved]

§ 264.117 Post-closure care and use of property.

(a)(1) Post-closure care must continue for 30 years after the date of completing closure and must consist of at least the following:

(i) Ground-water monitoring and reporting as applicable.

(ii) Maintenance of monitoring and waste containment systems as applicable.

(2)(i) During the 180-day period preceding closure (see § 264.112(c)) or at any time thereafter, the Regional Administrator may reduce the post-closure care period to less than 30 years if he finds that the reduced period is sufficient to protect human health and the environment (e.g., leachate or groundwater monitoring results, characteristics of the waste, application of advanced technology, or alternative disposal, treatment, or re-use techniques indicate that the facility is secure).

(ii) Prior to the time that the post-closure care period is due to expire, the Regional Administrator may extend the post-closure care period if he 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 waste at levels which may be harmful to human health and the environment).

(b) The Regional Administrator may require, at closure, continuation of any of the security requirements of (§ 264.14 during part or all of the post-closure period after the date of completing closure when:

(1) Wastes may remain exposed after completion of 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 closure must never be allowed to disturb the integrity of the final cover, liner(s), or any other components of any containment system, or the function of the facility's monitoring systems, unless the Regional Administrator 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 § 264.118.

§ 264.118 Post-closure plan; amendment of plan.

(a) The owner or operator of a disposal facility must have a written post-closure plan. The plan must be submitted with the permit application, in accordance with § 122.25(a)(13) of this Chapter, and approved by the Regional Administrator as part of the permit issuance proceeding under Part 124 of this Chapter. In accordance with § 122.29 of this Chapter, the approved post-closure plan will become a condition of any permit issued. A copy of the approved plan and all revisions to the plan must be kept at the facility until the post-closure care period begins. This plan must identify the activities which will be carried on after closure and the frequency of these activities, and include at least:

(1) A description of the planned ground-water monitoring activities and frequencies at which they will be performed;

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

(i) the intergrity of the cap and final cover or other containment structures where applicable; and

(ii) the function of the facility monitoring equipment and

(3) The name, address, and phone number of the person or office to contact about the disposal facility during the post-closure period. This person or office must keep an updated post-closure plan during the post-closure period.

(b) The owner or operator may amend his post-closure plan at any time during the active life of the disposal facility or during the post-closure care period. The owner or operator must amend his plan whenever changes in operating plans or facility design, or events which occur during the active life of the facility or during the post-closure period, affect his post-closure plan. He must also amend his plan whenever there is a change in the expected year of closure.

(c) When a permit modification is requested during the active life of the facility to authorize a change in operating plans or facility design, modification of the post-closure plan must be requested at the same time (see § 124.5(a)). In all other cases, the request for modification of the post-closure plan must be made within 60 days after the change in operating plans or facility design or the events which affect his post-closure plan occur.

§ 264.119 Notice to local land authority.

Within 90 days after closure is completed, the owner or operator of a disposal facility must submit to the local zoning authority or the authority with jurisdiction over local land use and to the Regional Administrator a survey plat indicating the location and dimensions of landfill cells or other disposal areas 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 site as specified in § 264.117(c). In addition, the owner or operator must submit to the local zoning authority or the authority with jurisdiction over local land use and to the Regional Administrator a record of the type, location, and quantity of hazardous wastes disposed of within each cell or area of the facility. For wastes disposed of before these regulations were promulgated, the owner or operator must identify the type, location and quantity of the wastes to the best of his knowledge and in accordance with any records he has kept. Any changes in the type, location, or quantity of hazardous wastes disposed of within each cell or area of the facility that occur after the survey plat and record of wastes have been filed must be reported to the local zoning authority or the authority with jurisdiction over local land use and to the Regional Administrator.

§ 264.120 Notice in deed to property.

(a) The owner of the property on which a disposal facility is located must record, in accordance with State law, a notation on the deed to the facility property—or on some other instrument which is normally examined during title search—that will in perpetuity notify any potential purchaser of the property that:

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

(2) Its use is restricted under § 264.117(c); and

(3) The survey plat and record of the type, location, and quantity of hazardous wastes disposed of within each cell or area of the facility required in § 265.119 have been filed with the local zoning authority or the authority with jurisdiction over local land use and with the Regional Administrator of the Environmental Protection Agency.

(b) If at any time the owner or operator or any subsequent owner of the land upon which a hazardous waste facility was located removes the waste and waste residues, the liner, if any, and all contaminated underlying and surrounding soil, he may remove the notation on the deed to the facility property or other instrument normally examined during title search, or he may add a notation to the deed or instrument indicating the removal of the waste.

[*Comment:* On removing the waste and waste residues, the liner, if any, and the contaminated soil, the owner or operator, unless he can demonstrate in accordance with § 261.3(d) of this Chapter that any solid waste removed is not a hazardous waste, becomes a generator of hazardous waste and must manage it in accordance with all applicable requirements of Parts 262–266 of this Chapter.]

Subpart H—Financial Requirements

§ 264.140 Applicability.

(a) The requirements of §§ 264.142, 264.143, and 264.146–151, apply to owners and operators of all hazardous waste facilities, except as provided otherwise in this Section or in § 264.1.

(b) The requirements of §§ 264.144 and 264.145 apply only to owners and operators of disposal facilities.

(c) States and the Federal government are exempt from the requirements of this Subpart.

§ 264.141 Definitions.

(a) When used in this Subpart, the following terms have the meanings given below:

"Compliance procedure" means any proceedings instituted pursuant to RCRA or regulations issued under authority of RCRA which seeks to require compliance or which is in the nature of an enforcement action or an action to cure a violation. A compliance procedure includes a compliance order or notice of intention to terminate a permit pursuant to Section 3008 of RCRA or Part 124 of this Chapter, or an application in the United States district court for appropriate relief pursuant to Sections 3008, 7002, or 7003 of RCRA. For the purposes of this Subpart, a compliance procedure is considered to be pending from the time an order or notice of intent to terminate is issued or judicial proceedings are begun until the Regional Administrator notifies the owner or operator in writing that the violation has been corrected or that the

procedure has been withdrawn or discontinued.

"Standby trust fund" means a trust fund which must be established by an owner or operator who obtains a letter of credit or surety bond as specified in these regulations. The institution issuing the letter of credit or surety bond will deposit into the standby trust fund any drawings by the Regional Administrator on the credit or bond.

(b) The following terms are used in the liability requirements. The definitions suggest what EPA believes are the common meanings of the terms as they are generally used in the insurance industry; the definitions are not intended to limit the meanings in a way that conflicts with general usage.

"Claims-made policy" means an insurance policy that provides coverage for an occurrence if a claim is filed during the term of the policy.

"Legal defense costs" means any expenses that an insurer incurs in defending against claims of third parties brought under the terms and conditions of an insurance policy.

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

"Occurrence" means an accident, including continuous or repeated exposure to conditions, which results in bodily injury or property damage which the owner or operator neither expected nor intended to occur.

"Sudden accident" means an unforeseen and unexpected occurrence which is not continuous or repeated in nature.

§ 264.142 Cost estimate for facility closure.

(a) The owner or operator must have a written estimate of the cost of closing the facility in accordance with the requirements in §§ 264.111–264.115 and applicable closure requirements in §§ 264.178, 264.197, 264.228, and 264.258. The owner or operator must keep this estimate, and all subsequent estimates required in this Section, at the facility. The estimate must equal the cost of closure at the point in the facility's operating life when the extent and manner of its operation would make closure the most expensive, as indicated by its closure plan [see § 264.112(a)].

[*Comment:* For example, the closure cost estimate for a particular landfill may be for the cost of closure when its active disposal operations extend over 20 acres, if at all other times these operations extend over less than 20 acres. The estimate would not include costs of partial closures that the closure plan schedules before or after the time of maximum closure cost.]

(b) The owner or operator must prepare a new closure cost estimate whenever a change in the closure plan affects the cost of closure.

(c) On each anniversary of the date on which the first estimate was prepared as specified in paragraph (a) of this Section, the owner or operator must adjust the latest closure cost estimate using an inflation factor derived from the annual Implicit Price Deflator for Gross National Product as published by the U.S. Department of Commerce in its *Survey of Current Business*. The inflation factor must be calculated by dividing the latest published annual Deflator by the Deflator for the previous year. The result is the inflation factor. The adjusted closure cost estimate must equal the latest closure cost estimate (see paragraph (b) of this Section) times the inflation factor.

[*Comments:* The following is a sample calculation of the adjusted closure cost estimate: Assume that the latest closure cost estimate for a facility is $50,000, the latest published annual Deflator is 152.05, and the annual Deflator for the previous year is 141.70. The Deflators may be rounded to the nearest whole number. Dividing 152 by 142 gives the inflation factor, 1.07. Multiply $50,000 by 1.07 for a product of $53,500—the adjusted closure cost estimate.

The closure cost estimate must be submitted to the Regional Administrator with Part B of the permit application under § 122.25 of this Chapter, and modification may be required as a condition of the permit.]

§ 264.143 Financial assurance for facility closure.

An owner or operator of each facility must establish financial assurance for closure of the facility. He must choose from among the following options:

(a) *Closure trust fund.* (1) An owner or operator may satisfy the requirements of this Section by establishing a closure trust fund which conforms to the requirements of this paragraph and by sending an originally signed duplicate of the trust agreement to the Regional Administrator by certified mail. An owner or operator of a new facility must send the originally signed duplicate of the trust agreement to the Regional Administrator by certified mail at least 60 days before the date on which hazardous waste is first received for treatment, storage, or disposal. The trustee must be a bank or other financial institution which has the authority to act as a trustee and whose trust operations are regulated and examined by a Federal or State agency.

(2) The wording of the trust agreement must be identical to the wording specified in § 264.151(a)(1) and the trust agreement must be accompanied by a formal certification of acknowledgment (for an example, see § 264.151(a)(2)).

(3) Payments to the trust fund must be made annually by the owner or operator over the term of the initial RCRA permit. The payments to the closure trust fund must be made as follows:

(i) For a new facility, as defined in § 260.10, the first payment must be made when the trust fund is established. The first payment must be at least equal to the closure cost estimate (see § 264.142), except as provided in paragraph (g) of this Section, divided by the number of years in the term of the permit. Subsequent payments must be made no later than 30 days after each anniversary date of the first payment. The amount of each subsequent payment must be determined by performing the following calculation:

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

where ACE is the adjusted closure cost estimate, CV is the current value of the trust fund, and Y is the number of years remaining in the term of the permit.

[*Comment:* The following is a sample calculation of subsequent payments: Assume that the adjusted closure cost estimate is $50,000, the current value of the trust is $35,000 and there are 3 years remaining in the term of the permit. Subtract $35,000 from $50,000, leaving $15,000. Divide $15,000 by 3. The result, $5,000, is the amount of the next payment to the trust fund. All amounts may be rounded to the nearest dollar.]

(ii) If an owner or operator established a trust fund as specified in Part 265, and the value of the trust fund does not equal the adjusted closure cost estimate when a permit is awarded for the facility, the amount of the adjusted closure cost estimate still to be paid into the trust fund must be paid in over the term of the permit. Payments must continue to be made no later than 30 days after each anniversary date of the first payment made pursuant to Part 265. The amount of each payment must be determined by performing the following calculation:

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

where ACE is the adjusted closure cost estimate, CV is the current value of the trust fund and Y is the number of years remaining in the term of the permit.

(4) The owner or operator may accelerate payments into the trust fund or he may deposit the full amount of the 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 the fund would have if annual payments were made as specified in paragraphs (a)(1) and (3) of this Section.

(5) If the owner or operator establishes a closure trust fund after having initially used one or more alternate mechanisms specified in this Section, his first payment must be at least the amount that the fund would have contained if the trust fund were established and annual payments made as specified in paragraph (a)(1) and (3) of this Section.

(6) After the term of the initial RCRA permit is completed, whenever the adjusted 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 (described in Section 10 of the trust agreement). If the value of the fund is less than the amount of the new estimate, the owner or operator must, within 60 days of the change in the cost estimate, deposit a sufficient amount into the fund so that its value after payment at least equals the amount of the new estimate, or obtain other financial assurance as specified in this Section to cover the difference.

(7) If the value of the trust fund is greater than the total amount of the adjusted closure cost estimate, the owner or operator may submit a written request to the Regional Administrator for release of the amount in excess of the adjusted closure cost estimate.

(8) If an owner or operator substitutes other financial assurance as specified in this Section for all or part of the trust fund, he may submit a written request to the Regional Administrator for release of the amount in the trust fund which is greater than the amount required as a result of such substitution.

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

(10) After beginning final closure, an owner or operator or any other person authorized to conduct closure may request reimbursement for closure expenditures by submitting itemized bills to the Regional Administrator. Within 60 days after receiving bills for closure activities, the Regional Administrator will instruct the trustee to make reimbursements in those amounts as the Regional Administrator specifies in writing, if the Regional Administrator determines that the closure expenditures are in accordance with the closure plan or otherwise justified.

[*Comment:* Ordinarily, the Regional Administrator will approve reimbursements only up to 80 percent of the value of the closure trust fund; the remaining 20 percent will be returned to the owner or operator or any other person authorized to perform closure upon satisfactory certification of closure as noted in paragraph (i) of this Section.]

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

(i) The owner or operator substitutes alternate fianancial assurance for closure as specified in this Section, or

(ii) The Regional Administrator notifies the owner or operator, in accordance with paragraph (i) of this Section, that he is no longer required by this Section to maintain financial assurance for closure of the facility.

(b) *Surety bond guaranteeing payment into a closure trust fund.* (1) An owner or operator may satisfy the requirements of this Section by obtaining a surety bond which conforms to the requirements of this paragraph and by having the bond delivered to the Regional Administrator by certified mail. An owner or operator of a new facility must have the surety bond delivered to the Regional Administrator by certified mail at least 60 days before the date on which hazardous waste is first received for treatment, storage, or disposal. The surety 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.

[*Comment:* Circular 570 is published in the Federal Register annually on July 1; interim changes in the Circular are also published in the Federal Register.]

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

(3) The owner or operator who uses a surety bond to satisfy the requirements of this Section must also establish a standby trust fund by the time the bond is obtained. Under the terms of the surety bond, all payments made thereunder will be deposited directly into the standby trust fund. This trust fund must meet the requirements specified in paragraph (a) of this Section, except that:

(i) An orginally signed duplicate of the trust agreement must be delivered to the Regional Administrator with the surety bond; and

(ii) After a nominal initial payment agreed upon between the trustee and the owner or operator, payments as specified in paragraph (a) of this Section are not required until the standby trust fund is funded pursuant to the requirements of this paragraph.

(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 at least 60 days prior to the expected date of 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 order to begin closure in accordance with Subpart G of this Part is issued by the Regional Administrator or by a U.S. district court pursuant to Section 3008, 7002, or 7003 of RCRA, or within 15 days after issuance of a notice of termination of the permit pursuant to Part 124 of this Chapter; or

(iii) Provide alternate financial assurance as specified in this Section within 30 days after receipt by the Regional Administrator of a notice of cancellation of the bond from the surety.

(5) 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 amount of the adjusted closure cost estimate (see § 264.142) except as provided in paragraph (g) of this Section.

(7) Whenever the adjusted closure cost estimate increases to an amount greater than the amount of the penal sum of the bond, the owner or operator must, within 60 days after the increase, cause the penal sum of the bond to be increased to an amount at least equal to the new estimate or obtain other financial assurance, as specified in this Section, to cover the increase. Whenever the adjusted closure cost estimate decreases, the penal sum may be reduced to the amount of the new estimate following written approval by the Regional Administrator. Notice of an increase or decrease in the penal sum must be sent to the Regional Administrator by certified mail within 60 days after the change.

(8) The bond shall remain in force unless the surety sends written notice of cancellation by certified mail to the owner or operator and to the Regional Administrator. Cancellation cannot occur, however:

(i) During the 90 days beginning on the date of receipt of the notice of cancellation by the Regional Administrator as shown on the signed return receipt; or

(ii) While a compliance procedure is pending, as defined in § 264.141.

(9) The surety bond no longer satisfies the requirements of this paragraph subsequent to the receipt by the Regional Administrator of a notice of cancellation of the surety bond. Upon receipt of such notice the Regional Administrator will issue a compliance order pursuant to Section 3008 of RCRA, unless the owner or operator has demonstrated alternate financial assurance as specified in this Section. In the event the owner or operator does not correct the violation by demonstrating such alternative financial assurance within 30 days after issuance of the compliance order, the Regional Administrator may direct the surety to place the penal sum of the bond in the standby trust fund.

(10) The owner or operator may cancel the bond if the Regional Administrator has given prior written consent based on receipt of evidence of alternate financial assurance as specified in this Section.

(11) The Regional Administrator will notify the surety when the owner or operator funds the standby trust fund in the amount guaranteed by the surety bond or if he provides alternate financial assurance as specified in this Section.

(c) *Surety bond guaranteeing performance of closure.*

(1) An owner or operator may satisfy the requirements of this Section by obtaining a surety bond which conforms to the requirements of this paragraph and by having the bond delivered to the Regional Administrator by certified mail. An owner or operator of a new facility must have the surety bond delivered to the Regional Administrator by certified mail at least 60 days before the date on which hazardous waste is first received for treatment, storage, or disposal. The surety 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.

[*Comment:* Circular 570 is published in the Federal Register annually on July 1; interim changes in the Circular are also published in the Federal Register.]

(2) The wording of the surety bond must be identical to the wording specified in § 264.151(c).

(3) The owner or operator who uses a surety bond to satisfy the requirements of this Section must also establish a standby trust fund by the time the bond is obtained. Under the terms of the surety bond, all payments made thereunder will be deposited directly into the standby trust fund. This trust must meet the requirements specified in paragraph (a) of this Section, except that:

(i) An orginally signed duplicate of the trust agreement must be delivered to the Regional Administrator with the surety bond; and

(ii) After a nominal initial payment agreed upon between the trustee and the owner or operator, payments as specified in paragraph (a) of this Section are not required unless the standby trust fund is funded pursuant to the requirements of this paragraph.

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

(i) Perform final closure in accordance with the closure plan and other requirements in the permit for the facility; or

(ii) Perform final closure in accordance with Subpart G of this Part following an order to begin closure issued by the Regional Administrator or by a U.S. district court pursuant to Section 3008, 7002, or 7003 of RCRA, or following issuance of a notice of termination of the permit pursuant to Part 124 of this Chapter; or

(iii) Provide alternate financial assurance as specified in this Section within 30 days after receipt by the Regional Administrator of a notice of cancellation of the bond from the surety.

(5) 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 amount of the adjusted closure cost estimate (see § 264.142).

(7) Whenever the adjusted closure cost estimate increases to an amount greater than the amount of the penal sum of the bond, the owner or operator must, within 60 days after the increase, cause the penal sum of the bond to be increased to an amount at least equal to the new estimate or obtain other financial assurance, as specified in this Section, to cover the increase. Whenever the adjusted closure cost estimate decreases, the penal sum may be reduced to the amount of the adjusted closure cost estimate following written approval by the Regional Administrator. Notice of an increase or decrease in the penal sum must be sent to the Regional Administrator by certified mail within 60 days after the change.

(8) The bond shall remain in force unless the surety sends written notice of cancellation by certified mail to the owner or operator and to the Regional Administrator. Cancellation cannot occur, however:

(i) During the 90 days beginning on the date of receipt of the notice of cancellation by the Regional Administrator as shown on the signed return receipt; or

(ii) While a compliance procedure is pending, as defined in § 264.141.

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

(10) The surety bond no longer satisfies the requirements of this paragraph subsequent to the receipt by the Regional Administrator of a notice of cancellation of the surety bond. Upon receipt of such notice the Regional Administrator will issue a compliance order pursuant to Section 3008 of RCRA, unless the owner or operator has demonstrated alternate financial assurance as specified in this Section. In the event the owner or operator does not correct the violation by demonstrating such alternate financial assurance within 30 days after issuance of the compliance order, the Regional Administrator may direct the surety to place the penal sum of the bond in the standby trust fund.

(11) The owner or operator may cancel the bond if the Regional Administrator has given prior written consent based on receipt of evidence of alternate financial assurance as specified in this Section.

(12) The Regional Administrator will notify the surety if the owner or operator provides alternate financial assurance as specified in this Section.

(13) The surety will not be liable for deficiencies in the performance of closure by the owner or operator after the owner or operator has been notified by the Regional Administrator, in accordance with paragraph (i) of this Section, that he is no longer required by

this Section to maintain financial assurance for closure of the facility.

(d) *Closure letter of credit.* (1) An owner or operator may satisfy the requirements of this Section by obtaining an irrevocable standby letter of credit which conforms to the requirements of this paragraph and by having it delivered to the Regional Administrator by certified mail. An owner or operator of a new facility must have the letter of credit delivered to the Regional Administrator by certified mail 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 the initial receipt of hazardous waste. The issuing institution must be a bank or other financial institution which has the authority to issue letters of credit and whose letter of credit operations are regulated and examined by a Federal or State agency.

(2) The wording of the letter of credit must be identical to the wording specified in § 264.151(f).

(3) An owner or operator who uses a letter of credit to satisfy the requirements of this Section must also establish a standby trust fund by the time the letter of credit is obtained. Under the terms of the letter of credit, all amounts paid pursuant to a draft by the Regional Administrator will be deposited promptly and directly by the issuing institution into the standby trust fund. The standby trust fund must meet the requirements of the trust fund specified in paragraph (a) of this Section, except that:

(i) An originally signed duplicate of the trust agreement must be delivered to the Regional Administrator with the letter of credit; and

(ii) After a nominal initial payment agreed upon between the trustee and the owner or operator, payments as specified in paragraph (a) of this Section are not required unless the standby trust fund is funded pursuant to the requirements of this paragraph.

(4) The letter of credit must be irrevocable and issued for a period of at least 1 year. The letter of credit must provide that the expiration date will be automatically extended for a period of at least 1 year. If the issuing institution decides not to extend the letter of credit beyond the then current expiration date it must, at least 90 days before that date, notify both the owner or operator and the Regional Administrator by certified mail of that decision. The 90-day period will begin on the date of receipt by the Regional Administrator as shown on the signed return receipt. Expiration cannot occur, however, while a compliance procedure is pending as defined in § 264.141.

(5) The letter of credit must be issued for at least the amount of the adjusted closure cost estimate (see § 264.142), except as provided in paragraph (g) of this Section.

(6) Whenever the adjusted closure cost estimate increases to an amount greater than the amount of the credit the owner or operator must, within 60 days of the increase, cause the amount of the credit to be increased to an amount at least equal to the new estimate or obtain other financial assurance as specified in this Section to cover the increase. Whenever the adjusted closure cost estimate decreases the letter of credit may be reduced to the amount of the new estimate following written approval by the Regional Administrator. Notice of an increase or decrease in the amount of the credit must be sent to the Regional Administration by certified mail within 60 days of the change.

(7) Following a determination pursuant to Section 3008 of RCRA that the owner or operator has failed, when required to do, to perform closure in accordance with the closure plan or other permit requirements, the Regional Administrator may draw on the letter of credit.

(8) The letter of credit no longer satisfies the requirements of this paragraph subsequent to the receipt by the Regional Administrator of a notice from the issuing institution that it has decided not to extend the letter of credit beyond the then current expiration date. Upon receipt of such notice, the Regional Administrator will issue a compliance order pursuant to Section 3008 of RCRA, unless the owner or operator has demonstrated alternate financial assurance as specified in this Section. In the event the owner or operator does not correct the violation by demonstrating such alternate financial assurance within 30 days of issuance of the compliance order, the Regional Administrator may draw on the letter of credit.

(9) The Regional Administrator will return the original letter of credit to the issuing institution for termination when:

(i) The owner or operator substitutes alternate financial assurance for closure as specified in this Section, or

(ii) The Regional Administrator notifies the owner or operator, in accordance with paragraph (i) of this Section, that he is no longer required by this Section to maintain financial assurance for closure of the facility.

(e) and (f) [Reserved].

(g) *Use of multiple financial mechanisms.* An owner or operator may satisfy the requirements of this Section by establishing more than one financial mechanism. These mechanisms are limited to trust funds, surety bonds guaranteeing payment into a closure trust fund, and letters of credit. The mechanisms must be as specified in paragraphs (a), (b), and (d), respectively, of this Section, except that it is the combination of mechanisms, rather than each single mechanism, which must provide financial assurance for an amount at least equal to the adjusted closure cost estimate. If an owner or operator uses a trust fund in combination with a surety bond or letter of credit, he may use the trust fund as the standby trust fund for the bond or letter of credit. If the multiple mechanisms include only surety bonds and letters of credit, a single standby trust may be established for all these mechanisms. The Regional Administrator may invoke use of any or all of the mechanisms, in accordance with the requirements of paragraphs (a), (b), and (d) of this Section, to provide for closure of the facility.

(h) *Use of a financial mechanism for multiple facilities.* (1) An owner or operator may use a financial assurance mechanism specified in this Section to meet the requirements of this Section for more than one facility of which he is the owner or operator. Evidence of financial assurance submitted to the Regional Administrator must include a list showing, for each facility, the EPA Identification Number, name, address, and the amount of funds for closure assured by the mechanism. If the list is changed by addition or subtraction of a facility or by an increase or decrease in the amount of funds assured for closure of one or more facilities, a corrected list must be sent to the Regional Administrator within 60 days of such change. 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.

(2) A letter of credit may not be used to assure funds for facilities in more than one Region. If other financial mechanisms specified in this Section cover facilities that are located in more than one Region, the regional Administrators for all Regions in which the facilities are located must be involved in all transactions that involve the Regional Administrator, except when the transactions involve only those facilities in one Region.

(i) *Release of the owner or operator from the requirements of this Section.* Within 60 days after receiving certifications from the owner or operator

and an independent registered professional engineer that closure has been accomplished in accordance with the closure plan (see § 264.115), the Regional Administrator will notify the owner or operator in writing that he is no longer required by this Section to maintain financial assurance for closure of the particular facility, unless the Regional Administrator has reason to believe that closure has not been in accordance with the closure plan.

[*Comment:* The notice releases the owner or operator only from requirements for financial assurance for closure of the facility; it does not release him from legal responsibility for meeting the closure standards.]

§ 264.144 Cost estimate for post-closure monitoring and maintenance.

(a) The owner or operator of a disposal facility must have a written estimate of the annual cost of post-closure monitoring and maintenance of the facility in accordance with the applicable post-closure regulations in §§ 264.117–264.120. The owner or operator must keep this estimate, and all subsequent estimates required in this Section, at the facility.

(b) The owner or operator must prepare a new annual post-closure cost estimate whenever a change in the post-closure plan affects the cost of post-closure care [see § 264.118(b)]. The latest post-closure cost estimate is calculated by multiplying the latest annual post-closure cost estimate by the number of years of post-closure care required in the latest post-closure plan approved for the facility by the Regional Administrator.

(c) On each anniversary of the date on which the first estimate was prepared as specified in paragraph (a) of this Section, during the operating life of the facility, the owner or operator must adjust the latest post-closure cost estimate using the inflation factor calculated in accordance with § 264.142(c). The adjusted post-closure cost estimate must equal the latest post-closure cost estimate (see paragraph (b) of this Section) times the inflation factor.

[*Comment:* The post-closure cost estimate must be submitted to the Regional Administator with Part B of the permit application under § 122.25 of this Chapter, and modification may be required as a condition of the permit.]

§ 264.145 Financial assurance for post-closure monitoring and maintenance.

An owner or operator of each disposal facility must establish financial assurance for post-closure care in accordance with the approved post-closure plan for the facility. He must choose from among the following options:

(a) *Post-closure trust fund.* (1) An owner or operator may satisfy the requirements of this Section by establishing a post-closure trust fund which conforms to the requirements of this paragraph and by sending an originally signed duplicate of the trust agreement to the Regional Administrator by certified mail. An owner or operator of a new facility must send the originally signed duplicate of the trust agreement to the Regional Administrator by certified mail at least 60 days before the date on which hazardous waste is first received for disposal. The trustee must be a bank or other financial institution which has the authority to act as a trustee and whose trust operations are regulated and examined by a Federal or State agency.

(2) The wording of the trust agreement must be identical to the wording specified in § 264.151(a)(1) and the trust agreement must be accompanied by a formal certification of acknowledgment (for an example, see § 264.151(a)(2)).

(3) Payments to the trust fund must be made annually by the owner or operator over the term of the initial RCRA permit. The payments to the post-closure trust fund must be made as follows:

(i) For a new facility, as defined in § 260.10, the first payment must be made when the trust fund is established. The first payment must be at least equal to the post-closure cost estimate (see § 264.144), except as provided in paragraph (g) of this Section, divided by the number of years in the term of the permit. Subsequent payments must be made no later than 30 days after each anniversary date of the first payment. The amount of each subsequent payment must be determined by performing the following calculation:

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

where ACE is the adjusted post-closure cost estimate, CV is the current value of the trust fund, and Y is the number of years remaining in the term of the permit.

[*Comment:* The following is a sample calculation of subsequent payments: Assume that the adjusted post-closure cost estimate is $50,000, the current value of the trust fund is $35,000 and there are 3 years remaining in the term of the permit. Subtract $35,000 from $50,000, leaving $15,000. Divide $15,000 by 3. The result, $5,000, is the amount of the next payment to the trust fund. All amounts may be rounded to the nearest dollar.]

(ii) If an owner or operator established a trust fund as specified in Part 265, and the value of the fund does not equal the adjusted post-closure cost estimate when a permit is awarded for the facility, the amount of the adjusted post-closure cost estimate still to be paid into the fund must be paid in over the term of the permit. Payments must continue to be made no later than 30 days after each anniversary date of the first payment made pursuant to Part 265. The amount of each payment must be determined by performing the following calculation:

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

where ACE is the adjusted post-closure cost estimate, CV is the current value of the trust fund and Y is the number of years remaining in the term of the permit.

(4) The owner or operator may accelerate payments into the trust fund or he may deposit the full amount of the 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 the fund would have if annual payments were made as specified in paragraphs (a)(1) and (3) of this Section.

(5) If the owner or operator establishes a post-closure trust fund after having initially used one or more alternate mechanisms specified in this Section, his first payment must be at least the amount that the fund would have contained if the trust fund were established and annual payments made as specified in paragraphs (a)(1) and (3) of this Section.

(6) After the term of the initial RCRA permit is completed, whenever the adjusted post-closure cost estimate changes during the operating life of the facility, the owner or operator must compare the new estimate with the trustee's most recent annual valuation of the trust fund (described in Section 10 of the trust agreement). If the value of the fund is less than the amount of the new estimate, the owner or operator must, within 60 days of the change in the cost estimate, deposit a sufficient amount into the fund so that its value after payment at least equals the amount of the new estimate, or obtain other

financial assurance as specified in this Section to cover the difference.

(7) If the value of the trust fund is greater than the total amount of the adjusted post-closure cost estimate, the owner or operator may submit a written request to the Regional Administrator for release of the amount in excess of the adjusted post-closure cost estimate.

(8) If an owner or operator substitutes other financial assurance as specified in this Section for all or part of the trust fund, he may submit a written request to the Regional Administrator for release of the amount in the trust fund which is greater than the amount required as a result of such substitution.

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

(10) An owner or operator or any other person authorized to conduct post-closure may request reimbursement for post-closure expenditures by submitting itemized bills to the Regional Administrator. Within 60 days after receiving bills for post-closure activities, the Regional Administrator will instruct the trustee to make reimbursements in those amounts as the Regional Administrator specifies in writing, if the Regional Administrator determines that the post-closure expenditures are in accordance with the post-closure plan or otherwise justified.

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

(i) The owner or operator substitutes alternate financial assurance for post-closure as specified in this Section, or

(ii) The Regional Administrator notifies the owner or operator, in accordance with paragraph (i) of this Section, that he is no longer required by this Section to maintain financial assurance for post-closure care of the facility.

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

(1) An owner or operator may satisfy the requirements of this Section by obtaining a surety bond which confirms to the requirements of this paragraph and by having the bond delivered to the Regional Administrator by certified mail. An owner or operator of a new facility must have the surety bond delivered to the Regional Administrator by certified mail at least 60 days before the date on which hazardous waste is first received for disposal. The surety 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.

[*Comment:* Circular 570 is published in the Federal Register annually on July 1; interim changes in the Circular are also published in the Federal Register.]

(2) The wording of the surety bond must be identical to the wording specified in § 264.151(d).

(3) The owner or operator who uses a surety bond to satisfy the requirements of this Section must also establish a standby trust fund by the time the bond is obtained. Under the terms of the surety bond, all payments made thereunder will be deposited directly into the standby trust fund. This trust fund must meet the requirements specified in paragraph (a) of this Section, except that:

(i) An originally signed duplicate of the trust agreement must be delivered to the Regional Administrator with the surety bond; and

(ii) After a nominal initial payment agreed upon between the trustee and the owner or operator, payments as specified in paragraph (a) of this Section are not required until the standby trust fund is funded pursuant to the requirements of this paragraph.

(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 by 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 order to begin closure in accordance with Subpart G of this Part is issued by the Regional Administrator or by a U.S. district court pursuant to Section 3008, 7002, or 7003 of RCRA, or within 15 days after issuance of a notice of termination of the permit pursuant to Part 124 of this Chapter; or

(iii) Provide alternate financial assurance as specified in this Section within 30 days after receipt by the Regional Administrator of a notice of cancellation of the bond from the surety.

(5) 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 amount of the adjusted post-closure cost estimate (see § 264.144) except as provided in paragraph (g) of this Section.

(7) Whenever the adjusted post-closure cost estimate increases to an amount greater than the penal sum of the bond the owner or operator must, within 60 days after the increase cause the penal sum of the bond to be increased to an amount at least equal to the new estimate or obtain other financial assurance, as specified in this Section, to cover the increase. Whenever the adjusted post-closure cost estimate decreases the penal sum may be reduced to the amount of the new cost estimate following written approval by the Regional Administrator. Notice of an increase or decrease in the penal sum must be sent to the Regional Administrator by certified mail within 60 days after the change.

(8) The bond shall remain in force unless the surety sends written notice of cancellation by certified mail to the owner or operator and to the Regional Administrator. Cancellation cannot occur, however:

(i) During the 90 days beginning on the date of receipt of the notice of cancellation by the Regional Administrator as shown on the signed return receipt; or

(ii) While a compliance procedure is pending, as defined in § 264.141.

(9) The surety bond no longer satisfies the requirements of this paragraph subsequent to the receipt by the Regional Administrator of a notice of cancellation of the surety bond. Upon receipt of such notice the Regional Administrator will issue a compliance order pursuant to Section 3008 of RCRA, unless the owner or operator has demonstrated alternate financial assurance as specified in this Section. In the event the owner or operator does not correct the violation by demonstrating such alternate financial assurance within 30 days after issuance of the compliance order, the Regional Administrator may direct the surety to place the penal sum of the bond in the standby trust fund.

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

(11) The Regional Administrator will notify the surety when the owner or operator funds the standby trust fund in the amount guaranteed by the surety bond or if he provides alternate financial assurance as specified in this Section.

(c) *Surety bond guaranteeing performance of post-closure care.*

(1) An owner or operator may satisfy the requirements of this Section by obtaining a surety bond which conforms to the requirements of this paragraph and by having the bond delivered to the Regional Administrator by certified mail. An owner or operator of a new facility must have the surety bond

delivered to the Regional Administrator by certified mail at least 60 days before the date on which hazardous waste is first received for disposal. The surety 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 sure ties on Federal bonds in Circular 570 of the U.S. Department of Treasury.

[*Comment:* Circular 570 is published in the Federal Register annually on July 1; interim changes in the Circular are also published in the Federal Register.]

(2) The wording of the surety bond must be identical to the wording specified in § 264.151(e).

(3) The owner or operator who uses a surety bond to satisfy the requirements of this Section must also establish a standby trust fund by the time the bond is obtained. Under the terms of the surety bond, all payments made thereunder will be deposited into the standby trust fund. This trust fund must meet the requirements specified in paragraph (a) of this Section, except that:

(i) An originally signed duplicate of the trust agreement must be delivered to the Regional Administrator with the surety bond; and

(ii) After a nominal initial payment agreed upon between the trustee and the owner or operator, payments as specified in paragraph (a) of this Section are not required unless the standby trust fund is funded pursuant to the requirements of this paragraph.

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

(i) Perform post-closure care in accordance with the post-closure plan and other requirements of the permit; or

(ii) Provide alternate financial assurance within 30 days of receipt by the Regional Administrator of a notice of cancellation of the bond from the surety.

(5) 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 adjusted post-closure cost estimate (see § 264.144).

(7) Whenever the adjusted post-closure cost estimate increases to an amount greater than the penal sum of the bond during the operating life of the facility, the owner or operator must, within 60 days after the increase in the estimate, cause the penal sum of the bond to be increased to an amount at least equal to the new estimate or obtain other financial assurance, as specified in this Section, to cover the increase. Whenever the adjusted post-closure cost estimate decreases during the operating life of the facility, the penal sum may be reduced to the amount of the new estimate following written approval by the Regional Administrator. Notice of an increase or decrease in the penal sum must be sent to the Regional Administrator by certified mail within 60 days after the change.

(8) During the period of post-closure care, the Regional Administrator may approve a decrease in the penal sum of the surety bond if the owner or operator demonstrates to the Regional Administrator that the amount exceeds the remaining cost of post-closure care.

(9) The bond shall remain in force unless the surety sends written notice of cancellation by certified mail to the owner or operator and to the Regional Administrator. Cancellation cannot occur, however:

(i) During the 90 says beginning on the date of receipt of the notice of cancellation by the Regional Administrator as shown on the signed return receipt; or

(ii) While a compliance procedure is pending, as defined in § 264.141.

(10) Following a determination pursuant to Section 3008 of RCRA that the owner or operator has failed to perform post-closure care in accordance with the post-closure plan and other permit requirements, under the terms of the bond the surety will perform post-closure care in accordance with the post-closure plan and other permit requirements or deposit the amount of the penal sum into the standby trust fund.

(11) The surety bond no longer satisfies the requirements of this paragraph subsequent to the receipt by the Regional Administrator of a notice of cancellation of the surety bond. Upon receipt of such a notice the Regional Administrator will issue a compliance order pursuant to Section 3008 of RCRA unless the owner or operator has demonstrated alternate financial assurance as specified in this Section. In the event the owner or operator does not correct the violation by demonstrating such alternate financial assurance within 30 days after issuance of the compliance order, the Regional Administrator may direct the surety to place the penal sum of the bond in the standby trust fund.

(12) The owner or operator may cancel the bond if the Regional Administrator has given prior written consent, based on his receipt of evidence of alternate financial assurance as specified in this Section.

(13) The Regional Administrator will notify the surety if the owner or operator provides alternate financial assurance as specified in this Section.

(14) The surety will not be liable for deficiencies in the performance of post-closure care by the owner or operator after the owner or operator has been notified by the Regional Administrator, in accordance with paragraph (i) of this Section, that he is no longer required by this Section to maintain financial assurance for post-closure care of the facility.

(d) *Post-closure letter of credit.* (1) An owner or operator may satisfy the requirements of this Section by obtaining an irrevocable standby letter of credit which conforms to the requirements of this paragraph and by having it delivered to the Regional Administrator by certified mail. An owner or operator of a new facility must have the letter of credit delivered to the Regional Administrator by certified mail at least 60 days before the date on which hazardous waste is first received for disposal. The letter of credit must be effective before this initial receipt of hazardous waste. The issuing institution must be a bank or other financial institution which has the authority to issue letters of credit and whose letter of credit operations are regulated and examined by a Federal or State agency.

(2) The wording of the letter of credit must be identical to the wording specified in § 264.151(f).

(3) An owner or operator who uses a letter of credit to satisfy the requirements of this Section must also establish a standby trust fund by the time the letter of credit is obtained. Under the terms of the letter of credit, all amounts paid pursuant to a draft by the Regional Administrator will be deposited promptly and directly by the issuing institution into the standby trust fund. The standby trust fund must meet the requirements of the trust fund specified in paragraph (a) of this Section, except that:

(i) An originally signed duplicate of the trust agreement must be delivered to the Regional Administrator with the letter of credit; and

(ii) After a nominal initial payment agreed upon between the trustee and the owner or operator, payments as specified in paragraph (a) of this Section are not required unless the standby trust fund is funded pursuant to the requirements of this paragraph.

(4) The letter of credit must be irrevocable and issued for a period of at least 1 year. The letter of credit must provide that the expiration date will be automatically extended for a period of at least 1 year. If the issuing institution decides not to extend the letter of credit beyond the then current expiration date

it must, at least 90 days before that date, notify both the owner or operator and the Regional Administrator by certified mail of that decision. The 90-day period will begin on the date of receipt by the Regional Administrator as shown on the signed return receipt. Expiration cannot occur, however, while a compliance procedure is pending as defined in § 264.141.

(5) The letter of credit must be issued for at least the amount of the adjusted post-closure cost estimate (see § 264.144), except as provided in paragraph (g) of this Section.

(6) Whenever the adjusted post-closure cost estimate increases to an amount greater than the amount of the credit during the operating life of the facility the owner or operator must, within 60 days of the increase, cause the amount of the credit to be increased to an amount at least equal to the new estimate or obtain other financial assurance as specified in this Section to cover the increase. Whenever the adjusted post-closure cost estimate decreases during the operating life of the facility, the letter of credit may be reduced to the amount of the new estimate following written approval by the Regional Administrator. Notice of an increase or decrease in the amount of the credit must be sent to the Regional Administrator by certified mail within 60 days of the change.

(7) During the period of post-closure care, the Regional Administrator may approve a decrease in the amount of the letter of credit if the owner or operator demonstrates to the Regional Administrator that the amount exceeds the remaining cost of post-closure care.

(8) Following a determination pursuant to Section 3008 of RCRA that the owner or operator has failed, when required to do so, to perform post-closure in accordance with the post-closure plan or other permit requirements, the Regional Administrator may draw on the letter of credit.

(9) The letter of credit no longer satisfies the requirements of this paragraph subsequent to the receipt by the Regional Administrator of a notice from the issuing institution that it has decided not to extend the letter of credit beyond the then current expiration date. Upon receipt of such notice, the Regional Administrator will issue a compliance order pursuant to Section 3008 of RCRA, unless the owner or operator has demonstrated alternate financial assurance as specified in this Section. In the event the owner or operator does not correct the violation by demonstrating such alternate financial assurance within 30 days of issuance of the commpliance order, the Regional Administrator may draw on the letter of credit.

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

(i) The owner or operator substitutes alternate financial assurance for post-closure care as specified in this Section, or

(ii) The Regional Administrator notifies the owner or operator, in accordance with paragraph (i) of this Section, that he is no longer required by this Section to maintain financial assurance for post-closure of the facility.

(e) and (f) [Reserved].

(g) *Use of multiple financial mechanisms.* An owner or operator may satisfy the requirements of this Section by establishing more than one financial mechanism. These mechanisms are limited to trust funds, surety bonds guaranteeing payment into a post-closure trust fund, and letters of credit. The mechanisms must be as specified in paragraphs (a), (b), and (d), respectively, of this Section, except that it is the combination of mechanisms, rather than each single mechanism, which must provide financial assurance for an amount at least equal to the adjusted post-closure cost estimate. If an owner or operator uses a trust fund in combination with a surety bond or letter of credit, he may use the trust fund as the standby trust fund for the bond or letter of credit. If the multiple mechanisms include only surety bonds and letters of credit, a single standby trust may be established for all these mechanisms. The Regional Administrator may invoke use of any or all of the mechanisms, in accordance with the requirements of paragraphs (a), (b) and (d) of this Section, to provide for post-closure care of the facility.

(h) *Use of a financial mechanism for multiple facilities.* (1) An owner or operator may use a financial assurance mechanism specified in this Section to meet the requirements of this Section for more than one facility of which he is the owner or operator. Evidence of financial assurance submitted to the Regional Administrator must include a list showing, for each facility, the EPA Identification Number, name, address, and the amount of funds for post-closure care assured by the mechanism. If the list is changed by addition or subtraction of a facility or by an increase or decrease in the amount of funds assured for post-closure care of one or more facilities, a corrected list must be sent to the Regional Administrator within 60 days of such change. 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.

(2) A letter of credit may not be used to assure funds for facilities located in more than one Region. If other financial mechanisms specified in this Section cover facilities that are located in more than one Region, the Regional Administrators for all Regions in which the facilities are located must be involved in all transactions that involve the Regional Administrator, except when the transactions involve only those facilities in one Region.

(i) *Release of the owner or operator from the requirements of this Section.* When an owner or operator has completed, to the satisfaction of the Regional Administrator, all post-closure care requirements for the period of post-closure care specified in the permit for the facility or the period specified by the Regional Administrator after closure, whichever period is shorter, the Regional Administrator will, at the request of the owner or operator, notify him in writing that he is no longer required by this Section to maintain financial assurance for post-closure care of the particular facility.

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

§ 264.146 Use of a mechanism for financial assurance of both closure and post-closure care.

An owner or operator may use one of the following financial assurance mechanisms to provide financial assurance for both closure and post-closure care of one or more facilities of which he is the owner or operator:

(a) A trust fund that meets the specifications of both § 264.143(a) and § 264.145(a), or

(b) A letter of credit that meets the specifications of both § 264.143(d) and § 264.145(d).

The amount of funds available under the mechanism must be no less than the sum of funds that would be available if a separate mechanism had been established and maintained for financial assurance of closure and of post-closure care of each facility.

§ 264.147 Liability requirements.

(a) An owner or operator of a hazardous waste treatment, storage, or disposal facility, or a group of such facilities, must demonstrate financial responsibility for claims arising from the operations of each such facility or group

of facilities from sudden and accidental occurrences that cause injury to persons or property. An owner or operator must have and maintain liability insurance for sudden 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. As evidence of this liability insurance, an owner or operator must deliver an originally signed duplicate of the insurance policy to the Regional Administrator, or Regional Administrators if the facilities are in more than one Region, by certified mail. An owner or operator of a new facility must send the originally signed duplicate of the insurance policy to the Regional Administrator by certified mail 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. Each policy must be for limits of liability not less than the minimum amounts required by this paragraph and each policy must be amended, in order to comply with the requirements of this regulation, by attachment of the Hazardous Waste Facility Liability Endorsement. The wording of the endorsement must be identical to the wording specified in § 264.151(g).

(b) An owner or operator of a surface impoundment, landfill, or land treatment facility which is used to manage hazardous waste, or a group of such facilities, must demonstrate financial responsibility for claims arising from the operations of each such facility or group of facilities from nonsudden and accidental occurrences that cause injury to persons or property. An owner or operator must have and maintain liability insurance for nonsudden 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. As evidence of this liability insurance, an owner or operator of an existing surface impoundment, landfill, or land treatment facility must deliver an originally signed duplicate of the insurance policy to the Regional Administrator, or Regional Administrators if the facilities are in more than one Region, by certified mail. However, such insurance will not be required of an existing facility before the following dates:

(1) For an owner or operator with annual sales in the last calendar year preceding the effective date of these regulations totaling $10 million or more; 6 months after the effective date of these regulations.

(2) For an owner or operator with annual sales in the last calendar year preceding the effective date of these regulations greater than $5 million but less than $10 million; 18 months after the effective date of these regulations.

(3) All other owners or operators; 30 months after the effective date of these regulations.

An owner or operator of a new surface impoundment, landfill, or land treatment facility must send an originally signed duplicate of the insurance policy to the Regional Administrator by certified mail 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. For both existing and new facilities, each policy shall be for limits of liability not less than the minimum amounts required by this paragraph and each policy must be amended, in order to comply with the requirements of this regulation, by attachment of the Hazardous Waste Facility Liability Endorsement. The wording of the endorsement must be identical to the wording specified in § 264.151(g).

(c) If an owner or operator elects to comply with paragraphs (a) and (b) of this Section through one insurance policy covering both sudden and nonsudden occurrences, this policy must be in the amount of at least $4 million per occurrence with an annual aggregate of at least $8 million, exclusive of legal defense costs.

(d) If an owner or operator can demonstrate to the satisfaction of the Regional Administrator that the levels of financial responsibility required by paragraphs (a) or (b) of this Section are not consistent with the degree and duration of tasks associated with the treatment, storage, or disposal at each facility or group of facilities, the owner or operator may obtain a variance from the Regional Administrator. The request for a variance must be submitted to the Regional Administrator as part of the permit application under § 122.25 of this Chapter for a facility that does not have a permit, or pursuant to the procedures for permit modification under § 124.5 of this Chapter for a facility that has a permit. The variance shall take the form of an adjusted level of required liability coverage, such level to be based on the Regional Administrator's assessment of the degree and duration of risks associated with the ownership or operation of each facility or group of facilities. The Regional Administrator may require an owner or operator who requests a variance to provide such technical and engineering information as is deemed necessary by the Regional Administrator to determine a level of financial responsibility other than that required by paragraphs (a) or (b) of this Section. Any request for a variance for a permitted facility shall be treated as a request for a permit modification under §§ 122.15 (a)(5) and 124.5 of this Chapter.

(e) If the Regional Administrator determines that the levels of financial responsibility required by paragraphs (a) or (b) of this Section are not consistent with the degree and duration of risks associated with treatment, storage, or disposal at any facility or group of facilities, the Regional Administrator may adjust the level of financial responsibility required under paragraphs (a) or (b) of this Section as may be necessary to protect human health and the environment, such adjusted level to be based on the Regional Administrator's assessment of the degree and duration of risks associated with the ownership or operation of each facility or group of such facilities. The Regional Administrator may also require an owner or operator of a treatment or storage facility or group of facilities to comply with paragraph (b) of this Section if the Regional Administrator determines that there is a significant risk to human health and the environment from nonsudden and accidental occurrences from the operations of such facility or group of facilities. Any adjustment of the level of required coverage for a facility that has a permit shall be treated as a permit modification under §§ 122.15(a)(5) and 124.5 of this Chapter.

[*Comment:* Under § 122.25 of this Chapter, an owner or operator of a new facility must include in Part B of his permit application the amounts of liability coverage meeting the requirements of § 264.147(a) and, if applicable, § 264.147(b) that he plans to establish prior to initial receipt of hazardous waste at the facility for treatment, storage, or disposal.]

§ 264.148 Incapacity of institutions issuing letters of credit, surety bonds, or insurance policies.

An owner or operator who fulfills the requirements of §§ 264.143, 264.145, or 264.147 by obtaining a letter of credit, surety bond, or insurance policy will be deemed to be without the required financial assurance or liability coverage in the event of bankruptcy, insolvency, or a suspension or revocation of the license or charter of the issuing institution. The owner or operator must establish other financial assurance or

liability coverage within 60 days of such events.

§ 264.140 Applicability of State financial requirements.

(a) For a facility located in a State whose hazardous waste regulations include liability requirements or requirements for financial assurance for closure and post-closure care, an owner or operator may use State-required financial mechanisms to meet the requirements of §§ 264.143, 264.145, and 264.147 if the State mechanisms provide assurance or liability coverage equivalent to or greater than that provided by the mechanisms of §§ 264.143, 264.145, and 264.147. Evidence of the establishment of such a mechanism must be delivered by certified mail to the Regional Administrator. The submittal must include, or have attached to it, the following information: the facility's EPA Identification Number, name, address, and the amounts of liability coverge or funds for closure or post-closure care assured by the mechanism. An owner or operator of a new facility must deliver such evidence to the Regional Administrator or by certified mail at least 60 days before the date on which hazardous waste is first received for treatment, storage, or disposal. The mechanism must be effective before this initial receipt of hazardous waste.

(b) The owner or operator must obtain an additional financial assurance mechanism for closure or for post-closure care, as specified in §§ 264.143 and 264.145 or additional liability insurance as specified in § 264.147, if the amount of funds available from the State mechanism is less than that required by this Subpart. The amounts of funds available through the State and Federal mechanisms must equal at least the amounts required in §§ 264.143, 264.145, and 264.147.

§ 264.150 State assumption of responsibility.

(a) If a State either assumes legal responsibility for an owner's or operator's compliance with the closure, post-closure, or liability requirements of these regulations *or* assures that funds will be available from State sources to cover those requirements, the owner or operator will be in compliance with requirements of this Subpart if the State's assurances are equivalent to or exceed the assurances provided by the requirements of this Subpart. The owner or operator must deliver by certified mail to the Regional Administrator a letter from the State describing the nature of the State's responsibility regarding the closure, post-closure, and liability requirements so covered. The letter must include, or have attached to it, the following information: the facility's EPA Identification Number, name, address, and the amounts of liability coverage or funds for closure or post-closure care that are assured by the State. An owner or operator of a new facility must deliver the letter to the Regional Administrator by certified mail at least 60 days before the date on which hazardous waste is first received for treatment, storage, or disposal. The guarantee must be effective before this initial receipt of hazardous waste.

(b) The owner or operator must obtain an additional financial assurance mechanism for closure or for post-closure care, as specified in §§ 264.143 and 264.145 or additional liability insurance as specified in § 264.147, if the amount of funds available through State guarantees is less than that required by this Subpart. The amounts of funds available through the State guarantees and Federal mechanisms must equal at least the amounts required in §§ 264.143, 264.145, and 264.147.

§ 264.151 Wording of the instruments.

(a)(1) A trust agreement for a trust fund as specified in §§ 264.143(a) or 264.145(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 [State] [corporation, partnership, association, proprietorship], the "Grantor", and [name of corporate trustee], a [State corporation] [national bank], the "Trustee".

Whereas, the United States Environmental Protection Agency, "EPA", an agency of the United States Government, has established certain regulations applicable to the Grantor, requiring that the owner or operator of a hazardous waste management facility must provide assurance that funds will be available when needed for closure and/or post-closure care of the facility,

Whereas, the Grantor has elected to establish a trust to provide 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 "fiduciary" means any person who exercises any power of control, management, or disposition or renders investment advice for a fee or other compensation, direct or indirect, with respect to any moneys or other property of this trust fund, or has any authority or responsibility to do so, or who has any authority or responsibility in the administration of this trust fund.

(b) The term "Grantor" means the owner or operator who enters into this Agreement and any successors or assigns of the Grantor.

(c) 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 [for each facility insert the EPA Identification Number, name, and address, and the adjusted closure and/or post-closure cost estimates, or portions thereof, for which financial assurance is demonstrated by this Agreement.]

Section 3. Establishment of Fund. The Grantor and the Trustee hereby establish a trust fund, the "Fund" for the benefit of the EPA. 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 A 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 will be held by the Trustee, IN TRUST, as hereinafter provided. The Trustee undertakes no responsibility for the amount or adequacy of, nor any duty to collect from the Grantor, any payments to discharge any liabilities of the Grantor established by the EPA.

Section 4. Payment for Closure and Post-Closure Care. The Trustee will make such payments from the Fund as the EPA Regional Administrator will direct, in writing, to provide for the payment of the costs of closure and/or post-closure care of the facilities covered by this Agreement. The Trustee will reimburse the Grantor or other persons as specified by the Regional Administrator from the Fund for closure and post-closure expenditures in such amounts as the Regional Administrator will direct, in writing. The Trustee will notify the Regional Administrator when 20 percent of the amount allocated for closure of the facility remains in the Fund, and will not make further reimbursements for closure expenditures unless the Regional Administrator identifies reimbursements that may be made out of the remaining 20 percent. In addition, the Trustee will refund to the Grantor such amounts as the EPA Regional Administrator specifies in writing. Upon refund, such funds will no longer constitute part of the Fund as defined herein.

Section 5. Payments Comprising the Fund. Payments made to the Trustee for the Fund will consist of cash or securities acceptable to the Trustee.

Section 6. Trustee Management. The Trustee will 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 investment guidelines and objectives communicated in writing to the Trustee from time to time by the Grantor, subject, however, to the provisions of this Section. In investing,

reinvesting, exchanging, selling and managing the Fund, the Trustee or any other fiduciary will discharge his duties with respect to the trust fund solely in the interest of the participants and beneficiaries 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 USC § 80a–2.(a), will 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. To the extent of the equitable share of the Fund in any such commingled trust, such commingled trust will be part of the Fund;

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940, 15 U.S.C. §§ 80a–1 et seq., or 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 private contract or at public auction. No person dealing with the Trustee will be bound to see to the application of the purchase money or to inquire into the validity or expediency of any such sale or other disposition;

(b) To make, execute, acknowledge and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the Fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, or to deposit or arrange for the deposit of such securities in a qualified central depositary even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee of such depositary with other securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the United States Government, or any agency or instrumentality thereof, with a Federal Reserve bank, but the books and records of the Trustee will 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 will 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 will be paid from the Fund.

Section 10. Annual Valuation. The Trustee will annually, at the end of the month coincident with or preceding the anniversary date of establishment of the Fund, furnish to the Grantor and to the appropriate EPA Regional Administrator a statement confirming the value of the Trust. Any securities in the Fund will be valued at market value as of no more than 30 days prior to the date of the statement. 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 EPA Regional Administrator will 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 will be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

Section 12. Trustee Compensation. The Trustee will be entitled to reasonable compensation for its services as agreed upon in writing from time to time with the Grantor.

Section 13. Successor Trustee. Upon the written agreement of the Grantor, the Trustee, and the EPA Regional Administrator, the Trustee may resign or the Grantor may replace the Trustee. In either event, the Grantor will appoint a successor Trustee who will have the same powers and duties as those conferred upon the Trustee hereunder. Upon acceptance of the appointment by the successor trustee, the Trustee will 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 and the date on which he assumes administration of the trust will be specified in writing and sent to the Grantor, the EPA Regional Administrator, and the present and successor trustees 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 will be paid as provided in Section 9.

Section 14. Instructions to the Trustee. All orders, requests and instructions by the Grantor to the Trustee will 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 will be fully protected in acting without inquiry in accordance with the Grantor's orders, requests and instructions. All orders, requests, and instructions by the EPA Regional Administrator to the Trustee will be in writing, singed by the EPA Regional Administrators of the Regions in which the facilities are located, and the Trustee will act and will be fully protected in acting in accordance with such orders, requests and instructions. The Trustee will 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 EPA hereunder has occurred. The Trustee will have no duty to act in the absence of such orders, requests and instructions from the Grantor and/or the EPA, except as provided for herein.

Section 15. Notice of Nonpayment. The Trustee will notify the Grantor and the appropriate EPA Regional Administrator, 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 is not 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 appropriate EPA Regional Administrator, or by the Trustee and the appropriate EPA Regional Administrator 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 will be irrevocable and will continue until terminated at the written agreement of the Grantor, the Trustee, and the EPA Regional Administrator, or by the Trustee and the EPA Regional Administrator if the Grantor ceases to exist. Upon termination of the Trust, all remaining trust property, less final trust administration expenses, will be delivered to the Grantor.

Section 18. Immunity and Indemnification. The Trustee will not incur personal liability of any nature in connection with any act or omisssion, made in good faith, in the administration of this Trust, or in carrying out

any directions by the Grantor or the EPA Regional Administrator issued in accordance with this Agreement. The Trustee will 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 will be administered, construed and enforced according to the laws of the State 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 will 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 40 CFR 264.151(a)(1).

[Signature of Grantor]
By [Title]
Attest:
[Title]
[Seal]
[Signature of Trustee]
By
Attest:
[Title]
[Seal]

(2) This is an example of the certification of acknowledgment, which must accompany the trust agreement for a trust fund as specified in §§ 264.143(a) and 264.145(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]

[*Comment:* As required in §§ 264.143(a)(2) and 264.145(a)(2), the trust agreement must be accompanied by a formal certification of acknowledgment. This is an example only. State requirements may differ on the proper content of this acknowledgment.]

(b) A surety bond guaranteeing payment into a closure trust fund, as specified in § 265.143(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 for Closure

Date bond executed: ———
Effective date: ———
Principal: [legal name and business address]
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 of each facility and, if more than one facility is covered by this bond, the amount of the penal sum for each facility: ———
Total penal sum of bond: $ ———

Know all men by these presents, That we, the Principal and Surety(ies) hereto are firmly bound to the U.S. Environmental Protection Agency (hereinafter called EPA), 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 to have an EPA permit or permits, or interim status, in order to own or operate the hazardous waste management facility(ies) identified above, and

Whereas said Principal is required to provide financial assurance for closure of the facility(ies) as a condition of the permit(s) or interim status, and

Whereas said Principal shall establish a standby trust fund as specified by 40 CFR 264.143 or 40 CFR 265.143,

Now, therefore the conditions of the obligation are such that if the Principal shall faithfully, for the facility(ies) identified above, at least 60 days before the beginning of final closure, fund the standby trust fund in an amount equal to the penal sum,

Or, if the Principal shall fund the standby trust fund in such an amount within 15 days after an order to begin closure in accordance with Subpart G of 40 CFR Parts 264 and 265 is issued by an EPA Regional Administrator or by a U.S. district court pursuant to Section 3008, 7002, or 7003 of the Resource Conservation and Recovery Act, as amended, or within 15 days after a notice of termination of the permit(s) or interim status pursuant to 40 CFR Part 124,

Or, if the Principal shall provide alternate financial assurance as specified in 40 CFR 264.143 or 40 CFR 265.143 within 30 days after the date notice of cancellation is received by a Regional Administrator, then this obligation will 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 an EPA Regional Administrator that the Principal has failed to perform as guaranteed by this bond, the Surety(ies) shall place funds in the amount of the penal sum into the standby trust fund as directed by the EPA Regional Administrator.

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 written notice of cancellation to the owner or operator and to the EPA Regional Administrator(s) for the Region(s) in which the facility(ies) is (are) located, provided, however, that cancellation cannot occur: (1) during the 90 days beginning on the date of receipt of the notice of cancellation by the Regional Administrator(s) as shown on the signed return receipt(s); or (2) while a compliance procedure is pending, as defined in 40 CFR 264.141 or 40 CFR 265.141.

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 Regional Administrator(s) of the EPA Region(s) in which the bonded facility(ies) is (are) located. [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 equals the adjusted closure cost estimate(s), provided that the amount of the cost estimate(s) does do 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 Regional Administrator(s).

In witness whereof, the Principal and Surety(ies) have executed this Financial Guarantee Bond and have affixed their seals on the date set forth above.

The persons whose signatures appear below hereby certify that they are authorized to execute this surety bond on behalf of the Principal and Surety(ies) and that the wording of this surety bond is identical to the wording specified in 40 CFR 265.151(b).

Principal

Signature(s): ———
Name(s) and title(s) [typed] ———
Corporate seal:

Corporate Surety(ies)

Name and address: ———
State of incorporation: ———
Liability limit: $ ———
Signature(s): ———
Name(s) and title(s) [typed]: ———
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 of closure, as specified in § 264.143(c), 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 for Closure

Date bond executed: ———————
Effective date: ———————
Principal: [legal name and business address]
Type of organization: [insert "individual," "joint venture," "partnership," or "corporation"]
State of incorporation: ———————
Surety(ies): [name(s) and business address(es)]
EPA Identification Number, name, address, and adjusted closure cost estimate for each facility: ———
Total penal sum of bond: $ ———————

Know all men by these presents, That we, the Principal and Surety(ies) hereto are firmly bound to the U.S. Environmental Protection Agency (hereinafter called EPA), 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 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 to have a permit or permits from EPA in order to own or operate the hazardous waste management facility(ies), identified above, and

Whereas, said Principal is required to provide financial assurance for closure of the facility(ies) as a condition of the permit(s), and

Whereas said Principal shall establish a standby trust fund as specified by 40 CFR 264.143,

Now, therefore the conditions of this obligation are such that if the Principal shall faithfully perform closure of the facility(ies) identified above in accordance with the closure plan(s) submitted to receive said permit(s) and other requirements of said permit(s) as such plan(s) and permit(s) may be amended, pursuant to all applicable laws, statutes, rules, and regulations, as such laws, statutes, rules, and regulatons may be amended,

Or, if the Principal shall faithfully perform closure in accordance with 40 CFR 264, Subpart G, following an order to begin closure issued by an EPA Regional Administrator or by a U.S. district court pursuant to Section 3008, 7002, or 7003 of the Resource Conservation and Recovery Act, as amended, or following a notice of termination of the permit pursuant to Part 124 of this Chapter,

Or, if the Principal shall provide alternate financial assurance as specified in 40 CFR 264.143 within 30 days of the date notice of cancellation is received by a Regional Administrator, then this obligation will 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 an EPA Regional Administrator that the Principal has been found in violation of 40 CFR 264.143 in an order made pursuant to Section 3008 of the Resource Conservation and Recovery Act, as amended, the Surety(ies) must place funds in the amount of the adjusted closure cost estimate(s) into the standby trust fund as directed by an EPA Regional Administrator. Upon notification by an EPA Regional Administrator that the Principal has been found in violation of the closure requirements of 40 CFR Part 264, the Surety(ies) must either perform closure in accordance with the closure plan(s) and other permit requirements or place the amount of the adjusted closure cost estimate(s) in the standby trust fund. Upon notification by an EPA Regional Administrator that the Principal has been found in violation of an order to begin closure, the Surety(ies) must either perform closure in accordance with the closure order or place the amount of the adjusted closure cost estimate(s) in the standby trust fund.

The Surety(ies) hereby waives notification of amendments to the closure plan(s), permit(s), applicable laws, statutes, rules and regulations and agrees that no such amendments(s) 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 successon 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 written notice of cancellation to the owner or operator and to the EPA Regional Administrator(s) for the Region(s) in which the facility(ies) is (are) located, provided, however, that cancellation cannot occur: (1) during the 90 days beginning on the date of receipt of the notice of cancellation by the Regional Administrator(s) as shown on the signed return receipt(s); or (2) while a compliance procedure is pending, as defined in 40 CFR 264.141.

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 Regional Administrator(s) of the EPA Region(s) in which the bonded facility(ies) is (are) located. [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 equals the adjusted closure cost estimate(s), provided that the amount of the cost estimate(s) does (do) 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 Regional Administrator(s).

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 40 CFR 264.151(c).

Principal

Signature(s): ———————
Name(s) and title(s) [typed]: ———————
Corporate seal:

Corporate Surety(ies)

Name and address: ———————
State of incorporation: ———————
Liability limit: $ ———————
Signature(s): ———————
Name(s) and title(s) [typed]: ———————
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 surety bond guaranteeing payment into a post-closure trust fund, as specified in § 264.145(b), must be worded as follows, except that instructions in brackets are to be replaced by the relevant information and the brackets deleted:

Financial Guarantee Bond for Post-Closure Care

Date bond executed: ———————
Effective date: ———————
Principal: [legal name and business address]
Type of organization: [insert "individual," "joint venture," "partnership," or "corporation"]
State of incerporation: ———————
Surety(ies): [name(s) and business address(es)]
EPA Identification Number, name, and address of each facility and, if more than one facility is covered by this bond, the amount of the penal sum for each facility:
Total penal sum of bond: $ ———————

Know all men by these presents, That we, the Principal and Surety(ies) hereto are firmly bound to the U.S. Environmental Protection Agency (hereinafter called EPA), 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 to have an EPA permit or permits, or interim status, in order to own or operate the hazardous waste management facility(ies) identified above, and

Whereas said Principal is required to provide financial assurance for post-closure care of the facility(ies) as a condition of the permit(s) or interim status, and

Whereas said Principal shall establish a standby trust fund as specified by 40 CFR 264.145 or 40 CFR 265.145,

Now, therefore the conditions of the obligation are such that if the Principal shall faithfully, for the facility(ies) identified above, by the beginning of final closure, fund the standby trust fund in an amount equal to the penal sum,

Or, if the Principal shall fund the standby trust fund in such an amount within 15 days after an order to begin closure in accordance with Subpart G of 40 CFR Parts 264 and 265 is issued by the Regional Administrator or a U.S. district court pursuant to Section 3008, 7002, or 7003 of the Resource Conservation and Recovery Act, as amended, or within 15 days after a notice of termination of the permit(s) or interim status pursuant to 40 CFR Part 124,

Or, if the Principal shall provide alternate financial assurance as specified in 40 CFR 264.145 or 40 CFR 265.145 within 30 days after the date notice of cancellation is received by a Regional Administrator, then this obligation will 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 an EPA Regional Administrator that the Principal has failed to perform as guaranteed by this bond, the Surety(ies) must place funds in the amount of the penal sum into the standby trust fund as directed by an EPA Regional Administrator.

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 written notice of cancellation to the owner or operator and to the EPA Regional Administrator(s) for the Region(s) in which the facility(ies) is (are) located, provided, however, that cancellation cannot occur: (1) during the 90 days beginning on the date of the receipt of the notice of cancellation by the Regional Administrator(s) as shown on the signed return receipt(s); or (2) while a compliance procedure is pending, as defined in 40 CFR 264.141 or 40 CFR 265.141.

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 Regional Administrator(s) of the EPA Region(s) in which the bonded facility(ies) is (are) located. [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 equals the adjusted post-closure cost estimate(s), provided that the amount of the cost estimate(s) does (do) 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 Regional Administrator(s).

In witness whereof, the Principal and Surety(ies) have executed this Financial Guarantee Bond and have affixed their seals on the date set forth above.

The persons whose signatures appear below hereby certify that they are authorized to execute this surety bond on behalf of the Principal and Surety(ies) and that the wording of this surety bond is identical to the wording specified in 40 CFR 265.151(d).

Principal

Signature(s): _____
Name(s) and title(s) [typed]: _____
Corporate seal:

Corporate Surety(ies)

Name and address: _____
State of incorporation: _____
Liability limit: $ _____
Signature(s): _____
Name(s) and title(s) [typed]: _____
Corporate seal: _____

[For every co-surety, provide signature(s), corporate seal, and other information in the same manner as for Surety above.]

Bond premium: $ _____

(e) A surety bond guaranteeing performance of post-closure care, as specified in § 264.145(c), 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 for Post-Closure Care

Date bond executed: _____
Effective date: _____
Principal: [legal name and business address]
Type of organization: [insert "individual," "joint venture," "partnership," or "corporation"]
State of incorporation: _____
Surety(ies): [name(s) and business address(es)]
EPA Identification Number, name, address, and adjusted post-closure cost estimate for each facility: _____
Total penal sum of bond: $ _____

Know all men by these presents, That we, the Principal and Surety(ies) hereto are firmly bound to the U.S. Environmental Protection Agency (hereinafter called EPA), in the above penal sum for the payment of which we bond 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 to have a permit or permits from EPA in order to own or operate the hazardous waste management facility(ies) identified above, and

Whereas, said Principal is required to provide financial assurance for post-closure care of the facility(ies) as a condition of the permit(s), and

Whereas said Principal shall establish a standby trust fund as specified by 40 CFR 264.145,

Now, therefore the conditions of this obligation are such that if the Principal shall faithfully perform post-closure care of the facility(ies) identified above in accordance with the post-closure plan(s) and other requirements of the permit(s), as such post-closure plan(s) and permit(s) 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 40 CFR 264.145 within 30 days of the date notice of cancellation is received by a Regional Administrator, then this obligation will 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 an EPA Regional Administrator that the Principal has been found in violation of 40 CFR 264.145 in an order made pursuant to Section 3008 of the Resource Conservation and Recovery Act, as amended, the Surety(ies) must place funds in the amount of the adjusted post-closure cost estimate(s) into the standby trust fund as directed by an EPA Regional Administrator. Upon notification by an EPA Regional Administrator that the Principal has been found in violation of the post-closure requirements of 40 CFR Part 264, the Surety(ies) must perform post-closure care in accordance with the post-closure plan and other requirements of the permit or place the amount of the adjusted post-closure cost estimate(s) into the standby trust fund.

The Surety(ies) hereby waives notification of amendments to closure plan(s), permit(s), applicable laws, statutes, rules and regulations and agrees that no such amendment(s) 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 Surety's(ies') obligation hereunder exceed the amount of said penal sum.

The Surety(ies) may cancel the bond by sending written notice of cancellation to the owner or operator and to the EPA Regional Administrator(s) for the Region(s) in which the facility(ies) is (are) located, provided, however, that cancellation cannot occur: (1) during the 90 days beginning on the date of receipt of the notice of cancellation by the Regional Administrator(s) as shown on the signed return receipt(s); or (2) while a compliance procedure is pending, as defined in 40 CFR 264.141. [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 equals the adjusted post-closure cost estimate(s), provided that the amount of the cost estimate(s) 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 Regional Administrator(s).

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 40 CFR 264.151(e).

Principal

Signature(s): ———
Name(s) and title(s) [typed]: ———
Corporate seal:

Corporate Surety(ies)

Name and address: ———
State of incorporation: ———
Liability limit: $ ———
Signature(s): ———
Name(s) and title(s) [typed]: ———
Corporate seal:

[For every co-surety, provide signature(s), corporate seal, and other information in the same manner as for Surety above.]

Bond premium: $ ———

(f) A letter of credit as specified in §§ 264.143(d) and 264.145(d) 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

[Regional Administrator]

Dear Sir or Madam: We hereby establish our Irrevocable Letter of Credit No. ——— in favor of the Regional Administrator for Region ——— of the United States Environmental Protection Agency, 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. ———, together with

(2) your signed statement declaring that the amount of the draft is payable pursuant to regulations issued under the authority of the Resource Conservation and Recovery Act of 1976 ("RCRA"), as amended.

The following amounts are included in the amount of this letter of credit: [For each facility, insert the EPA Facility Identification Number, name and address, and the adjusted closure and/or post-closure cost estimates, or portions thereof, for which financial assurance is demonstrated by this letter of credit].

This letter of credit is effective as of [date] and will expire on [date at least 1 year later], but such expiration date will be automatically extended for a period of [at least one year] on [date] and on each successive expiration date, unless, at least 90 days before the current expiration date, we notify you and [owner or operator's name] by certified mail that we decide not to extend the Letter of Credit beyond the current expiration date. In the event you are so notified, any unused portion of the credit will be available upon presentation of your sight draft for 90 days after the date of receipt by you as shown on the signed return receipt or while a compliance procedure is pending as defined in 40 CFR 264.141, whichever is later.

Whenever this letter of credit is drawn on under and in compliance with the terms of this credit, we will duly honor such draft upon presentation to us, and we will deposit the amount of the draft promptly and directly into the standby trust fund of [owner's or operator's name] held in trust by [name and address of corporate trustee].

I hereby certify that I am authorized to execute this letter of credit on behalf of [issuing institution] and that the wording of this letter of credit is identical to the wording specified in 40 CFR 264.151(f).

Attest:

[Signature and title of official of issuing institution] [Date]

This credit is subject to [insert "the most recent edition of the Uniform Customs and Practice for Documentary Credits, published by the International Chamber of Commerce", or "the Uniform Commercial Code"].

(g) A hazardous waste facility liability endorsement as required in § 264.147 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

It is agreed that:

1. The certification of the policy, as proof of financial responsibility under the provisions of [insert § 264.147(a)(1) and/or (b)(1), 40 CFR] amends the policy to provide insurance in accordance with the provisions of such regulations to the extent of coverage and limits of liability required thereby at [list EPA Identification Number, name, and address for each facility]. Within the limits of liability provided it is understood that no condition, provision, stipulation, or limitation contained in the policy, or any other endorsement thereon or violation thereof, or of this endorsement, by the insured, shall relieve the Company from liability hereunder or from the payment of any such final judgement, irrespective of the financial responsibility or lack thereof or insolvency or bankruptcy of the insured. However, all terms, conditions, and limitations in the policy to which this endorsement is attached are to remain in full force and effect as binding between the insured and the Company, and the insured agrees to reimburse the Company for any payment made by the Company on account of any accident, claim, or suit involving a breach of the terms of the policy, and for any payment that the Company would not have been obligated to make under the provisions of the policy except for the agreement contained in the endorsement.

2. Whenever requested by the Regional Administrator, the company agrees to furnish to the Regional Administrator a duplicate original of said policy and all endorsements thereon.

3. This endorsement may not be canceled without cancellation of the policy to which it is attached. Such cancellation may only be effected by the Company or the insured giving sixty (60) days' notice in writing to the Regional Administrator, such sixty (60) days' notice to commence to run from the date the notice is actually received by the Regional Administrator.

4. Notwithstanding any other provision of this policy, if this endorsement or policy is on a claims-made basis, cancellation or termination may not be effected within 120 days of any fire, explosion, or unplanned sudden or nonsudden release of hazardous waste or hazardous waste constituents to air, soil, surface water, or ground water.

Attached to and forming part of policy No. ——— issued by [name of Company], herein called the Company, of [address of Company] to [name of insured] of [address]. Dated at———this———day of———, 19———.

Countersigned by———, authorized Company representative.

Subpart I—Use and Management of Containers

§ 264.170 Applicability.

The regulations in this Subpart apply to owners and operators of all hazardous waste facilities that store containers of hazardous waste, except as § 264.1 provides otherwise.

[*Comment:* Under § 261.7 and § 261.33(c), if a hazardous waste is emptied from a container the residue remaining in the container is not considered a hazardous waste if the container is "empty" as defined in § 261.7. In that event, management of the container is exempt from the requirements of this Subpart.]

§ 264.171 Condition of containers.

If a container holding hazardous waste is not in good condition (e.g., severe rusting, apparent structural defects) or if it begins to leak, the owner or operator must transfer the hazardous waste from this container to a container that is in good condition or manage the waste in some other way that complies with the requirements of this Part.

§ 264.172 Compatibility of waste with containers.

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

§ 264.173 Management of containers.

(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.

[*Comment:* Reuse of containers in transportation is governed by U.S. Department of Transportation regulations including those set forth in 49 CFR 173.28.]

§ 264.174 Inspections.

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

[*Comment:* See §§ 264.15(c) and 264.171 for remedial action required if deterioration or leaks are detected.]

§ 264.175 Containment.

(a) Container storage areas must have a containment system that is capable of collecting and holding spills, leaks, and precipitation. The containment system must:

(1) Have a base underlying the containers which is free of cracks or gaps and is sufficiently impervious to contain leaks, spills, and accumulated rainfall until the collected material is detected and removed;

(2) Be designed for efficient drainage so that standing liquid does not remain on the base longer than one hour after a leakage or precipitation event unless the containers are elevated or in some other manner are protected from contact with accumulated liquids; and

(3) Have sufficient capacity to contain 10% of the volume of containers or the volume of the largest container, whichever is greater.

(b) Run-on into the containment system must be prevented, unless the Regional Administrator waives this requirement in the permit after determining that the collection system has sufficient excess capacity in addition to that required in paragraph (a)(3) of this Section to accommodate any run-on which might enter the system.

(c) Spilled or leaked waste and accumulated precipitation must be removed from the sump or collection area in as timely a manner as is necessary to prevent overflow of the collection system.

[*Comment:* If the collected material is a hazardous waste under Part 261 of this Chapter, it must be managed as a hazardous waste in accordance with all applicable requirements of Parts 262–266 of this Chapter. If the collected material is discharged through a point source to waters of the United States, it is subject to the requirements of Section 402 of the Clean Water Act, as amended.]

§ 264.176 Special requirements for ignitable or reactive waste.

Containers holding ignitable or reactive waste must be located at least 15 meters (50 feet) from the facility's property line.

[*Comment:* See § 264.17(a) for additional requirements.]

§ 264.177 Special requirements for incompatible wastes.

(a) Incompatible wastes, or incompatible wastes and materials (see Appendix V for examples), must not be placed in the same container, unless § 264.17(b) is complied with.

(b) Hazardous waste must not be placed in an unwashed container that previously held an incompatible waste or material.

[*Comment:* As required by § 264.13, the waste analysis plan must include analyses needed to comply with § 264.177. Also, § 264.17(c) requires wastes analyses, trial tests or other documentation to assure compliance with § 264.17(b). As required by § 264.73, the owner or operator must place the results of each waste analysis and trial test, and any documented information, in the operating record of the facility.]

(c) A storage container holding a hazardous waste that is incompatible with any waste or other materials stored nearby in other containers, piles, open tanks, or surface impoundments must be separated from the other materials or protected from them by means of a dike, berm, wall, or other device.

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

§ 264.178 Closure.

At closure, all hazardous waste and hazardous waste residues must be removed from the containment system. Remaining containers, liners, bases, and soil containing or contaminated with hazardous waste or hazardous waste residues must be decontaminated or removed.

[*Comment:* At closure, as throughout the operating period, unless the owner or operator can demonstrate in accordance with § 261.3(d) of this Chapter that the solid waste removed from the containment system is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and must manage it in accordance with all applicable requirements of Parts 262–266 of this Chapter].

Subpart J—Tanks

§ 264.190 Applicability.

(a) The regulations in this Subpart apply to owners and operators of facilities that use tanks to treat or store hazardous waste, except as § 264.1 and paragraph (b) of this Section provide otherwise;

(b) The regulations in this Subpart do not apply to facilities that treat or store hazardous waste in covered underground tanks that cannot be entered for inspection.

§ 264.191 Design of tanks.

(a) Tanks must have sufficient shell strength and, for closed tanks, pressure controls (e.g., vents) to assure that they do not collapse or rupture. The Regional Administrator will review the design of the tanks, including the foundation, structural support, seams and pressure controls. The Regional Administrator shall require that a minimum shell thickness be maintained at all times to ensure sufficient shell strength. Factors to be considered in establishing minimum thickness include the width, height, and materials of construction of the tank, and the specific gravity of the waste which will be placed in the tank. In reviewing the design of the tank and establishing a minimum thickness, the Regional Administrator shall rely upon appropriate industrial design standards and other available information.

[*Comment:* Design standards for certain types of tanks are published by the American Petroleum Institute, Underwriter's Laboratories, the American Concrete Institute, and several other organizations.]

§ 264.192 General operating requirements.

(a) Wastes and other materials (e.g., treatment reagents) which are incompatible with the material of construction of the tank must not be placed in the tank unless the tank is protected from accelerated corrosion, erosion or abrasion through the use of:

(1) An inner liner or coating which is compatible with the waste or material and which is free of leaks, cracks, holes or other deterioration; or

(2) Alternative means of protection (e.g., cathodic protection or corrosion inhibitors).

(b) The owner or operator must use appropriate controls and practices to prevent overfilling. These must include:

(1) Controls to prevent overfilling (e.g., waste feed cutoff system or by-pass system to a standby tank); and

(2) For uncovered tanks, maintenance of sufficient freeboard to prevent overtopping by wave or wind action or by precipitation.

§ 264.193 [Reserved]

§ 264.194 Inspections.

(a) The owner or operator must inspect:

(1) Overfilling control equipment (e.g., waste feed cut-off systems and by-pass

systems) at least once each operating day to ensure that it is in good working order;

(2) Data gathered from monitoring equipment (e.g., pressure and temperature gauges) where present, at least once each operating day to ensure that the tank is being operated according to its design;

(3) For uncovered tanks, the level of waste in the tank, at least once each operating day, to ensure compliance with § 264.192(b)(2);

(4) The construction materials of the above-ground portions of the tank, at least weekly to detect corrosion or erosion and leaking of fixtures and seams; and

(5) The area immediately surrounding the tank, at least weekly, to detect obvious signs of leakage (e.g., wet spots or dead vegetation).

(b) As part of the inspection schedule required in § 264.15(b) and in addition to the specific requirements of paragraph (a) of this Section, the owner or operator must develop a schedule and procedure for assessing the condition of the tank. The schedule and procedure must be adequate to detect cracks, leaks, corrosion or erosion which may lead to cracks or leaks, or wall thinning to less that the thickness required under § 264.191. Procedures for emptying a tank to allow entry and inspection of the interior must be established when necessary to detect corrosion or erosion of the tank sides and bottom. The frequency of these assessments must be based on the material of construction of the tank, type of corrosion or erosion protection used, rate of corrosion or erosion observed during previous inspections, and the characteristics of the waste being treated or stored.

(c) As part of the contingency plan required under Subpart D of Part 264, the owner or operator must specify the procedures he intends to use to respond to tank spills or leakage, including procedures and timing for expeditious removal of leaked or spilled waste and repair of the tank.

[*Comment:* As required in § 264.15(c), the owner or operator must remedy any leak, crack, or wall thinning in violation of § 264.191, or equipment or process malfunction in violation of § 264.192, which he discovers during inspection. See 29 CFR § 1910.94(d)(11) for Occupational Safety and Health Administration requirements relating to entry of tanks for inspection.]

§§ 264.195–264.196 [Reserved]

§ 264.197 Closure.

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

[*Comment:* At closure, as throughout the operating period, unless the owner or operator can demonstrate in accordance with § 261.3(d) of this Chapter that the solid waste removed from his tank is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and must manage it in accordance with all applicable requirements of Parts 262–266 of this Chapter.]

§ 264.198 Special requirements for ignitable or reactive wastes.

(a) Ignitable or reactive waste must not be placed in a tank unless:

(1) The waste is treated, rendered, or mixed before or immediately after placement in the tank so that (i) the resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive waste under §§ 261.21 or 261.23 of this Chapter, and (ii) § 264.17(b) is complied with; or

(2) The waste is stored or treated in such a way that it is protected from any material or conditions which may cause the waste to ignite or react; or

(3) The tank is used solely for emergencies.

(b) The owner or operator of a facility which treats or stores ignitable or reactive waste in covered tanks must comply with the National Fire Protection Association's (NFPA's) buffer zone requirements for tanks, contained in Tables 2–1 through 2–6 of the "Flammable and Combustible Code—1977".

[*Comment:* As required by § 264.13, the waste analysis plan must include analyses needed to comply with § 264.198. Section 264.17(a) contains additional requirements for ignitable and reactive wastes. Also, § 264.17(c) requires waste analysis, trial tests, or other documentation to ensure compliance with § 264.17(b). As required by § 264.73, the owner or operator must place the results of each waste analysis and trial test, and any documented information, in the operating record of the facility.]

§ 264.199 Special requirements for incompatible wastes.

(a) Incompatible wastes, or incompatible wastes and materials, must not be placed in the same tank, unless § 264.17(b) is complied with.

(b) Hazardous waste must not be placed in an unwashed tank which previously held an incompatible waste or material, unless § 264.17(b) is complied with.

[*Comment:* As required by § 264.13, the waste analysis plan must include analyses needed to comply with § 264.199. Also, § 264.17(c) requires waste analyses, trial tests, or other documentation to ensure compliance with § 264.17(b). As required by § 264.73, the owner or operator must place the results of each waste analysis and trial test, and any documented information, in the operating record of the facility.]

Subpart K—Surface Impoundments

§ 264.220 Applicability.

The regulations in this Subpart apply to owners and operators of facilities that use surface impoundments to treat or store hazardous waste, except as § 264.1 provides otherwise.

[*Comment:* This Subpart currently applies only to surface impoundments that are used for storage or treatment of hazardous waste and are designed and operated to prevent discharge into the land and ground water, and the surface water (except discharges authorized by an NPDES permit issued pursuant to Section 402 of the Clean Water Act, as amended). The Agency intends to supplement this regulation to address other types of surface impoundments including impoundments that are not designed and operated to prevent discharge and impoundments that are closed with wastes left in place. Until additional regulations are promulgated, all surface impoundments which are authorized by permit must comply with this Subpart.]

§ 264.221 General design requirements.

(a) A surface impoundment must be designed to provide:

(1) At least 60 centimeters (2 feet) of freeboard; or

(2) An amount of freeboard other than 60 centimeters based on documentation, acceptable to the Regional Administrator, that the specified amount of freeboard will prevent overtopping.

[*Comment:* The amount of freeboard approved by the Regional Administrator shall be specified in the permit.]

(b) A surface impoundment must be designed so that any flow of waste into the impoundment can be immediately shut off in the event of overtopping or liner failure.

(c) A surface impoundment must be designed to prevent discharge into the land and ground water, and to surface water (except discharges authorized by an NPDES permit) during the life of the impoundment by use of a containment system which complies with § 264.223.

[*Comment:* The Regional Administrator shall include the design of

the containment system as a term and condition of the permit.]

(d) Dikes must be designed with sufficient structural integrity to prevent massive failure without dependence on any liner system included in the surface impoundment design.

(e) A leachate detection, collection, and removal system must be designed so that liquid will flow freely from the collection system to prevent the creation of pressure head within the collection system in excess of that necessary to cause the liquid to flow freely.

§ 264.222 General operating requirements.

(a) A surface impoundment must be operated to prevent any overtopping due to wind and wave action, overfilling precipitation, or any combination thereof.

(b) A surface impoundment must be operated to maintain at least the amount of freeboard specified by the Regional Administrator in the permit.

(c) A leachate detection, collection, and removal system installed to comply with § 264.223(b) must be operated so that leachate flows freely from the collection system and is removed as it accumulates or with sufficient frequency to prevent backwater within the collection system.

(d) Earthen dikes must be kept free of:

(1) Perennial woody plants with root systems which could displace the earthen materials upon which the structural integrity of the dike is dependent; and

(2) Burrowing mammals which could remove earthen materials upon which the structural integrity of the dike is dependent or create leaks through burrows in the dike.

(e) Run-on must be diverted away from a surface impoundment.

§ 264.223 Containment systems.

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

(b) A liner system designed to prevent discharge into the land during the life of the surface impoundment must:

(1)(i) Be constructed with a highly impermeable liner system in contact with the waste which will prevent discharge of the waste or leachate through the liner(s) during the life of the surface impoundment based on the liner(s) thickness, the saturated permeability of the liner(s) and the pressure head or waste or leachate to which the liner(s) will be exposed; and

[*Comment:* The liner system in contact with the waste (i.e., the top liner system) includes any protective cover over the liner(s).]

(ii) A leachate detection, collection, and removal system beneath the liner(s) in contact with the waste to detect, contain, collect, and remove any discharge from the liner system in contact with the waste; and

[*Comment:* A highly impermeable liner beneath the drainage layer (i.e., the bottom liner) is a necessary part of a leachate detection, collection, and removal system.]

(2) Be constructed above the water table to ensure the detection of any discharge of waste or leachate through the liner system in contact with the waste; prevent the discharge of ground water to the leachate detection, collection, and removal system; and to protect the structural integrity of the liner(s).

[*Comment:* The ground water table may be controlled to comply with this requirement.]

(c) A containment system must have a containment life equal to or greater than the life of the surface impoundment.

[*Comment:* See "Landfill and Surface Impoundment Performance Evaluation", EPA, SW/869, September 1980 for methods to evaluate the containment life and effectiveness of a containment system.]

(d) Liner systems must be constructed:

(1) Of materials which have appropriate chemical properties and strength and of sufficient thickness to prevent failure due to pressure head, physical contact with the waste or leachate to which they are exposed, climatic conditions, and the stress of installation; and

(2) On a foundation capable of providing support to the liner(s) and resistance to pressure head above the liner(s) to prevent failure of the liner(s) due to settlement or compression.

[*Comment:* See "Lining of Waste Impoundment and Disposal Facilities", EPA/870, September 1980 for data and discussions of liner system materials, design, construction, operation, and maintenance.]

§ 264.224-§ 264.225 [Reserved]

§ 264.226 Inspections and testing.

(a) (1) During construction or installation, liner systems must be inspected for uniformity, damage, and imperfections (e.g. holes, cracks, thin spots, and foreign materials).

(2) Earth material liner systems must be tested for compaction density, moisture content, and permeability after placement.

(3) Manufactured liner materials (e.g. membranes, sheets, and coatings) must be inspected to ensure tight seams and joints and the absence of tears or blisters.

(b) The owner or operator must inspect:

(1) A surface impoundment which contains free liquids at least once each operating day to ensure compliance with § 264.222(a), (b) and (c), and to detect any leaks or other failures of the impoundment.

(2) Each surface impoundment, including dikes, berms, and vegetation surrounding the dike, at least once a week and after storms to detect any evidence of or potential for leaks from the impoundment, erosion of dikes, and to ensure compliance with § 264.222(d).

[*Comment:* As required by § 264.15(c), the owner or operator must remedy any deterioration or malfunction found.]

(c) The structural integrity of any dike, including that portion of any dike which provides freeboard, must be certified against massive failure by a qualified engineer prior to the issuance or reissuance of a permit; or if the impoundment is not in service, prior to being placed in service and after construction or prior to being returned to service.

(1) In certifying the structual integrity of the dike it must be established that the dike will withstand:

(i) The stress of the pressure head of liquids placed into the impoundment;

(ii) The weakening effect of earth materials being scoured due to leakage from the impoundment through and under the dike without relying on any liner system; and

(iii) The weakening effect of earth materials being scoured due to leakage from the impoundment through and under the dike assuming leaks develop in the liner system.

§ 264.227 Containment system repairs; contingency plans.

(a) Whenever there is any indication of a possible failure of the containment system, that system must be inspected in accordance with the provisions of the containment system evaluation and repair plan required by paragraph (d) of this Section. Indications of possible failure of the containment system include at least an unplanned and non-sudden drop in liquid level in the impoundment, liquid detected in the leachate detection system, evidence of leakage or the potential for leakage in the dike, erosion of the dike, apparent or potential deterioration of the liner(s) based on observation or test samples of the liner materials, any mishandling of wastes placed in the impoundment, and foreign objects in the impoundment.

(b) Whenever there is a positive indication of a failure of the containment system, the impoundment must be removed from service. Indications of positive failure of the containment system include an unplanned sudden drop in liquid level in the impoundment, waste detected in the leachate detection system, active leakage through the dike, or a breach (e.g., a hole, tear, crack, or separation) in the liner system.

(c) If the surface impoundment must be removed from service as required by paragraph (b) of this Section, the owner or operator must:

(1) Immediately shut off the flow of or stop the addition of wastes into the impoundment;

(2) Immediately contain any leakage which has occured or is occurring;

(3) Immediately cause the leak to be stopped; and

(4) If the leak cannot be stopped by any other means, empty the impoundment.

[*Comment:* See § 264.56(j) for recordkeeping and reporting requirements.]

(d) As part of the contingency plan required in Subpart D, the owner or operator must specify:

(1) A procedure for complying with the requiremnents of paragraph (c) of this Section; and

(2) A containment system evaluation and repair plan describing testing and monitoring techniques; procedures to be followed to evaluate the integrity of the containment system in the event of a possible failure; a schedule of actions to be taken in the event of a possible failure; and a description of the repair techniques to be used in the event of leakage due to containment system failure or deterioration which does not require the impoundment to be removed from service.

(e) No surface impoundment that has been removed from service in accordance with paragraph (b) of this Section may be restored to service unless:

(1) The containment system has been repaired; and

(2) The containment system has been certified by a qualified engineer as meeting the design specifications approved in the permit.

(f) A surface impoundment that has been removed from service in accordance with paragraph (b) of this Section and that is not being repaired must be closed in accordance with § 264.228.

[*Comment:* All wastes removed from the impoundment must be managed as a hazardous waste in compliance with all applicable requirements of Parts 262–266 of this Chapter. Any point source discharge to waters of the United States is subject to the requirements of Section 402 of the Clean Water Act, as amended. Spills may be subject to Section 311 of that Act.]

§ 264.228 Closure.

At closure, all hazardous waste and hazardous waste residues must be removed from the impoundment. Any component of the containment system or any appurtenant structures or equipment (e.g., discharge platforms and pipes, and baffles, skimmers, aerators, or other equipment) containing or contaminated with hazardous waste or hazardous waste residues must be decontaminated or removed.

[*Comment:* At closure, as throughout the operating period, unless the owner or operator can demonstrate in accordance with § 261.3(d) of this Chapter that the solid waste removed from the surface impoundment is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and must manage it in accordance with all applicable requirements of Parts 262–266 of this Chapter.]

§ 264.229 Special requirements for ignitable or reactive waste.

Ignitable or reactive waste must not be placed in a surface impoundment, unless:

(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 §§ 261.21 or 261.23 of this Chapter; and

(2) § 264.17(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.

[*Comment:* As required by § 264.13, the waste analysis plan must include analyses needed to comply with § 264.229. Also, § 264.17(c) requires waste analyses, trial tests, or other documentation to assure compliance with § 264.17(b). As required by § 264.73, the owner or operator must place the results of each waste analysis and trial test, and any documented information, in the operating record of the facility.]

§ 264.230 Special requirements for incompatible wastes.

Incompatible wastes, or incompatible wastes and materials (see Appendix V for examples) must not be placed in the same surface impoundment, unless § 264.17(b) is complied with.

[*Comment:* As required by § 264.13, the waste analysis plan must include analyses needed to comply with § 264.230. Also, § 264.17(c) requires waste analyses, trial tests, or other documentation to assure compliance with § 264.17(b). As required by § 264.73, the owner or operator must place the results of each waste analysis and trial test, and any documented information, in the operating record of the facility.]

Subpart L—Waste Piles

§ 264.250 Applicability.

The regulations of this Subpart apply to owners and operators of facilities that store or treat hazardous waste in piles, except as § 264.1 provides otherwise.

[*Comment:* This Subpart currently applies only to waste piles that are used for storage or treatment of hazardous waste and are designed and operated to prevent discharge into the land, surface water, and ground water. The Agency intends to supplement this regulation to address other types of waste piles including piles that are not designed and operated to prevent discharge and piles that are closed with waste left in place. Until additional regulations are promulgated, all waste piles that are authorized by permit must comply with this Subpart.]

§ 264.251 General design requirements.

(a) A waste pile must be designed to control dispersal of the waste by wind, where necessary, or by water erosion.

(b) A waste pile must be designed to prevent discharge into the land, surface water, or ground water during the life of the pile by use of a containment system which complies with § 264.253.

§ 264.252 General operating requirements.

(a) The Regional Administrator shall specify control practices (e.g., cover or frequent wetting) where necessary to ensure that wind dispersal of hazardous waste from piles is controlled.

(b) Run-on must be diverted away from a waste pile.

(c) Leachate and run-off from a waste pile must be collected and controlled.

[*Comment:* If the collected leachate or run-off is a hazardous waste under Part 261 of this Chapter, it must be managed as a hazardous waste in accordance with all applicable requirements of Parts 262–266 of this Chapter. If collected leachate or run-off is discharged through a point source to waters of the United States, it is subject to the requirements of Section 402 of the Clean Water Act, as amended.]

§ 264.253 Containment systems.

(a) A containment system must be designed, constructed, maintained, and operated to prevent discharge into the land, surface water, or ground water during the life of the waste pile. The system must consist of:

(1) A leachate and run-off collection and control system; and either

(2) A base underlying and in contact with the waste pile that is made of a liner (or liners) which will prevent discharge into the land, surface water, or ground water during the life of the pile based on the liner(s) thickness, the permeability of the liner(s), and the characteristics of the waste or leachate to which the liner(s) will be exposed. The liner(s) must be of sufficient strength and thickness to prevent failure due to puncture, cracking, tearing, or other physical damage from equipment used to place waste in or on the pile, or to clean and expose the liner surface for inspection; or

(3) A base as in paragraph (a)(2) of this Section, except that the liner(s) need not be of sufficient strength and thickness to prevent failure due to physical damage from equipment used to clean and expose the liner surface for inspection, and a leachate detection, collection, and removal system beneath the base to detect, contain, collect, and remove any discharge from the base. The leachate detection, collection, and removal system must be placed above the water table to ensure the detection of any discharge through the base; to prevent the discharge of ground water into the leachate detection, collection, and removal system; and to protect the structural integrity of the base.

[*Comment:* A highly impermeable liner beneath the drainage layer is a necessary part of a leachate detection, collection, and removal system. The ground water table may be controlled to comply with this requirement.]

(b) A waste pile base must be constructed;

(1) Of materials that have appropriate chemical properties and strength and of sufficient thickness to prevent failure due to pressure of and physical contact with the waste to which they are exposed, climatic conditions, and the stress of installation; and

(2) On a foundation capable of providing support to the liner(s) and to loads placed or moving above the liner(s) to prevent failure of the liner(s) due to settlement or compression.

(c) A containment system must be protected from plant growth which could puncture any component of the system.

(d) A containment system must have a containment life equal to or greater than the life of the pile.

[*Comment:* See "Landfill and Surface Impoundment Performance Evaluation", EPA, SW/869, September 1980 for methods to evaluate the containment life and effectiveness of a liner system. See "Lining of Waste Impoundment and Disposal Facilities", EPA/870, September 1980 for data and discussions of liner system materials, design, construction, operation, and maintenance.]

§ 264.254 Inspections and testing.

(a) During construction or installation of the waste pile base:

(1) Liner systems must be inspected for uniformity, damage, and imperfections (e.g., holes, cracks, thin spots, and foreign materials); and

(2) Manufactured liner materials (e.g., membranes, sheets, and coatings) must be inspected to ensure tight seams and joints and the absence of tears or blisters.

§ 264.255 Containment system repairs; contingency plans.

(a) Whenever there is any indication of a possible failure of the containment system, that system must be inspected in accordance with the provisions of the containment system evaluation and repair plan required by paragraph (d) of this Section. Indications of possible failure of the containment system include liquid detected in the leachate detection system (where applicable), evidence of leakage or the potential for leakage in the base, erosion of the base, or apparent or potential deterioration of the liner(s) based on observation or test samples of the liner materials.

(b) Whenever there is a positive indication of a failure of the containment system, the waste pile must be removed from service. Indications of positive failure of the containment system include waste detected in the leachate detection system (where applicable), or a breach (e.g., a hole, tear, crack, or separation) in the base.

(c) If the waste pile must be removed from service as required by paragraph (b) of this Section, the owner or operator must:

(1) Immediately stop adding wastes to the pile;

(2) Immediately contain any leakage which has or is occuring;

(3) Immediately cause the leak to be stoppped; and

(4) If the leak cannot be stopped by any other means, remove the waste from the base.

[*Comment:* See § 264.56(j) for recordkeeping and reporting requirements.]

(d) As part of the contingency plan required in Subpart D, the owner or operator must specify:

(1) A procedure for complying with the requirements of paragraph (c) of this Section; and

(2) A containment system evaluation and repair plan describing testing and monitoring techniques; procedures to be followed to evaluate the integrity of the containment system in the event of a possible failure; a schedule of actions to be taken in the event of a possible failure; and a description of the repair techniques to be used in the event of leakage due to containment system failure or deterioration which does not require the waste pile to be removed from service.

(e) No waste pile that has been removed from service in accordance with paragraph (b) of this Section may be restored to service unless:

(1) The containment system has been repaired; and

(2) The containment system has been certified by a qualified engineer as meeting the design specifications approved in the permit.

(f) A waste pile that has been removed from service in accordance with paragraph (b) of this Section and that is not being repaired must be closed in accordance with § 264.258.

[*Comment:* All wastes removed from the waste pile must be managed as a hazardous waste in compliance with all applicable requirements of Parts 262–266 of this Chapter. Any point source discharge to waters of the United States is subject to the requirements of Section 402 of the Clean Water Act, as amended.]

§ 264.256 Special requirements for ignitable or reactive waste.

(a) Ignitable or reactive waste must not be placed in a pile, *unless:*

(1) Addition of the waste to an existing pile (i) results in the waste or mixture no longer meeting the definition of ignitable or reactive waste under §§ 261.21 or 261.23 of this Chapter, and (ii) complies with § 264.17(b); or

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

[*Comment:* As required by § 264.13, the waste analysis plan must include analyses needed to comply with § 264.256. Also, § 264.17(c) requires waste analyses, trial tests, or other documentation to assure compliance with § 264.17(b). As required by § 264.73, the owner or operator must place the results of each waste analysis and trial test, and any documented information, in the operating record of the facility.]

§ 264.257 Special requirements for incompatible wastes.

(a) Incompatible wastes, or incompatible wastes and materials (see Appendix V for examples), must not be placed in the same pile, unless § 264.17(b) is complied with.

(b) A pile of hazardous waste that is incompatible with any waste or other material stored nearby in other containers, piles, open tanks, or surface impoundments must be separated from the other materials, or protected from them by means of a dike, berm, wall, or other device.

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

(c) Hazardous waste must not be piled on the same base where incompatible wastes or materials were previously piled, unless the base has been decontaminated sufficiently to ensure compliance with § 264.17(b).

[*Comment*: As required by § 264.13, the waste analysis plan must include analyses needed to comply with § 264.257. Also, § 264.17(c) requires waste analyses, trial tests, or other documentation to assure compliance with § 264.17(b). As required by § 264.73, the owner or operator must place the results of each waste analysis and trial tests, and any documented information, in the operating record of the facility.]

§ 264.258 Closure.

At closure, all hazardous waste and hazardous waste residues must be removed from the pile. Any component of the containment system containing or contaminated with hazardous waste or hazardous waste residues must be decontaminated or removed.

[*Comment*: At closure, as throughout the operating period, unless the owner or operator can demonstrate in accordance with § 261.3(d) of this Chapter that the solid waste removed from the waste pile is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and must manage it in accordance with all applicable requirements of Parts 262—266 of this Chapter.]

f. In Part 264, Appendices III and IV are reserved and new Appendices V and VI are added to read as follows: these Appendices are issued as interim final rules:

Appendix V—Examples of Potentially Incompatible Waste

Many hazardous wastes, when mixed with other waste or materials at a hazardous waste facility, can produce effects which are harmful to human health and the environment, such as (1) heat or pressure, (2) fire or explosion, (3) violent reaction, (4) toxic dusts, mists, fumes, or gases, or (5) flammable fumes or gases.

Below are examples of potentially incompatible wastes, waste components, and materials, along with the harmful consequences which result from mixing materials in one group with materials in another group. The list is intended as a guide to owners or operators of treatment, storage, and disposal facilities, and to enforcement and permit granting officials, to indicate the need for special precautions when managing these potentially incompatible waste materials or components.

This list is not intended to be exhaustive. An owner or operator must, as the regulations require, adequately analyze his wastes so that he can avoid creating uncontrolled substances or reactions of the type listed below, whether they are listed below or not.

It is possible for potentially incompatible wastes to be mixed in a way that precludes a reaction (e.g., adding acid to water rather than water to acid) or that neutralizes them (e.g., a strong acid mixed with a strong base), or that controls substances produced (e.g., by generating flammable gases in a closed tank equipped so that ignition cannot occur, and burning the gases in an incinerator).

In the lists below, the mixing of a Group A material with a Group B material may have the potential consequence as noted.

Group 1–A

Acetylene sludge
Alkaline caustic liquids
Alkaline cleaner
Alkaline corrosive liquids
Alkaline corrosive battery fluid
Caustic wastewater
Lime sludge and other corrosive alkalies
Lime wastewater
Lime and water
Spent caustic

Group 1–B

Acid sludge
Acid and water
Battery acid
Chemical cleaners
Electrolyte, acid
Etching acid liquid or solvent
Pickling liquor and other corrosive acids
Spent acid
Spent mixed acid
Spent sulfuric acid

Potential consequences: Heat generation; violent reaction.

Group 2–A

Aluminum
Beryllium
Calcium
Lithium
Magnesium
Potassium
Sodium
Zinc powder
Other reactive metals and metal hydrides

Group 2–B

Any waste in Group 1–A or 1–B

Potential consequences: Fire or explosion; generation of flammable hydrogen gas.

Group 3–A

Alcohols
Water

Group 3–B

Any concentrated waste in Groups 1–A or 1–B
Calcium
Lithium
Metal hydrides
Potassium
SO_2Cl_2, $SOCl_2$, PCl_3, CH_3SiCl_3
Other water-reactive waste

Potential consequences: Fire, explosion, or heat generation; generation of flammable or toxic gases.

Group 4–A

Alcohols
Aldehydes
Halogenated hydrocarbons
Nitrated hydrocarbons
Unsaturated hydrocarbons
Other reactive organic compounds and solvents

Group 4–B

Concentrated Group 1–A or 1–B wastes
Group 2–A 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.

Appendix VI.—Political Jurisdictions [1] in Which Compliance With § 264.18(a) Must Be Demonstrated

Alabama

None

Alaska

Aleutian Islands
Anchorage
Bethel
Bristol Bay
Cordova-Valdez
Fairbanks-Fort Yukon
Juneau
Kenai-Cook Inlet
Ketchikan-Prince of Wales
Kodiak
Lynn Canal-Icy Straits
Palmer-Wasilla-Talkeena
Seward
Sitka
Wade Hampton
Wrangell Petersburg
Yukon-Kuskokwim

Arizona

Cochise
Graham
Greenlee
Yuma

Arkansas

Arkansas
Clay
Cleburne
Craighead
Crittenden
Cross
Fulton
Greene
Independence
Izard
Jackson
Lawrence
Lee
Lonoke
Mississippi
Monroe
Phillips
Poinsett
Polk
Prairie
Randolf
Sharp
St. Francis
Stone
White
Woodruff

California

All

Colorado

Archuleta
Conejos
Hinsdale
Mineral
Rio Grande
Saguache

Connecticut

All

Delaware

None

Florida

None

Georgia

Banks
Barrow
Bartow
Bryan
Bulloch
Burke
Candler
Catoosa
Chatham
Chattooga
Cherokee
Clarke
Cobb
Columbia
Dade
Dawson
De Kalb
Effingham
Elbert
Emanuel
Fannin
Floyd
Forsyth
Franklin
Fulton
Glascock
Gilmer
Gordon
Greene
Gwinnett
Habersham
Hall
Hancock
Hart
Jackson
Jasper
Jefferson
Jenkins
Johnson
Lincoln
Lumpkin
Madison
McDuffie
Morgan
Murray
Newton
Oconee
Oglethorpe
Pickens
Putnam
Rabun
Richmond
Rockdale
Screven
Stephens
Talaferro
Towns
Treutlen
Union
Walker
Walton
Warren
Washington
White
Whitfield
Wilkes

Hawaii

Hawaii
Honolulu
Maui

Idaho

Bannock
Bear Lake
Bingham
Bonneville
Caribou
Cassia
Clark
Franklin
Fremont
Jefferson
Madison
Oneida
Power
Teton

Illinois

Alexander
Bond
Christian
Clark
Clay
Clinton
Coles
Crawford
Cumberland
Douglas
Edgar
Edwards
Effingham
Fayette
Franklin
Gallatin
Hamilton
Hardin
Jackson
Jasper
Jefferson
Jersey
Johnson
Lawrence
Macoupin
Madison
Marion
Massac
Monroe
Montgomery
Moultrie
Perry
Pope
Pulaski
Randolf
Richland
Saline
Shelby
St. Clair
Union
Wabash
Washington
Wayne
White
Williamson

Indiana

Gibson
Knox
Posey
Sullivan
Vanderburgh

Iowa

Fremont
Mills
Page

Kansas

Anderson
Atchison
Brown
Coffey
Doniphan
Douglas
Franklin
Geary
Jackson
Jefferson
Johnson
Leavenworth
Linn
Lyon
Marshall
Miami
Morris
Nemaha
Osage
Pottawatomie
Riley
Shawnee
Wabaunsee
Washington
Wyandotte

Kentucky

Ballard
Bell
Caldwell
Calloway
Carlisle
Crittenden
Fulton
Graves
Harlan
Henderson
Hickman
Letcher
Livingston
Lyon
Marshall
McCracken
Trigg
Union
Webster

Louisiana

None

Maine

All

Maryland

None

Massachusetts

All

Michigan

None

Minnesota

None

Mississippi

None

Missouri

Bollinger
Butler
Cape Girardeau
Carter
Crawford
Dent
Dunklin
Franklin
Howell
Iron
Jefferson
Madison
Mississippi
New Madrid
Oregon
Pemiscot
Perry
Reynolds
Ripley
Scott
Shannon
St. Charles
Ste. Genevieve
St. Francois
St. Louis
St. Louis City
Stoddard
Texas
Washington
Wayne

Montana

Beaverhead
Broadwater
Cascade
Deer Lodge
Flathead
Gallatin
Granite
Jefferson
Lake
Lewis and Clark
Madison
Meagher
Missoula
Park
Powell
Sanders
Silver Bow
Stillwater
Sweet Grass
Teton
Wheatland

Nebraska

Cass
Gage
Jefferson
Johnson
Lancaster
Sarpy
Otoe
Nemaha
Pawnee
Richardson

Nevada

All

New Hampshire

All

New Jersey

Bergen
Essex
Hudson
Hunterdon
Mercer
Middlesex
Monmouth
Morris
Passaic
Somerset
Sussex
Union
Warren

[1] These include counties, city-county consolidations, independent cities, and, in the case of Alaska, election districts.

New Mexico

Bernalillo
Catron
Grant
Hidalgo
Los Alamos
Rio Arriba
Sandoval
Santa Fe
Sierra
Socorro
Taos
Torrance
Valencia

New York

Albany
Bronx
Clinton
Columbia
Delaware
Dutchess
Erie
Essex
Franklin
Fulton
Genesee
Greene
Hamilton
Herkimer
Jefferson
Kings
Lewis
Montgomery
Nassau
New York
Niagara
Oneida
Orange
Orleans
Otsego
Putnam
Queens
Rensselaer
Richland
Richmond
Rockland
Saratoga
Schenectady
Schoharie
St. Lawrence
Suffolk
Sullivan
Ulster
Warren
Washington
Westchester
Wyoming

North Carolina

Alexander
Alleghany
Anson
Ashe
Avery
Buncombe
Burke
Cabarrus
Caldwell
Catawba
Cherokee
Clay
Cleveland
Gaston
Graham
Haywood
Henderson
Iredell
Jackson
Lincoln
Macon
Madison
McDowell
Mecklenburg
Mitchell
Polk
Richmond
Rowan
Rutherford
Stanly
Surry
Swain
Transylvania
Union
Watauga
Wilkes
Yancey

North Dakota

None

Ohio

None

Oklahoma

Atoka
Bryan
Carter
Choctaw
Cleveland
Coal
Creek
Garvin
Grady
Haskell
Hughes
Johnston
Latimer
Le Flore
Lincoln
Marshall
McClain
McCurtain
McIntosh
Murray
Muskogee
Okfuskee
Oklahoma
Okmulgee
Pittsburg
Pontotoc
Pottawatomie
Pushmataha
Seminole
Stephens
Tusla

Oregon

None

Pennsylvania

Berks
Bucks
Carbon
Chester
Lackawanna
Lancaster.
Lebanon
Lehigh
Luzurne
Monroe
Montgomery
Northampton
Pike
Schuylkill
Susquenhanna
Wayne
Wyoming

Rhode Island

All

South Carolina

All

South Dakota

None

Tennessee

Anderson
Bledsoe
Blount
Bradley
Campbell
Carroll
Carter
Claiborne
Cocke
Crockett
Cumberland
Dyer
Fayette
Gibson
Grainger
Greene
Hamblen
Hamilton
Hancock
Hardeman
Hawkins
Haywood
Henry
Jefferson
Johnson
Knox
Lake
Lauderdale
Loudon
Madison
McMinn
Meigs
Monroe
Morgan
Obion
Polk
Rhea
Roane
Scott
Sequatchie
Sevier
Shelby
Sullivan
Tipton
Unicoi
Union
Washington
Weakley

Texas

None

Utah

Beaver
Box Elder
Cache
Carbon
Davis
Duchesne
Emery
Garfield
Iran
Juab
Millard
Morgan
Piute
Rich
Salt Lake
Sanpete
Sevier
Summit
Tooele
Utah
Wasatch
Washington
Wayne
Weber

Vermont

All

Virginia

Bland
Buchanan
Carroll
Craig
Dickenson
Floyd
Giles
Grayson
Lee
Montgomery
Pulaski
Roanoke
Russell
Scott
Smyth
Tazewell
Washington
Wise
Wythe

Washington

Chelan
Clallam
Clark
Cowlitz
Douglas
Ferry
Grant
Gray Harbor
Jefferson
King
Kitsap
Kittitas
Lewis
Mason
Okanogan
Pacific
Pierce
San Juan Islands
Skagit
Skamania
Snohomish
Thurston
Wahkiakum
Whatcom
Yakima

West Virginia

Mercer
McDowell
Monroe
Summers

Wisconsin

None

Wyoming

Fremont
Lincoln
Park
Sublette
Teton
Uinta
Yellowstone National Park

Territories of the United States

American Samoa: All
Commonwealth of the Northern Mariana Islands: All
Guam: All
Puerto Rico: All
U.S. Virgin Islands: All

PART 265—INTERIM STATUS STANDARDS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES

a. Amend Table of Contents as follows:

1. Revise Subpart G—Closure and Post-Closure to read as follows:

Subpart G—Closure and Post-Closure

Sec.
265.110 Applicability.
265.111 Closure performance standard.
265.112 Closure plan; amendment of plan.
265.113 Closure; time allowed for closure.
265.114 Disposal or decontamination of equipment.
265.115 Certification of closure.
265.116 [Reserved]
265.117 Post-closure care and use of property.
265.118 Post-closure plan; amendment of plan.
265.119 Notice to local land authority.
265.120 Notice in deed to property.

2. Revise Subpart H—Financial Requirements to read as follows:

Subpart H—Financial Requirements

Sec.
265.140 Applicability.
265.141 Definitions.
265.142 Cost estimate for facility closure.
265.143 Financial assurance for facility closure.
265.144 Cost estimate for post-closure monitoring and maintenance.
265.145 Financial assurance for post-closure monitoring and maintenance.

b. Revise Subpart G to read as follows; sections 265.112, 265.113, 265.117, and 265.118 are issued as amended interim final rules:

Subpart G—Closure and Post-Closure

§ 265.110 Applicability.

Except as § 265.1 provides otherwise:

(a) Sections 265.111–265.115 (which concern closure) apply to the owners and operators of all hazardous waste management facilities; and

(b) Sections 265.117–265.120 (which concern post-closure care) apply to the owners and operators of all hazardous waste disposal facilities.

§ 265.111 Closure performance standard.

The owner or operator must close his 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 waste constituents, leachate, contaminated rainfall, or waste decomposition products to the ground or surface waters or to the atmosphere.

§ 265.112 Closure plan; amendment of plan.

(a) By May 19, 1981, the owner or operator must have a written closure plan. He must keep a copy of the closure plan and all revisions to the plan at the facility until closure is completed and certified in accordance with § 265.115. This plan must identify the steps necessary to completely or partially close the facility at any point during its intended operating life and to completely close the facility at the end of its intended operating life. The closure plan must include, at least:

(1) A description of how and when the facility will be partially closed, if applicable, and finally closed. The description must identify the maximum extent of the operation which will be unclosed during the life of the facility, and how the requirements of §§ 265.111, 265.113, 265.114, and 265.115 and the applicable closure requirements of §§ 265.197, 265.228, 265.280, 265.310, 265.351, 265.381, and 265.404 will be met;

(2) An estimate of the maximum inventory of wastes in storage and in treatment at any time during the life of the facility;

(3) A description of the steps needed to decontaminate facility equipment during closure; and

(4) An estimate of the expected year of closure and a schedule for final closure. The schedule must include, at a minimum, the total time required to close the facility and the time required for intervening closure activities which will allow tracking of the progress of closure. (For example, in the case of a landfill, estimates of the time required to treat and dispose of all waste inventory and of the time required to place a final cover must be included.)

(b) The owner or operator may amend his closure plan at any time during the active life of the facility. (The active life of the facility is that period during which wastes are periodically received.) The owner or operator must amend the plan whenever changes in operating plans or facility design affect the closure plan, or whenever there is a change in the expected year of closure of the facility. The plan must be amended within 60 days of the changes.

(c) The owner or operator must submit his closure plan to the Regional Administrator at least 180 days before the date he expects to begin closure. The owner or operator must submit his closure plan to the Regional Administrator no later than 15 days after:

(1) termination of interim status (except when a permit is issued to the facility simultaneously with termination of interim status; or

(2) issuance of a judicial decree or compliance order under Section 3008 of RCRA to cease receiving wastes or close.

[*Comment:* The date when closure commences should be within 30 days after the date on which the owner or operator expects to receive the final volume of wastes.]

(d) The Regional Administrator will provide the owner or operator and the public, through a newspaper notice, the opportunity to submit written comments on the plan and request modifications of the plan within 30 days of the date of the notice. He will also, in response to a request or at his own discretion, hold a public hearing whenever such a hearing might clarify one or more issues concerning a closure plan. The Regional Administrator will give public notice of the hearing at least 30 days before it occurs. (Public notice of the hearing may be given at the same time as notice of the opportunity for the public to submit written comments, and the two notices may be combined.) The Regional Administrator will approve, modify, or disapprove the plan within 90 days of its receipt. If the Regional Administrator does not approve the plan, the owner or operator must modify the plan or submit a new plan for approval within 30 days. The Regional Administrator will approve or modify this plan in writing within 60 days. If the Regional Administrator modifies the plan, this modified plan becomes the approved closure plan. The Regional Administrator's decision must assure that the approved closure plan is consistent with §§ 265.111, 265.113, 265.114, and 265.115 and the applicable requirements of §§ 265.197, 265.228, 265.280, 265.310, 265.351, 265.381 and 265.404. A copy of this modified plan must be mailed to the owner or operator. If the owner or operator plans to begin closure before November 19, 1981 he must submit the closure plan by May 19, 1981.

§ 265.113 Closure; time allowed for closure.

(a) Within 90 days after receiving the final volume of hazardous wastes, or 90 days after approval of the closure plan, if that is later, the owner or operator must treat, remove from the site, or dispose of on-site all hazardous wastes in accordance with the approved closure plan. The Regional Administrator may approve a longer period using the procedures under § 265.112(d) if the owner or operator demonstrates that:

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

(ii)(A) The facility has the capacity to receive additional wastes;

(B) There is a reasonable likelihood that a person other than the owner or operator will recommence operation of the site; and

(C) Closure of the 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.

(b) The owner or operator must complete closure activities in accordance with the approved closure plan and within 180 days after receiving the final volume of wastes or 180 days after approval of the closure plan, if that is later. The Regional Administrator may approve a longer closure period using the procedures under § 265.112(c) if the owner or operator demonstrates that:

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

(ii)(A) The facility has the capacity to receive additional waste;

(B) There is a reasonable likelihood that a person other than the owner or operator will recommence operation of the site;

(C) Closure of the 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 inactive facility.

[*Comment:* Under paragraphs (a)(1)(ii) and (b)(1)(ii), of this Section, if operation of the facility is recommenced, the Regional Administrator may defer completion of closure activities until the new operation is terminated.

§ 265.114 Disposal or decontamination of equipment.

When closure is completed, all facility equipment and structures must have been properly disposed of, or decontaminated by removing all hazardous waste and residues.

§ 265.115 Certification of closure.

When closure is completed, the owner or operator must submit to the Regional Administrator certification both by the owner or operator and by an independent registered professional engineer that the facility has been closed in accordance with the specifications in the approved closure plan.

§ 265.116 [Reserved]

§ 265.117 Post-closure care and use of property.

(a) Post-closure care must continue for 30 years after the date of completing closure and must consist of at least the following:

(1) Ground-water monitoring and reporting in accordance with the requirements of Subpart F, and

(2) Maintenance of monitoring and waste containment systems as specified in §§ 265.91, 265.223, 265.228, 265.280, and 265.310, where applicable.

(b) The Regional Administrator may require continuation of any of the security requirements of § 265.14 for 30 years after the date closure has been completed when:

(1) Wastes may remain exposed after completion of closure; or

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

In extending any of these requirements the Regional Administrator will use the procedures of § 265.118(c).

(c) Post-closure use of property on or in which hazardous wastes remain after closure must never be allowed to disturb the integrity of the final cover, liner(s), or any other components of any containment system, or the function of the facility's monitoring systems, unless the owner or operator can demonstrate to the Regional Administrator, either in the post-closure plan or by petition, through the procedures in § 265.118(c) or (f), as appropriate, 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 performed in accordance with the provisions of the approved post-closure plan as specified in § 265.118.

§ 265.118 Post-closure plan; amendment of plan.

(a) By May 19, 1981, the owner or operator of a disposal facility must have a written post-closure plan. He must keep a copy of the post-closure plan and all revisions to the plan at the facility until the post-closure care period begins. The post-closure plan must identify the activities which will be carried on after closure and the frequency of these activities, and include at least:

(1) A description of the planned ground-water monitoring activities and frequencies at which they will be performed to comply with Subpart F during the post-closure period;

(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 structures as specified in §§ 265.223, 265.228, 265.280, and 265.310, where applicable; and

(ii) The function of the facility monitoring equipment as specified in § 265.91; and

(3) The name, address, and phone number of the person or office to contact about the disposal facility during the post-closure care period. This person or office must keep an updated post-closure plan during the post-closure care period.

(b) The owner or operator may amend his post-closure plan at any time during the active life of the disposal facility. The owner or operator must amend his plan any time changes in operating plans or facility design, or events which occur during the active life of the facility, affect his post-closure plan, The plan must be amended within 60 days after the changes or events occur.

(c) The owner or operator of a disposal facility must submit his post-closure plan to the Regional Administrator at least 180 days before the date he expects to begin closure. The date when he "expects to begin closure" should be immediately after the date on which he expects to receive the final volume of wastes. The owner or operator must submit his closure plan to the Regional Administrator no later than 15 days after:

(1) Termination of interim status (except when a permit is issued to the facility simultaneously with termination of interim status); or

(2) issuance of a judicial decree or compliance order under Section 3008 of RCRA to cease receiving wastes or close.

[*Comment:* The date when closure commences should be within 30 days after the date on which the owner or operator expects to receive the final volume of wastes.]

(d) The Regional Administrator will provide the owner or operator and the public through a newspaper notice the opportunity to submit written comments on the plan and request modifications of the plan including modification of the 30 year post-closure period required in § 265.117 within 30 days of the date of the notice. He may also, in response to a request or at his own discretion, hold a public hearing whenever a hearing might clarify one or more issues concerning the post-closure plan. The Regional Administrator will give the public notice of the hearing at least 30 days before it occurs. (Public notice of the hearing may be given at the same time as notice of the opportunity for written public comments, and the two notices may be combined.) The Regional Administrator will approve, modify, or disapprove the plan within 90 days of its receipt. If the Regional Administrator does not approve the plan, the owner or operator must modify the plan or submit a new plan for approval within 30 days. The Regional Administrator will approve or modify this plan in writing within 60 days. If the Regional Administrator modifies the plan, this modified plan becomes the approved post-closure plan. The Regional Administrator must base his decision upon the criteria required of petitions under paragraph (f)(1)(i) of this Section. A copy of this modified plan must be mailed to the owner or operator. If an owner or operator plans to begin closure before November 19, 1981, he must submit the post-closure plan by May 19, 1981.

(e) The owner or operator may amend his post-closure plan during the post-closure care period. The owner or operator must amend his plan any time changes in monitoring or maintenance plans or events which occur during the post-closure care period affect the post-closure plan. The owner or operator

must petition the Regional Administrator within 60 days of the changes or events, under the procedures of paragraph (f) of this section, to allow the plan to be modified.

(f) The post-closure plan (or period) may be modified during the post-closure care period or at the end of the post-closure care period in either of the following two ways:

(1) The owner or operator or any member of the public may petition the Regional Administrator to extend or reduce the post-closure care period based on cause, or alter the requirements of the post-closure care period based on cause.

(i) The petition must include evidence demonstrating that:

(A) The secure nature of the facility makes the post-closure care requirement(s) unnecessary or supports reduction of the post-closure care period specified in the current post-closure plan (e.g., leachate or groundwater monitoring results, characteristics of the waste, application of advanced technology, or alternative disposal, treatment, or re-use techniques indicate that the facility is secure), or

(B) The requested extension in the post-closure care period or alteration of post-closure care requirements is necessary to prevent threats to human health and the environment.

(ii) These petitions will be considered by the Regional Administrator only when they present new and relevant information not previously considered by the Regional Administrator. Whenever the Regional Administrator is considering a petition, he will provide the owner or operator and the public, through a newspaper notice, the opportunity to submit written comments within 30 days of the date of the notice. He will also, in response to a request or at his own discretion, hold a public hearing whenever a hearing might clarify one or more issues concerning the post-closure plan. The Regional Administrator will give the public notice of the hearing at least 30 days before it occurs. (Public notice of the hearing may be given at the same time as notice of the opportunity for written public comments, and the two notices may be combined.) After considering the comments, he will issue a final determination, based upon the criteria set forth in subparagraph (1).

(iii) If the Regional Administrator denies the petition, he will send the petitioner a brief written response giving a reason for the denial.

(2) The Regional Administrator may tentatively decide to modify the post-closure plan if he deems it necessary to prevent threats to human health and the environment. He may propose to extend or reduce the post-closure care period based on cause or alter the requirements of the post-closure care period based on cause.

(i) The Regional Administrator will provide the owner or operator and the affected public, through a newspaper notice, the opportunity to submit written comments within 30 days of the date of the notice and the opportunity for a public hearing as in subparagraph (a)(1)(ii) of this Section. After considering the comments, he will issue a final determination.

(ii) The Regional Administrator will base his final determination upon the same criteria as required for petitions under paragraph (f)(1)(i) of this Section.

[*Comment:* A modification of the post-closure plan may include where appropriate the temporary suspension rather than permanent deletion of one or more post-closure care requirements. At the end of the specified period of suspension, the Regional Administrator would then determine whether the requirement(s) should be permanently discontinued or reinstated to prevent threats to human health and the environment.]

§ 265.119 Notice to local land authority.

Within 90 days after closure is completed, the owner or operator of a disposal facility must submit to the local land authority and to the Regional Administrator a survey plat indicating the location and dimensions of landfill cells or other disposal areas with respect to permanently surveyed benchmarks. This plat must be prepared and certified by a professional land surveyor. The plat filed with the local land authority must contain a note, prominently displayed, which states the owner's or operator's obligation to restrict disturbance of the site as specified in § 265.117(c). In addition, the owner or operator must submit to the Regional Administrator and to the local land authority a record of the type, location, and quantity of hazardous wastes disposed of within each cell or area of the facility. The owner or operator must identify the type, location, and quantity of hazardous wastes disposed of within each cell or area of the facility. For wastes disposed of before these regulations were promulgated, the owner or operator must identify the type, location, and quantity of the wastes to the best of his knowledge and in accordance with any records he has kept.

§ 265.120 Notice in deed to property.

The owner of the property on which a disposal facility is located must record, in accordance with State law, a notation on the deed to the facility property—or on some other instrument which is normally examined during title search—that will in perpetuity notify any potential purchaser of the property that: (1) the land has been used to manage hazardous waste, and (2) its use is restricted under § 265.117(c).

c. Revise Subpart H to read as follows; except for §§ 265.140, 265.142 and 265.144, all Sections are issued as interim final rules:

Subpart H—Financial Requirements

§ 265.140 Applicability.

(a) The requirements of §§ 265.142, 265.143, and 265.146–151 apply to owners and operators of all hazardous waste facilities, except as provided otherwise in this section or in § 265.1.

(b) The requirements of §§ 265.144 and 265.145 apply only to owners and operators of disposal facilities.

(c) States and the Federal Government are exempt from the requirements of this Subpart.

§ 265.141 Definitions.

(a) When used in this Subpart, the following terms have the meanings given below:

"Compliance procedure" means any proceedings instituted pursuant to RCRA or regulations issued under authority of RCRA which seeks to require compliance or which is in the nature of an enforcement action or an action to cure a violation. A compliance procedure includes a compliance order or notice of intention to terminate a permit or interim status pursuant to Section 3008 of RCRA or Part 124 of this Chapter, or an application in the United States district court for appropriate relief pursuant to Sections 3008, 7002, or 7003 of RCRA. For the purposes of this Subpart, a compliance procedure is considered to be pending from the time an order or notice of intent to terminate is issued or judicial proceedings are begun until the Regional Administrator notifies the owner or operator in writing that the violation has been corrected or that the procedure has been withdrawn or discontinued.

"Standby trust fund" means a trust fund which must be established by an owner or operator who obtains a letter of credit or surety bond as specified in these regulations. The institution issuing the letter of credit or surety bond will deposit into the standby trust fund any drawings by the Regional Administrator on the credit or bond.

(b) The following terms are used in the liability requirements. The definitions suggest what EPA believes

are the common meanings of the terms as they are generally used in the insurance industry; the definitions are not intended to limit the meanings in a way that conflicts with general usage.

"Claims-made policy" means an insurance policy that provides coverage for an occurrence if a claim is filed during the term of the policy.

"Legal defense costs" means any expenses that an insurer incurs in defending against claims of third parties brought under the terms and conditions of an insurance policy.

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

"Occurrence" means an accident, including continuous or repeated exposure to conditions, which results in bodily injury or property damage which the owner or operator neither expected nor intended to occur.

"Sudden accident" means an unforeseen and unexpected occurrence which is not continuous or repeated in nature.

§ 265.142 Cost estimate for facility closure.

(a) On May 19, 1981, each facility owner or operator must have a written estimate of the costs of closing the facility in accordance with the requirements in §§ 265.111–265.115 and applicable closure requirements in §§ 265.197, 265.228, 265.280, 265.310, 265.351, 265.381, and 265.404. The owner or operator must keep this estimate, and all subsequent estimates required in this Section, at the facility. The estimate must equal the cost of closure at the point in the facility's operating life when the extent and manner of its operation would make closure the most expensive, as indicated by its closure plan (see § 265.112 (a)).

[*Comment:* For example, the closure cost estimate for a particular landfill may be for the cost of closure when its active disposal operations extend over 20 acres, if at all other times these operations extend over less than 20 acres. The estimate would not include costs of partial closures that the closure plan schedules before or after the time of maximum closure cost.]

(b) The owner or operator must prepare a new closure cost estimate whenever a change in the closure plan affects the cost of closure.

(c) On each anniversary of the effective date of these regulations, the owner or operator must adjust the latest closure cost estimate using an inflation factor derived from the annual Implicit Price Deflator for Gross National Product as published by the U.S. Department of Commerce in its *Survey of Current Business*. The inflation factor must be calculated by dividing the latest published annual Deflator by the Deflator for the previous year. The result is the inflation factor. The adjusted closure cost estimate must equal the latest closure cost estimate (see paragraph (b) of this Section) times the inflation factor.

[*Comment:* The following is a sample calculation of the adjusted closure cost estimate: Assume that the latest closure cost estimate for a facility is $50,000, the latest published annual Deflator is 152.05, and the annual Deflator for the previous year is 141.70. The Deflators may be rounded to the nearest whole number. Dividing 152 by 142 gives the inflation factor, 1.07. Multiply $50,000 by 1.07 for a product of $53,500—the adjusted closure cost estimate.]

§ 265.143 Financial assurance for facility closure.

By the effective date of these regulations, an owner or operator of each facility must establish financial assurance for closure of the facility. He must choose from among the following options:

(a) *Closure trust fund.* (1) An owner or operator may satisfy the requirements of this Section by establishing a closure trust fund which conforms to the requirements of this paragraph and by sending an originally signed duplicate of the trust agreement to the Regional Administrator by certified mail. The trustee must be a bank or other financial institution 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 § 265.151(a)(1) and the trust agreement must be accompanied by a formal certification of acknowledgment (for an example, see § 265.151(a)(2)).

(3) Payments to the trust fund must be made annually by the owner or operator over the remaining operating life of the facility as estimated in the closure plan (§ 265.112(a)) or over the 20 years beginning with the effective date of these regulations, whichever period is shorter; this period is hereafter referred to as the "pay-in period." The payments to the closure trust fund must be made as follows:

(i) The first payment must be made by the effective date of these regulations, except as provided in paragraph (a)(5) of this Section. The first payment must be at least equal to the closure cost estimate (see § 265.142), except as provided in paragraph (f) of this Section, divided by the number of years in the pay-in period.

(ii) Subsequent payments must be made no later than 30 days after each anniversary date of the first payment. The amount of each subsequent payment must be determined by performing the following calculation:

$$\text{Next payment} = ACE - CV/Y$$

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

[*Comment:* The following is a sample calculation of subsequent payments: Assume that the adjusted closure cost estimate is $50,000, the current value of the trust fund is $35,000 and there are 3 years remaining in the pay-in period. Subtract $35,000 from $50,000, leaving $15,000. Divide $15,000 by 3. The result, $5,000, is the amount of the next payment to the trust fund. All amounts may be rounded to the nearest dollar.]

(4) The owner or operator may accelerate payments into the trust fund or he may deposit the full amount of the 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 the fund would have if annual payments were made as specified in paragraph (a)(3) of this Section.

(5) If the owner or operator establishes a closure trust fund after having initially used one or more alternate mechanisms specified in this Section, his first payment must be at least the amount that the fund would have contained if the trust fund were established and annual payments made as specified in paragraph (a)(3) of this Section.

(6) After the pay-in period is completed, whenever the adjusted 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 (described in Section 10 of the trust agreement). If the value of the fund is less than the amount of the new estimate, the owner or operator must, within 60 days of the change in the cost estimate, deposit a sufficient amount into the fund so that its value after payment at least equals the amount of the new estimate, or obtain other financial assurance as specified in this Section to cover the difference.

(7) If the value of the trust fund is greater than the total amount of the adjusted closure cost estimate, the owner or operator may submit a written request to the Regional Administrator for release of the amount in excess of the adjusted closure cost estimate.

(8) In an owner or operator substitutes other financial assurance as specified in this Section for all or part of the trust fund, he may submit a written request to the Regional Administrator for release of the amount in the trust fund which is greater than the amount required as a result of such substitution.

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

(10) After beginning final closure, an owner or operator or any other person authorized to perform closure may request reimbursement for closure expenditures by submitting itemized bills to the Regional Administrator. Within 60 days after receiving bills for closure activities, the Regional Administrator will instruct the trustee to make reimbursements in those amounts as the Regional Administrator specifies in writing, if the Regional Administrator determines that the closure expenditures are in accordance with the closure plan or otherwise justified.

[*Comment:* Ordinarily, the Regional Administrator will approve reimbursements only up to 80 percent of the value of the closure trust fund; the remaining 20 percent will be returned to the owner or operator or reimbursed to any other person authorized to perform closure upon satisfactory certification of closure as noted in paragraph (h) of this Section.]

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

(i) The owner or operator substitutes alternate financial assurance for closure as specified in this Section, or

(ii) The Regional Administrator notifies the owner or operator, in accordance with paragraph (h) of this Section, that he is no longer required by this Section to maintain financial assurance for closure of the facility.

(b) *Surety bond guaranteeing payment into a closure trust fund.* (1) An owner or operator may satisfy the requirements of this Section by obtaining a surety bond which conforms to the requirements of this paragraph and by having the bond delivered to the Regional Administrator by certified mail. 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.

[*Comment:* Circular 570 is published in the Federal Register annually on July 1; interim changes in the Circular are also published in the Federal Register.]

(2) The wording of the surety bond must be identical to the wording specified in § 265.151(b).

(3) The owner or operator who uses a surety bond to satisfy the requirements of this Section must also establish a standby trust fund by the time the bond is obtained. Under the terms of the surety bond, all payments made thereunder will be deposited into the standby trust fund. This trust fund must meet the requirements specified in paragraph (a) of this Section, except that:

(i) An originally signed duplicate of the trust agreement must be delivered to the Regional Administrator with the surety bond; and

(ii) After a nominal initial payment agreed upon between the trustee and the owner or operator, payments as specified in paragraph (a) of this Section are not required until the standby trust fund is funded pursuant to the requirements of this paragraph.

(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 at least 60 days prior to the expected date of 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 order to begin closure in accordance with Subpart G of this Part is issued by the Regional Administrator or by a U.S. district court pursuant to Section 3008, 7002, or 7003 of RCRA, or within 15 days after issuance of a notice of termination of interim status pursuant to Part 124 of this Chapter; or

(iii) Provide alternate financial assurance as specified in this Section within 30 days after receipt by the Regional Administrator of a notice of cancellation of the bond from the surety.

(5) 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 amount of the adjusted closure cost estimate (see § 265.142), except as provided in paragraph (f) of this Section.

(7) Whenever the adjusted closure cost estimate increases to an amount greater than the penal sum of the bond, the owner or operator must, within 60 days after the increase, cause the penal sum of the bond to be increased to an amount at least equal to the new estimate or obtain other financial assurance, as specified in this Section, to cover the increase. Whenever the adjusted closure cost estimate decreases, the penal sum may be reduced to the amount of the new estimate following written approval by the Regional Administrator. Notice of an increase or decrease in the penal sum must be sent to the Regional Administrator by certified mail within 60 days after the change.

(8) The bond shall remain in force unless the surety sends written notice of cancellation by certified mail to the owner or operator and to the Regional Administrator. Cancellation cannot occur, however:

(i) During the 90 days beginning on the date of receipt of the notice of cancellation by the Regional Administrator as shown on the signed return receipt; or

(ii) While a compliance procedure is pending, as defined in § 265.141.

(9) The surety bond no longer satisfies the requirements of this paragraph subsequent to the receipt by the Regional Administrator of a notice of cancellation of the surety bond. Upon receipt of such notice the Regional Administrator will issue a compliance order pursuant to Section 3008 of RCRA unless the owner or operator has demonstrated alternate financial assurance as specified in this Section. In the event the owner or operator does not correct the violation by demonstrating such alternate financial assurance within 30 days after issuance of the compliance order, the Regional Administrator may direct the surety to place the penal sum of the bond in the standby trust fund.

(10) The owner or operator may cancel the bond if the Regional Administrator has given prior written consent based on receipt of evidence of alternate financial assurance as specified in this Section.

(11) The Regional Administrator will notify the surety when the owner or operator funds the standby trust fund in the amount guaranteed by the surety bond or if he provides alternate financial assurance as specified in this Section.

(c) *Closure letter of credit.* (1) An owner or operator may satisfy the requirements of this Section by obtaining an irrevocable standby letter of credit which conforms to the requirements of this paragraph and by having it delivered to the Regional Administrator by certified mail. The issuing institution must be a bank or other financial institution 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 § 265.151(d).

(3) An owner or operator who uses a letter of credit to satisfy the requirements of this Section must also establish a standby trust fund by the time the letter of credit is obtained. Under the terms of the letter of credit, all amounts paid pursuant to a draft by the Regional Administrator will be deposited promptly and directly by the issuing institution into the standby trust fund. The standby trust fund must meet the requirements of the trust fund specified paragraph (a) of this Section, except that:

(i) An originally signed duplicate of the trust agreement must be delivered to the Regional Administrator with the letter of credit; and

(ii) After a nominal initial payment agreed upon between the trustee and the owner or operator, payments as specified in paragraph (a) of this Section are not required unless the standby trust fund is funded pursuant to the requirements of this paragraph.

(4) The letter of credit must be irrevocable and issued for a period of at least 1 year. The letter of credit must provide that the expiration date will be automatically extended for a period of at least 1 year. If the issuing institution decides not to extend the letter of credit beyond the then current expiration date it must, at least 90 days before that date, notify both the owner or operator and the Regional Administrator by certified mail of that decision. The 90-day period will begin on the date of receipt by the Regional Administrator as shown on the signed return receipt. Expiration cannot occur, however, while a compliance procedure is pending as defined in § 265.141.

(5) The letter of credit must be issued for at least the amount of the adjusted closure cost estimate (see § 265.142), except as provided in paragraph (f) of this Section.

(6) Whenever the adjusted closure cost estimate increases to an amount greater than the amount of the credit the owner or operator must, within 60 days of the increase, cause the amount of the credit to be increased to an amount at least equal to the new estimate or obtain other financial assurance as specified in this Section to cover the increase. Whenever the adjusted closure cost estimate decreases the letter of credit may be reduced to the amount of the new estimate following written approval by the Regional Administrator. Notice of an increase or decrease in the amount of the credit must be sent to the Regional Administrator by certified mail within 60 days of the change.

(7) Following a determination pursuant to Section 3008 of RCRA that the owner or operator has failed, when required to do so, to perform closure in accordance with the closure plan or other interim status requirements, the Regional Administrator may draw on the letter of credit.

(8) The letter of credit no longer satisfies the requirements of this paragraph subsequent to the receipt by the Regional Administrator of a notice from the issuing institution that it has decided not to extend the letter of credit beyond the then current expiration date. Upon receipt of such notice, the Regional Administrator will issue a compliance order pursuant to Section 3008 of RCRA, unless the owner or operator has demonstrated alternate financial assurance as specified in this Section. In the event the owner or operator does not correct the violation by demonstrating such alternate financial assurance within 30 days of issuance of the compliance order, the Regional Administrator may draw on the letter of credit.

(9) The Regional Administrator will return the original letter of credit to the issuing institution for termination when:

(i) The owner or operator substitutes alternate financial assurance for closure as specified in this Section, or

(ii) The Regional Administrator notifies the owner or operator, in accordance with paragraph (h) of this Section, that he is no longer required by this Section to maintain financial assurance for closure of the facility.

(d) and (e) [Reserved]

(f) *Use of multiple financial mechanisms.* An owner or operator may satisfy the requirements of this Section by establishing more than one financial mechanism. The mechanisms are limited to trust funds, surety bonds, and letters of credit. These mechanisms must be as specified in paragraphs (a), (b), and (c), respectively, of this Section, except that it is the combination of mechanisms, rather than each single mechanism, which must provide financial assurance for an amount at least equal to the adjusted closure cost estimate. If an owner or operator uses a trust fund in combination with a surety bond or letter of credit, he may use the trust fund as the standby trust fund for the bond or letter of credit. If the multiple mechanisms include only surety bonds and letters of credit, a single standby trust may be established for all these mechanisms. The Regional Administrator may invoke use of any or all of the mechanisms in accordance with the requirements of paragraphs (a), (b), and (c) of this Section, to provide for closure of the facility.

(g) *Use of a financial mechanism for multiple facilities.* (1) An owner or operator may use a financial assurance mechanism specified in this Section to meet the requirements of this Section for more than one facility of which he is the owner or operator. Evidence of financial assurance submitted to the Regional Administrator must include a list showing, for each facility, the EPA Identification Number, name, address, and the amount of funds for closure assured by the mechanism. If the list is changed by addition or subtraction of a facility or by an increase or decrease in the amount of funds assured for closure of one or more facilities, a corrected list must be sent to the Regional Administrator within 60 days of such change. 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.

(2) A letter of credit may not be used to assure funds for facilities in more than one Region. If other financial mechanisms specified in this Section cover facilities that are located in more than one Region, the Regional Administrators for all Regions in which the facilities are located must be involved in all transactions that involve the Regional Administrator, except when the transactions involve only those facilities in one Region.

(h) *Release of the owner or operator from the requirements of this Section.* Within 60 days after receiving certifications from the owner or operator and an independent registered professional engineer that closure has been accomplished in accordance with the closure plan (see § 265.115), the Regional Administrator will notify the owner or operator in writing that he is no longer required by this Section to maintain financial assurance for closure of the particular facility, unless the Regional Administrator has reason to believe that closure has not been in accordance with the closure plan.

[*Comment:* The notice releases the owner or operator only from requirements for financial assurance for closure of the facility; it does not release him from legal responsibility for meeting the closure standards.]

§ 265.144 Cost estimate for post-closure monitoring and maintenance.

(a) On May 19, 1981, each facility owner or operator of a disposal facility must have a written estimate of the annual cost of post-closure monitoring and maintenance of the facility in accordance with the applicable post-closure regulations in §§ 265.117–265.120, 265.228, 265.280, and 265.310. The owner or operator must keep this

estimate, and all subsequent estimates required in this Section, at the facility.

(b) The owner or operator must prepare a new annual post-closure cost estimate whenever a change in the post-closure plan affects the cost of post-closure care (see § 265.118(b)). The latest post-closure cost estimate is calculated by multiplying the latest annual post-closure cost estimate by 30.

(c) On each anniversary of the effective date of these regulations, during the operating life of the facility, the owner or operator must adjust the latest post-closure cost estimate using the inflation factor calculated in accordance with § 265.142(c). The adjusted post-closure cost estimate must equal the latest post-closure cost estimate (see paragraph (b) of this Section) times the inflation factor.

§ 265.145 Financial assurance for post-closure monitoring and maintenance.

By the effective date of these regulations, an owner or operator of each disposal facility must establish financial assurance for 30 years of post-closure care of the facility. He must choose from among the following options:

(a) *Post-closure trust fund.* (1) An owner or operator may satisfy the requirements of this Section by establishing a post-closure trust fund which conforms to the requirements of this paragraph and by sending an originally signed duplicate of the trust agreement to the Regional Administrator by certified mail. The trustee must be a bank or other financial institution 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 § 265.151(a)(1) and the trust agreement must be accompanied by a formal certification of acknowledgment (for an example, see § 265.151(a)(2)).

(3) Payments to the trust fund must be made annually by the owner or operator over the remaining operating life of the facility as estimated in the closure plan (§ 265.112(a)) or over the 20 years beginning with the effective date of these regulations, whichever period is shorter; this period is hereafter referred to as the "pay-in period." The payments to the post-closure trust fund must be made as follows:

(i) The first payment must be made by the effective date of these regulations, except as provided in paragraph (a)(5) of this Section. The first payment must be at least equal to the post-closure cost estimate (see § 265.144), except as provided in paragraph (f) of this Section, divided by the number of years in the pay-in period.

(ii) Subsequent payments must be made no later than 30 days after each anniversary date of the first payment. The amount of each subsequent payment must be determined by performing the following calculation:

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

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

[*Comment:* The following is a sample calculation of subsequent payments: Assume that the adjusted post-closure cost estimate is $50,000, the current value of the trust fund is $35,000 and there are 3 years remaining in the pay-in period. Subtract $35,000 from $50,000, leaving $15,000. Divide $15,000 by 3. The result, $5,000,—the amount of the next payment to the trust fund. All amounts may be rounded to the nearest dollar.]

(4) The owner or operator may accelerate payments into the trust fund or he may deposit the full amount of the 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 the fund would have if annual payments were made as specified in paragraph (a)(3) of this Section.

(5) If the owner or operator establishes a post-closure trust fund after having initially used one or more alternate mechanisms specified in this Section, his first payment must be at least the amount that the fund would have contained if the trust fund were established and annual payments made as specified in paragraph (a)(3) of this Section.

(6) After the pay-in period is completed, whenever the adjusted post-closure cost estimate changes during the operating life of the facility, the owner or operator must compare the new estimate with the trustee's most recent annual valuation of the trust fund (described in Section 10 of the trust agreement). If the value of the fund is less than the amount of the new cost estimate, the owner or operator must, within 60 days of the change in the cost estimate, deposit a sufficient amount into the fund so that its value after payment at least equals the amount of the new estimate, or obtain other financial assurance as specified in this Section to cover the difference.

(7) If the value of the trust fund is greater than the total amount of the adjusted post-closure cost estimate, the owner or operator may submit a written request to the Regional Administrator for release of the amount in excess of the adjusted post-closure cost estimate.

(8) If an owner or operator substitutes other financial assurance as specified in this Section for all or part of the trust fund, he may submit a written request to the Regional Administrator for release of the amount in the trust fund which is greater than the amount required as a result of such substitution.

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

(10) An owner or operator or any other person authorized to conduct post-closure may request reimbursement for post-closure expenditures by submitting itemized bills to the Regional Administrator. Within 60 days after receiving bills for post-closure activities, the Regional Administrator will instruct the trustee to make reimbursement in those amounts as the Regional Administrator specifies in writing, if the Regional Administrator determines that the post-closure expenditures are in accordance with the post-closure plan or otherwise justified.

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

(i) The owner or operator substitutes alternate financial assurance for post-closure as specified in this Section, or

(ii) The Regional Administrator notifies the owner or operator, in accordance with paragraph (h) of this Section, that he is no longer required by this Section to maintain financial assurance for post-closure of the facility.

(b) *Surety bond guaranteeing payment into a post-closure trust fund* (1) An owner or operator may satisfy the requirements of this Section by obtaining a surety bond which conforms to the requirements of this paragraph and by having the bond delivered to the Regional Administrator by certified mail. 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.

[*Comment:* Circular 570 is published in the Federal Register annually on July 1; interim changes in the Circular are also published in the Federal Register.]

(2) The wording of the surety bond must be identical to the wording specified in § 265.151(c).

(3) The owner or operator who uses a surety bond to satisfy the requirements of this Section must also establish a standby trust fund by the time the bond is obtained. Under the terms of the

surety bond, all payments made thereunder will be deposited directly into the standby trust fund. This trust fund must meet the requirements specified in paragraph (a) of this Section, except that:

(i) An originally signed duplicate of the trust agreement must be delivered to the Regional Administrator with the surety bond; and

(ii) After a nominal initial payment agreed upon between the trustee and the owner or operator, payments as specified in paragraph (a) of this Section are not required until the standby trust fund is funded pursuant to the requirements of this paragraph.

(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 by the expected date of 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 order to begin closure in accordance with Subpart G of this Part is issued by the Regional Administrator or by a U.S. district court pursuant to Section 3008, 7002, or 7003 of RCRA, or within 15 days after issuance of a notice of termination of interim status pursuant to Part 124 of this Chapter; or

(iii) Provide alternate financial assurance as specified in this Section within 30 days after receipt by the Regional Administrator of a notice of cancellation of the bond from the surety.

(5) 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 amount of the adjusted post-closure cost estimate (see § 265.144), except as provided in paragraph (g) of this Section.

(7) Whenever the adjusted post-closure cost estimate increases to an amount greater than the penal sum of the bond, the owner or operator must, within 60 days after the increase, cause the penal sum of the bond to be increased to an amount at least equal to the new estimate or obtain other financial assurance, as specified in this Section, to cover the increase. Whenever the adjusted post-closure cost estimate decreases, the penal sum may be reduced to the amount of the new estimate following written approval by the Regional Administrator. Notice of an increase or decrease in the penal sum must be sent to the Regional Administrator by certified mail within 60 days after the change.

(8) The bond shall remain in force unless the surety sends written notice of cancellation by certified mail to the owner or operator and to the Regional Administrator. Cancellation cannot occur, however:

(i) During the 90 days beginning on the date of receipt of the notice of cancellation by the Regional Administrator as shown on the signed return receipt; or

(ii) While a compliance procedure is pending, as defined in § 265.141.

(9) The surety bond no longer satisfies the requirements of this paragraph subsequent to the receipt by the Regional Administrator of a notice of cancellation of the surety bond. Upon receipt of such notice the Regional Administrator will issue a compliance order pursuant to Section 3008 of RCRA unless the owner or operator has demonstrated alternate financial assurance as specified in this Section. In the event the owner or operator does not correct the violation by demonstrating such alternate financial assurance within 30 days after issuance of the compliance order, the Regional Administrator may direct the surety to place the penal sum of the bond in the standby trust fund.

(10) The owner or operator may cancel the bond if the Regional Administrator has given prior written consent based on receipt of evidence of alternate financial assurance as specified in this Section.

(11) The Regional Administrator will notify the surety when the owner or operator funds the standby trust fund in the amount guaranteed by the surety bond or if he provides alternate financial assurance as specified in this Section.

(c) *Post-closure letter of credit.* (1) An owner or operator may satisfy the requirements of this Section by obtaining an irrevocable standby letter of credit which conforms to the requirements of this paragraph and by having it delivered to the Regional Administrator by certified mail. The issuing institution must be a bank or other financial institution 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 § 265.151(d).

(3) An owner or operator who uses a letter of credit to satisfy the requirements of this Section must also establish a standby trust fund by the time the letter of credit is obtained. Under the terms of the letter of credit, all amounts paid pursuant to a draft by the Regional Administrator will be deposited promptly and directly by the issuing institution into the standby trust fund. The standby trust fund must meet the requirements of the trust fund specified in paragraph (a) of this Section, except that:

(i) An originally signed duplicate of the trust agreement must be delivered to the Regional Administrator with the letter of credit; and

(ii) After a nominal initial payment agreed upon between the trustee and the owner or operator, payments as specified in paragraph (a) of this Section are not required unless the standby trust fund is funded pursuant to the requirements of this paragraph.

(4) The letter of credit must be irrevocable and issued for a period of at least 1 year. The letter of credit must provide that the expiration date will be automatically extended for a period of at least 1 year. If the issuing institution decides not to extend the letter of credit beyond the then current expiration date it must, at least 90 days before that date, notify both the owner or operator and the Regional Administrator by certified mail of that decision. The 90-day period will begin on the date of receipt by the Regional Administrator as shown on the signed return receipt. Expiration cannot occur, however, while a compliance procedure is pending as defined in § 265.141.

(5) The letter of credit must be issued for at least the amount of the adjusted post-closure cost estimate (see § 265.144), except as provided in paragraph (f) of this Section.

(6) Whenever the adjusted post-closure cost estimate increases to an amount greater than the amount of the credit during the operating life of the facility, the owner or operator must, within 60 days of the increase, cause the amount of the credit to be increased to an amount at least equal to the new estimate or obtain other financial assurance as specified in this Section to cover the increase. Whenever the adjusted post-closure cost estimate decreases during the operating life of the facility, the letter of credit may be reduced to the amount of the new estimate following written approval by the Regional Administrator. Notice of an increase or decrease in the amount of the credit must be sent to the Regional Administration by certified mail within 60 days of the change.

(7) During the period of post-closure care, the Regional Administrator may approve a decrease in the amount of the letter of credit if the owner or operator demonstrates to the Regional Administrator that the amount exceeds the remaining cost of post-closure care.

(8) Following a determination pursuant to Section 3008 of RCRA that the owner or operator has failed, when required to do so, to perform post-closure in accordance with the post-closure plan or other interim status requirements, the Regional Administrator may draw on the letter of credit.

(9) The letter of credit no longer satisfies the requirements of this paragraph subsequent to the receipt by the Regional Administrator of a notice from the issuing institution that it has decided not to extend the letter of credit beyond the then current expiration date. Upon receipt of such notice, the Regional Administrator will issue a compliance order pursuant to Section 3008 of RCRA, unless the owner or operator has demonstrated alternate financial assurance as specified in this Section. In the event the owner or operator does not correct the violation by demonstrating such alternate financial assurance within 30 days of issuance of the compliance order, the Regional Administrator may draw on the letter of credit.

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

(i) The owner or operator substitutes alternate financial assurance for post-closure care as specified in this Section, or

(ii) The Regional Administrator notifies the owner or operator, in accordance with paragraph (h) of this Section, that he is no longer required by this Section to maintain financial assurance for post-closure care of the facility.

(d) and (e) [Reserved].

(f) *Use of multiple financial mechanisms.* An owner or operator may satisfy the requirements of this Section by establishing more than one financial mechanism. The mechanisms are limited to trust funds, surety bonds, and letters of credit. These mechanisms must be as specified in paragraphs (a), (b), and (c), respectively, of this Section, except that it is the combination of mechanisms, rather than each single mechanism, which must provide financial assurance for an amount at least equal to the adjusted post-closure cost estimate. If an owner or operator uses a trust fund in combination with a surety bond or letter of credit, he may use the trust fund as the standby trust fund for the bond or letter of credit. If the multiple mechanisms include only surety bonds and letters of credit, a single standby trust may be established for all these mechanisms. The Regional Administrator may invoke use of any or all of the mechanisms, in accordance with the requirements of paragraphs (a), (b), and (c) of this Section, to provide for post-closure of the facility.

(g) *Use of a financial mechanism for multiple facilities.* (1) An owner or operator may use a financial assurance mechanism specified in this Section to meet the requirements of this Section for more than one facility of which he is the owner or operator. Evidence of financial assurance submitted to the Regional Administrator must include a list showing, for each facility, the EPA Identification Number, name, address, and the amount of funds for post-closure care assured by the mechanism. If the list is changed by addition or subtraction of a facility or by an increase or decrease in the amount of funds assured for post-closure care of one or more facilities, a corrected list must be sent to the Regional Administrator within 60 days of such change. 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.

(2) A letter of credit may not be used to assure funds for facilities in more than one Region. If other financial mechanisms specified in this Section cover facilities that are located in more than one Region, the Regional Administrators for all Regions in which the facilities are located must be involved in all transactions that involve the Regional Administrator, except when the transactions involve only those facilities in one Region.

(h) *Release of the owner or operator from the requirements of this Section.* When the owner or operator has completed, to the satisfaction of the Regional Administrator, all post-closure care requirements for 30 years of post-closure care or the period specified by the Regional Administrator after closure, whichever period is shorter, the Regional Administrator will, at the request of the owner or operator, notify him in writing that he is no longer required by this Section to maintain financial assurance for post-closure care of the particular facility.

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

§ 265.146 Use of a mechanism for financial assurance of both closure and post-closure care.

An owner or operator may use one of the following financial assurance mechanisms to provide financial assurance for both closure and post-closure care of one or more facilities of which he is the owner or operator:

(a) A trust fund that meets the specifications of both § 265.143(a) and § 265.145(a); or

(b) A letter of credit that meets the specifications of both § 265.143(c) and § 265.145(c).

The amount of funds available under the mechanism must be no less than the sum of funds that would be available if a separate mechanism had been established and maintained for financial assurance of closure and of post-closure care of each facility.

§ 265.147 Liability requirements.

(a) By the effective date of these regulations, an owner or operator of a hazardous waste treatment, storage, or disposal facility, or a group of such facilities, must demonstrate financial responsibility for claims arising from the operations of each such facility or group of facilities from sudden and accidental occurrences that cause injury to persons or property. An owner or operator must have and maintain liability insurance for sudden 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. As evidence of this liability insurance, an owner or operator must deliver an originally signed duplicate of the insurance policy to the Regional Administrator, or Regional Administrators if facilities are located in more than one Region, by certified mail. Each policy must be for limits of liability not less than the minimum amounts required by this paragraph and each policy must be amended, in order to comply with the requirements of this regulation, by attachment of the Hazardous Waste Facility Liability Endorsement. The wording of the endorsement must be identical to the wording specified in § 265.151(e).

(b) An owner or operator of a surface impoundment, landfill, or land treatment facility which is used to manage hazardous waste, or a group of such facilities, must demonstrate financial responsibility for claims arising from the operations of each such facility or group of facilities from nonsudden and accidental occurrences that cause injury to persons or property. An owner or operator must have and maintain liability insurance for nonsudden 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 must have this insurance by the following dates:

(1) For an owner or operator with annual sales in the last calendar year preceding the effective date of these regulations totaling $10 million or more; 6 months after the effective date of these regulations.

(2) For an owner or operator with annual sales in the last calendar year preceding the effective date of these regulations greater than $5 million but less than $10 million; 18 months after the effective date of these regulations.

(3) All other owners or operators; 30 months after the effective date of these regulations.

As evidence of this liability insurance, an owner or operator must deliver an originally signed duplicate of the insurance policy to the Regional Administrator, or Regional Administrators if facilities are located in more than one Region, by certified mail. Each policy must be for limits of liability not less than the minimum amounts required by this paragraph and each policy must be amended, in order to comply with the requirements of this regulation, by attachment of the Hazardous Waste Facility Liability Endorsement. The wording of the endorsement must be identical to the wording specified in § 265.151(e).

(c) If an owner or operator elects to comply with paragraphs (a) and (b) of this Section through one insurance policy covering both sudden and nonsudden occurrences, this policy must be in the amount of at least $4 million per occurrence with an annual aggregate of at least $8 million, exclusive of legal defense costs.

(d) If an owner or operator can demonstrate to the satisfaction of the Regional Administrator that the levels of financial responsibility required by paragraphs (a) or (b) of this Section are not consistent with the degree and duration of risk associated with the treatment, storage, or disposal at each facility or group of facilities, the owner or operator may obtain a variance from the Regional Administrator. The request for a variance must be submitted by certified mail to the Regional Administrator. The variance shall take the form of an adjusted level of required liability coverage, such level to be based on the Regional Administrator's assessment of the degree and duration of risks associated with the ownership or operation of each facility or group of facilities. The Regional Administrator may require an owner or operator who requests a variance to provide such technical and engineering information as is deemed necessary by the Regional Administrator to determine a level of financial responsibility other than that required by paragraphs (a) or (b) of this Section. The Regional Administrator shall process a variance request as if it were a permit modification request under § 122.15(a)(5) of this Chapter and subject to the procedures of § 124.5 of this Chapter. Notwithstanding any other provision, the Regional Administrator shall hold a public hearing at his discretion or whenever he finds, on the basis of requests for a public hearing, a significant degree of public interest in a tentative decision to grant a variance.

(e) If the Regional Administrator determines that the levels of financial responsibility required by paragraphs (a) or (b) of this Section are not consistent with the degree and duration of risks associated with treatment, storage, or disposal at any facility or group of facilities, the Regional Administrator may adjust the level of required financial responsibility required under paragraphs (a) or (b) of this Section as may be necessary to protect human health and the environment, such adjusted level to be based on the Regional Administrator's assessment of the degree and duration of risks associated with the ownership or operation of each facility or group of such facilities. The Regional Administrator may also require an owner or operator of a treatment or storage facility or group of facilities to comply with paragraph (b) of this Section if the Regional Administrator determines that there is a significant risk to human health and the environment from nonsudden and accidental occurrences resulting from the operations of such facility or group of facilities. The owner or operator must furnish to the Regional Administrator, within a reasonable time, any information which the Regional Administrator requests to determine whether cause exists for such adjustments of level or type of coverage. The Regional Administrator shall process an adjustment of the level of required coverage as if it were a permit modification under § 122.15(a)(5) of this Chapter and subject to the procedures of § 124.5 of this Chapter. Notwithstanding any other provisions, the Regional Administrator shall hold a public hearing only at his discretion or whenever he finds, on the basis of requests for a public hearing, a significant degree of public interest in a tentative decision to adjust the level or type of required coverage.

§ 265.148 Incapacity of institutions issuing letters of credit, surety bonds, or insurance policies.

An owner or operator who fulfills the requirements of §§ 265.143, 265.145, or 265.147 by obtaining a letter of credit, surety bond, or insurance policy will be deemed to be without the required financial assurance or liability coverage in the event of bankruptcy, insolvency, or a suspension or revocation of the license or charter of the issuing institution. The owner or operator must establish other financial assurance or liability coverage within 60 days of such events.

§ 265.149 Applicability of State financial requirements.

(a) For a facility located in a State whose hazardous waste regulations include liability requirements or requirements for financial assurance for closure and post-closure care, an owner or operator may use State-required financial mechnisms to meet the requirements of §§265.143, 265,145, and 265.147 if the State mechanisms provide assurance or liability coverage equivalent to or greater than that provided by the mechanisms of §§ 265.143, 265.145, and 265.147. Evidence of the establishment of such a mechanism must be delivered by certified mail to the Regional Administrator. The submittal must include, or have attached to it, the following information: the facility's EPA Identification Number, name, address, and the amounts of liability coverage or funds for closure or post-closure care assured by the mechanism.

(b) The owner or operator must obtain an additional financial assurance mechanism for closure or for post-closure care, as specified in §§265.143 and 265.145, or additional liability insurance as specified in § 265.147, if the amount of funds available from the State mechanism is less than that required by this Subpart. The amounts of funds available through the State and Federal mechanisms must equal at least the amounts required in §§ 265.143, 265.145, and 265.147.

§ 265.150 State assumption of responsibility.

(a) If a State either assumes legal responsiblity for an owner's or operator's compliance with the closure, post-closure, or liabiality requirements of these regulations *or* assures that funds will be available from State sources to cover those requirements, the owner or operator will be in compliance with requirements of this Subpart if the State's assurances are equivalent to or exceed the assurances provided by meeting the requirements of this Subpart. The owner or operator must deliver by certified mail to the Regional Administrator a letter from the State describing the nature of the State's responsibility regarding the closure,

post-closure, and liability requirements so covered. The letter must include, or have attached to it, the following information: the facility's EPA Identification Number, name, address, and the amounts of liability coverage or funds for closure or post-closure care that are assured by the State.

(b) The owner or operator must obtain an additional financial assurance mechanism for closure or for post-closure care, as specified in §§265.143 and 265.145 or additional liability insurance as specified in § 265.147, if the amount of funds available through the State guarantees is less than that required by this Subpart. The amounts of funds available through the State guarantees and Federal mechanisms must equal at least the amounts required in §§ 265.143, 265.145, and 265.147.

§ 265.151 Wording of the instruments.

(a)(1) A trust agreement for a trust fund as specified in §§ 265.143(a) or 265.145(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 [State] [corporation, partnership, association, proprietorship], the "Grantor", and [name of corporate trustee], a [State corporation] [national bank], the "Trustee".

Whereas, the United States Environmental Protection Agency, "EPA", an agency of the United States Government, has established certain regulations applicable to the Grantor, requiring that the owner or operator of a hazardous waste management facility must provide assurance that funds will be available when needed for closure and/or post-closure care of the facility,

Whereas, the Grantor has elected to establish a trust to provide 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 "fiduciary" means any person who exercises any power of control, management, or disposition or renders investment advice for a fee or other compensation, direct or indirect, with respect to any moneys or other property of this trust fund, or has any authority or responsibility to do so, or who has any authority or responsibility in the administration of this trust fund.

(b) The term "Grantor" means the owner or operator who enters into this Agreement and any successors or assigns of the Grantor.

(c) 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 [for each facility insert the EPA Identification Number, name, and address, and the adjusted closure and/or post-closure cost estimates, or portions thereof, for which financial assurance is demonstrated by this Agreement].

Section 3. Establishment of Fund. The Grantor and the Trustee hereby establish a trust fund, the "Fund", for the benefit of the EPA. 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 A 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 will be held by the Trustee, in trust, as hereinafter provided. The Trustee undertakes no responsibility for the amount or adequacy of, nor any duty to collect from the Grantor, any payments to discharge any liabilities of the Grantor established by the EPA.

Section 4. Payment for Closure and Post-Closure Care. The Trustee will make such payments from the Fund as the EPA Regional Administrator will direct, in writing, to provide for the payment of the costs of closure and/or post-closure care of the facilities covered by this Agreement. The Trustee will reimburse the Grantor or other persons as specified by the Regional Administrator from the Fund for closure and post-closure expenditures in such amounts as the Regional Administrator will direct, in writing. The Trustee will notify the Regional Administrator when 20 percent of the amount allocated for closure of the facility remains in the Fund, and will not make further reimbursements for closure expenditures unless the Regional Administrator identifies reimbursements that may be made out of the remaining 20 percent. In addition, the Trustee will refund to the Grantor such amounts as the EPA Regional Administrator specifies in writing. Upon refund, such funds will no longer constitute part of the Fund as defined herein.

Section 5. Payments Comprising the Fund. Payments made to the Trustee for the Fund will consist of cash or securities acceptable to the Trustee.

Section 6. Trustee Management. The Trustee will 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 investment guidelines and objectives communicated in writing to the Trustee from time to time by the Grantor, subject, however, to the provisions of this Section. In investing, reinvesting, exchanging, selling and managing the Fund, the Trustee or any other fiduciary will discharge his duties with respect to the trust fund solely in the interest of the participants and beneficiaries 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 USC § 80a–2.(a), will 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. To the extent of the equitable share of the Fund in any such commingled trust, such commingled trust will be part of the Fund;

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940, 15 U.S.C. §§ 80a–1 et seq., or 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 share 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 private contract or at public auction. No person dealing with the Trustee will be bound to see to the application of the purchase money or to inquire into the validity or expediency of any such sale or other disposition;

(b) To make, execute, acknowledge and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the Fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, or to deposit or arrange for the deposit of such securities in a qualified central depositary even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee of such depositary with other securities deposited therein by another person, or to deposit or arrange for

the deposit of any securities issued by the United States Government, or any agency or instrumentality thereof, with a Federal Reserve bank, but the books and records of the Trustee will 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 will 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 will be paid from the Fund.

Section 10. Annual Valuation. The Trustee will annually, at the end of the month coincident with or preceding the anniversary date of establishment of the Fund, furnish to the Grantor and to the appropriate EPA Regional Administrator a statement confirming the value of the Trust. Any securities in the Fund will be valued at market value as of no more than 30 days prior to the date of the statement. 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 EPA Regional Administrator will 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 will be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

Section 12. Trustee Compensation. The Trustee will be entitled to reasonable compensation for its services as agreed upon in writing from time to time with the Grantor.

Section 13. Successor Trustee. Upon the written agreement of the Grantor, the Trustee, and the EPA Regional Administrator, the Trustee may resign or the Grantor may replace the Trustee. In either event, the Grantor will appoint a successor Trustee who will have the same powers and duties as those conferred upon the Trustee hereunder. Upon acceptance of the appointment by the successor trustee, the Trustee will 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 and the date on which he assumes administration of the trust will be specified in writing and sent to the Grantor, the EPA Regional Administrator, and the present and successor trustees 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 will be paid as provided in Section 9.

Section 14. Instructions to the Trustee. All orders, requests and instructions by the Grantor to the Trustee will 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 will be fully protected in acting without inquiry in accordance with the Grantor's orders, requests and instructions. All orders, requests, and instructions by the EPA Regional Administrator to the Trustee will be in writing, signed by the EPA Regional Administrators of the Regions in which the facilities are located, and the Trustee will act and will be fully protected in acting in accordance with such orders, requests and instructions. The Trustee will 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 EPA hereunder has occurred. The Trustee will have no duty to act in the absence of such orders, requests and instructions from the Grantor and/or the EPA, except as provided for herein.

Section 15. Notice of Nonpayment. The Trustee will notify the Grantor and the appropriate EPA Regional Administrator, 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 is not 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 appropriate EPA Regional Administrator, or by the Trustee and the appropriate EPA Regional Administrator 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 will be irrevocable and will continue until terminated at the written agreement of the Grantor, the Trustee, and the EPA Regional Administrator, or by the Trustee and the EPA Regional Administrator if the Grantor ceases to exist. Upon termination of the Trust, all remaining trust property, less final trust administration expenses, will be delivered to the Grantor.

Section 18. Immunity and Indemnification. The Trustee will 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 EPA Regional Administrator issued in accordance with this Agreement. The Trustee will 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 will be administered, construed and enforced according to the laws of the State 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 will 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 40 CFR 265.151(a)(1).

[Signature of Grantor]
By [Title]
Attest:
[Title]
[Seal]
[Signature of Trustee]
By
Attest:
[Title]
[Seal]

(2) This is an example of the certification of acknowledgement, which must accompany the trust agreement for a trust fund as specified in §§ 265.143(a) and 265.145(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]

[*Comment:* As required in §§ 265.143(a)(2) and 265.145(a)(2), the trust agreement must be accompanied by a formal certification of acknowledgement. This is an example only. State requirements may differ on the proper content of this acknowledgement.]

(b) A surety bond guaranteeing payment into a closure trust fund, as specified in § 265.143(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 for Closure

Date bond executed: _____
Effective date: _____
Principal: [legal name and business address]

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 of each facility and, if more than one facility is covered by this bond, the amount of the penal sum for each facility:———
Total penal sum of bond: $ ———

Know all men by these presents, That we, the Principal and Surety(ies) hereto are firmly bound to the U.S. Environmental Protection Agency (hereinafter called EPA), 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 to have a EPA permit or permits, or interim status, in order to own or operate the hazardous waste management facility(ies) identified above, and

Whereas said Principal is required to provide financial assurance for closure of the facility(ies) as a condition of the permit(s) or interim status, and

Whereas said Principal shall establish a standby trust fund as specified by 40 CFR 264.143 or 40 CFR 265.143,

Now, therefore the conditions of the obligation are such that if the Principal shall faithfully, for the facility(ies) identified above, at least 60 days before the beginning of final closure, fund the standby trust fund in an amount equal to the penal sum,

Or, if the Principal shall fund the standby trust fund in such an amount within 15 days after an order to begin closure in accordance with Subpart G of 40 CFR Parts 264 and 265 is issued by an EPA Regional Administrator or by a U.S. district court pursuant to Section 3008, 7002, or 7003 of the Resource Conservation and Recovery Act, as amended, or within 15 days after a notice of termination of the permit(s) or interim status pursuant to 40 CFR Part 124,

Or, if the Principal shall provide alternate financial assurance as specified in 40 CFR 264.143 or 40 CFR 265.143 within 30 days after the date notice of cancellation is received by a Regional Administrator, then this obligation will 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 an EPA Regional Administrator that the Principal has failed to perform as guaranteed by this bond, the Surety(ies) shall place funds in the amount of the penal sum into the standby trust fund as directed by the EPA Regional Administrator.

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 written notice of cancellation to the owner or operator and to the EPA Regional Administrator(s) for the Region(s) in which the facility(ies) is (are) located, provided, however, that cancellation cannot occur: (1) during the 90 days beginning on the date of receipt of the notice of cancellation by the Regional Administrator(s) as shown on the signed return receipt(s); or (2) while a compliance procedure is pending, as defined in 40 CFR 264.141 or 40 CFR 265.141.

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 Regional Administrator(s) of the EPA Region(s) in which the bonded facility(ies) is (are) located. [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 equals the adjusted closure cost estimate(s), provided that the amount of the cost estimate(s) does (do) 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 Regional Administrator(s).

In witness whereof, the Principal and Surety(ies) have executed this Financial Guarantee Bond and have affixed their seals on the date set forth above.

The persons whose signatures appear below hereby certify that they are authorized to execute this surety bond on behalf of the Principal and Surety(ies) and that the wording of this surety bond is identical to the wording specified in 40 CFR 265.151(b).

Principal

Signature(s): ———
Name(s) and title(s) [typed]: ———
Corporate seal:

Corporate Surety(ies)

Name and address: ———
State of incorporation: ———
Liability limit: $ ———
Signature(s): ———
Name(s) and title(s) [typed]: ———
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 payment into a post-closure trust fund, as specified in § 265.145(b), must be worded as follows, except that instructions in brackets are to be replaced by the relevant information and the brackets deleted:

Financial Guarantee Bond for Post-Closure Care

Date bond executed: ———
Effective date: ———
Principal: [legal name and business address]
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 of each facility and, if more than one facility is covered by this bond, the amount of the penal sum for each facility:
Total penal sum of bond: $ ———

Know all men by these presents, That we, the Principal and Surety(ies) hereto are firmly bound to the U.S. Environmental Protection Agency (hereinafter called EPA), 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 to have an EPA permit or permits, or interim status, in order to own or operate the hazardous waste management facility(ies) identified above, and

Whereas said Principal is required to provide financial assurance for post-closure care of the facility(ies) as a condition of the permit(s) or interim status, and

Whereas said Principal shall establish a standby trust fund as specified by 40 CFR 264.145 or 40 CFR 265.145,

Now, therefore the conditions of the obligation are such that if the Principal shall faithfully, for the facility(ies) identified above, by the beginning of final closure, fund the standby trust fund in an amount equal to the penal sum,

Or, if the Principal shall fund the standby trust fund in such an amount within 15 days after an order to begin closure in accordance with Subpart G of 40 CFR Parts 264 and 265 is issued by the Regional Administrator or a U.S. district court pursuant to Section 3008, 7002, or 7003 of the Resource Conservation and Recovery Act, as amended, or within 15 days after a notice of termination of the permit(s) or interim status pursuant to 40 CFR Part 124,

Or, if the Principal shall provide alternate financial assurance as specified in 40 CFR 264.145 or 40 CFR 265.145 within 30 days after the date notice of cancellation is received by a Regional Administrator, then this obligation will 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 an EPA Regional Administrator that the Principal has failed to perform as guaranteed by this bond, the Surety(ies) must place funds in the amount of the penal sum into the standby trust fund as directed by an EPA Regional Administrator.

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 written notice of cancellation to the owner or operator and to the EPA Regional Administrator(s) for the Region(s) in which the facility(ies) is (are) located, provided, however, that cancellation cannot occur: (1) during the 90 days beginning on the date of receipt of the notice of cancellation by the Regional Administrator(s) as shown on the signed return receipt(s); or (2) while a compliance procedure is pending, as defined in 40 CFR 264.141 or 40 CFR 265.141.

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 Regional Administrator(s) of the EPA Region(s) in which the bonded facility(ies) is (are) located. [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 equals the adjusted post-closure cost estimate(s), provided that the amount of the cost estimate(s) does (do) 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 Regional Administrator(s).

In witness whereof, the Principal and Surety(ies) have executed this Financial Guarantee Bond and have affixed their seals on the date set forth above.

The persons whose signatures appear below hereby certify that they are authorized to execute this surety bond on behalf of the Principal and Surety(ies) and that the wording of this surety bond is identical to the wording specified in 40 CFR 265.151(c).

Principal

Signature(s): ———
Name(s) and title(s) [typed]: ———
Corporate seal:

Corporate Surety(ies)

Name and address: ———
State of incorporation: ———
Liability limit: $ ———
Signature(s): ———
Name(s) and title(s) [typed]: ———
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 §§ 265.143(c) and 265.145(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

[Regional Administrator]

Dear Sir or Madam: We hereby establish our Irrevocable Standby Letter of Credit No. ——— in favor of the Regional Administrator for Region ——— of the United States Environmental Protection Agency, 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. ———, together with

(2) your signed statement declaring that the amount of the draft is payable pursuant to regulations issued under the authority of the Resource Conservation and Recovery Act of 1976 ("RCRA"), as amended.

The following amounts are included in the amount of this letter of credit: [For each facility, insert the EPA Facility Identification Number, name and address, and the adjusted closure and/or post-closure cost estimates, or portions thereof, for which financial assurance is demonstrated by this letter of credit].

This letter of credit is effective as of [date] and will expire on [date at least 1 year later], but such expiration date will be automatically extended for a period of [at least one year] on [date] and on each successive expiration date, unless, at least 90 days before the current expiration date, we notify you and [owner or operator's name] by certified mail that we decided not to extend the Letter of Credit beyond the current expiration date. In the event you are so notified, any unused portion of the credit will be available upon presentation of your sight draft for 90 days after the date of receipt by you as shown on the signed return receipt or while a compliance procedure is pending as defined in 40 CFR 265.141, whichever is later.

Whenever this letter of credit is drawn on under and in compliance with the terms of this credit, we will duly honor such draft upon presentation to us, and we will deposit the amount of the draft promptly and directly into the standby trust fund of [owner's or operator's name] held in trust by [name and address of corporate trustee].

I hereby certify that I am authorized to execute this letter of credit on behalf of [issuing institution] and that the wording of this letter of credit is identical to the wording specified in 40 CFR 265.151(d).

Attest:

[Signature and title of official of issuing institution] [Date]

This credit is subject to [insert "the most recent edition of the Uniform Customs and Practice for Documentary Credits, published by the International Chamber of Commerce," or "the Uniform Commercial Code"].

(e) A hazardous waste facility liability endorsement as required in § 265.147 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

It is agreed that:

1. The certification of the policy, as proof of financial responsibility under the provisions of [insert § 265.147 (a)(1) and/or (b)(1), 40 CFR] amends the policy to provide insurance in accordance with the provisions of such regulations to the extent of coverage and limits of liability required thereby at [list EPA Identification Number, name, and address for each facility]. Within the limits of liability provided it is understood that no condition, provision, stipulation, or limitation contained in the policy, or any other endorsement thereon or violation thereof, or of this endorsement, by the insured, shall relieve the Company from liability hereunder or from the payment of any such final judgment, irrespective of the financial responsibility or lack thereof or insolvency or bankruptcy of the insured. However, all terms, conditions, and limitations in the policy to which this endorsement is attached are to remain in full force and effect as binding between the insured and the Company, and the insured agrees to reimburse the Company for any payment made by the Company on account of any accident, claim, or suit involving a breach of the terms of the policy, and for any payment that the Company would not have been obligated to make under the provisions of the policy except for the agreement contained in this endorsement.

2. Whenever requested by the Regional Administrator, the Company agrees to furnish to the Regional Administrator a duplicate original of said policy and all endorsements thereon.

3. This endorsement may not be canceled without cancellation of the policy to which it is attached. Such cancellation may only be effected by the Company or the insured giving sixty (60) days' notice in writing to the Regional Administrator, such sixty (60) days' notice to commence to run from the date the notice is actually received by the Regional Administrator.

4. Notwithstanding any other provision of the policy, if this endorsement or policy is on a claims-made basis, cancellation or termination may not be effected within 120 days of any fire, explosion, or unplanned sudden or nonsudden release of hazardous waste or hazardous waste constituents to air, soil, surface water, or ground water.

Attached to and forming part of policy No. —— issued by [name of Company], herein called the Company, of [address of Company] to [name of insured] of [address] this —— day of ———, 19——.

Countersigned by ———, authorized Company representative.

PART 122—EPA ADMINISTERED PERMIT PROGRAMS: THE HAZARDOUS WASTE PERMIT PROGRAM

a. Amend Subpart A as follows:

1. Amend § 122.15(a) by adding new paragraph (7) as an interim final rule to read as follows:

§ 122.15 [Amended]

(a) * * *

(7) *for RCRA only,* the Director may modify a permit:

(i) When modification of a closure plan is required under §§264.112(b) or 264.118(b).

(ii) After the Director receives the notification of expected closure under

§ 264.113, when the Director determines that extension of the 90 or 180 day periods under § 264.113, modification of the 30-year post-closure period under § 264.117(a), continuation of security requirements under § 264.117(b), or permission to disturb the integrity of the containment system under § 264.117(c) are unwarranted.

(iii) When the permittee has filed a request under § 264.147(d) for a variance to the level of financial responsibility or when the Director demonstrates under § 264.147(e) that an upward adjustment of the level of financial responsibility is required.

2. Revise § 122.17(e) to read as follows:

§ 122.17 [Amended]

* * * * *

(e) *For RCRA only:*

(1) Change the lists of facility emergency coordinators or equipment in the permit's contingency plan; or

(2)(i) Change estimates of maximum inventory under § 264.112(a)(2);

(ii) Change estimates of expected year of closure or schedules for final closure under § 264.112(a)(4); or

(iii) Approve periods longer than 90 days or 180 days under 264.113(a) and (b).

(b) Amend Subpart B as follows:

1. Revise § 122.25 to read as follows: all paragraphs except paragraphs (a)(1)-(a)(10) are issued as an interim final rule:

§ 122.25 Contents of Part B.

(Applicable to State RCRA programs, see §123.7)

Part B information requirements presented below reflect the standards promulgated in 40 CFR Part 264. These information requirements are necessary in order for EPA to determine compliance with the Part 264 standards. If owners and operators of HWM facilities can demonstrate that the information prescribed in Part B can *not* be provided to the extent required, the Director *may* make allowance for submission of such information on a case by case basis. Information required in Part B shall be submitted to the Director and signed in accordance with requirements in § 122.6. Certain technical data, such as design drawings and specifications, and engineering studies shall be certified by a registered professional engineer. Part B of the RCRA application includes the following:

(a) *General information requirements.* The following information is required for all HWM facilities, except as § 264.1 provides otherwise:

(1) A general description of the facility.

(2) Chemical and physical analyses of the hazardous wastes to be handled at the facility. At a minimum, these analyses shall contain all the information which must be known to treat, store, or dispose of the wastes properly in accordance with Part 264.

(3) A copy of the waste analysis plan required by § 264.13(b) and, if applicable, § 264.13(c).

(4) A description of the security procedures and equipment required by § 264.14, or a justification demonstrating the reasons for requesting a waiver of this requirement.

(5) A copy of the general inspection schedule required by § 264.15(b); *Note:* Include, where applicable, as part of inspection schedule, specific requirements in §§ 264.174, 264.194, 264.226, and 264.254.

(6) A justification of any request for a waiver(s) of the preparedness and prevention requirements of Part 264, Subpart C.

(7) A copy of the contingency plan required by Part 264, Subpart D. *Note:* Include, where applicable, as part of the contingency plan, specific requirements in §§ 264.227 and 264.255.

(8) A description of procedures, structures, or equipment used at the facility to:

(i) Prevent hazards in unloading operations (for example, ramps, special forklifts);

(ii) Prevent runoff from hazardous waste handling areas to other areas of the facility or environment, or to prevent flooding (for example, berms, dikes, trenches);

(iii) Prevent contamination of water supplies;

(iv) Mitigate effects of equipment failure and power outages; and

(v) Prevent undue exposure of personnel to hazardous waste (for example, protective clothing).

(9) A description of precautions to prevent accidental ignition or reaction of ignitable, reactive, or incompatible wastes as required to demonstrate compliance with § 264.17 including documentation demonstrating compliance with § 264.17(c).

(10) Traffic pattern, estimated volume (number, types of vehicles) and control (for example, show turns across traffic lanes, and stacking lanes (if appropriate); describe access road surfacing and load bearing capacity; show traffic control signals).

(11) Facility location information:

(i) In order to determine the applicability of the seismic standard [§ 264.18(a)] the owner or operator of a new facility must identify the political jurisdiction (e.g., county, township, or election district) in which the facility is proposed to be located.

[*Comment:* If the county or election district is *not* listed in Appendix VI of Part 264, no further information is required to demonstrate compliance with § 264.18(a).]

(ii) If the facility is proposed to be located in an area listed in Appendix VI of Part 264, the owner or operator shall demonstrate compliance with the seismic standard. This demonstration may be made using either published geologic data or data obtained from field investigations carried out by the applicant. The information provided must be of such quality to be acceptable to geologists experienced in identifying and evaluating seismic activity. The information submitted must show that either:

(A) No faults which have had displacement in Holocene time are present, or no lineations which suggest the presence of a fault (which have displacement in Holocene time) within 3,000 feet of a facility are present, based on data from:

(*1*) published geologic studies,

(*2*) aerial reconnaissance of the area within a five-mile radius from the facility,

(*3*) an analysis of aerial photographs covering a 3,000 foot radius of the facility, and

(*4*) if needed to clarify the above data, a reconnaissance based on walking portions of the area within 3,000 feet of the facility, or

(B) If faults (to include lineations) which have had displacement in Holocene time are present within 3,000 feet of a facility, no faults pass with 200 feet of the portions of the facility where treatment, storage, or disposal of hazardous waste will be conducted, based on data from a comprehensive geologic analysis of the site. Unless a site analysis is otherwise conclusive concerning the absence of faults within 200 feet of such portions of the facility, data shall be obtained from a subsurface exploration (trenching) of the area within a distance no less than 200 feet from portions of the facility where treatment, storage, or disposal of hazardous waste will be conducted. Such trenching shall be performed in a direction that is perpendicular to known faults (which have had displacement in Holocene time) passing within 3,000 feet of the portions of the facility where treatment, storage, or disposal of hazardous waste will be conducted. Such investigation shall document with supporting maps and other analyses, the location of any faults found.

[*Comment:* The Guidance Manual for the Location Standards provides greater detail on the content of each type of seismic investigation and the appropriate conditions under which each approach or a combination of approaches would be used.]

(iii) Owners and operators of all facilities shall provide an identification of whether the facility is located within a 100-year floodplain. This identification must indicate the source of data for such determination and include a copy of the relevant Federal Insurance Administration (FIA) flood map, if used, or the calculations and maps used where a FIA map is not available. Information shall also be provided identifying the 100-year flood level and any other special flooding factors (e.g., wave action) which must be considered in designing, constructing, operating, or maintaining the facility to withstand washout from a 100-year flood.

[*Comment:* Where maps for the National Flood Insurance Program produced by the Federal Insurance Administration (FIA) of the Federal Emergency Management Agency are available, they will normally be determinative of whether a facility is located within or outside of the 100-year floodplain. However, where the FIA map excludes an area (usually areas of the floodplain less than 200 feet in width), these areas must be considered and a determination made as to whether they are in the 100-year floodplain. Where FIA maps are not available for a proposed facility location, the owner or operator must use equivalent mapping techniques to determine whether the facility is within the 100-year floodplain, and if so located, what the 100-year flood elevation would be.]

(iv) Owners and operators of facilities located in the 100-year floodplain must provide the following information:

(A) Engineering analysis to indicate the various hydrodynamic and hydrostatic forces expected to result at the site as a consequence of a 100-year flood.

(B) Structural or other engineering studies showing the design of operational units (e.g., tanks, incinerators) and flood protection devices (e.g., floodwalls, dikes) at the facility and how these will prevent washout.

(C) If applicable, and in lieu of paragraphs (A) and (B) above, a detailed description of procedures to be followed to remove hazardous waste to safety before the facility is flooded, including:

(*1*) timing of such movement relative to flood levels, including estimated time to move the waste, to show that such movement can be completed before floodwaters reach the facility,

(*2*) a description of the location(s) to which the waste will be moved and demonstration that those facilities will be eligible to receive hazardous waste in accordance with the regulations under Parts 122 through 124 and 264 through 266 of this Chapter,

(*3*) the planned procedures, equipment, and personnel to be used and the means to ensure that such resources will be available in time for use,

(*4*) the potential for accidental discharges of the waste during movement.

(v) *Existing facilities NOT* in compliance with § 264.18(b) shall provide a plan showing how the facility will be brought into compliance and a schedule for compliance.

(12) An outline of both the introductory and continuing training programs by owners or operators to prepare persons to operate or maintain the HWM facility in a safe manner as required to demonstrate compliance with § 264.16. A brief description of how training will be designed to meet actual job tasks in accordance with requirements in § 264.16(a)(3).

(13) A copy of the closure plan and, where applicable, the post-closure plan required by §§ 264.112 and 264.118.

Note.—Include, where applicable, as part of the plans, specific requirements in §§ 264.178, 264.197, 264.228, and 264.258.

(14) For existing facilities, documentation that a notice has been placed in the deed or appropriate alternate instrument as required by § 264.120.

(15) The most recent closure cost estimate for the facility prepared in accordance with § 264.142 plus a copy of the financial assurance mechanism adopted in compliance with § 264.143.

(16) Where applicable, the most recent post-closure cost estimate for the facility prepared in accordance with § 264.144 plus a copy of the financial assurance mechanism adopted in compliance with § 264.145.

(17) Where applicable, a copy of the insurance policy or other documentation which comprises compliance with the requirements of § 264.147. For a new facility, documentation showing the amount of insurance meeting the specification of § 264.147(a) and, if applicable, § 264.147(b), that the owner or operator plans to have in effect before initial receipt of hazardous waste for treatment, storage, or disposal. A request for a variance in the amount of required coverage, for a new or existing facility, may be submitted as specified in § 264.147(d).

(18) Where appropriate, proof of coverage by a State financial mechanism in compliance with §§ 264.149 or 264.150.

(19) A topographic map showing a distance of 1000 feet around the facility at a scale* of 2.5 centimeters (1 inch) equal to not more than 61.0 meters (200 feet). Contours must be shown on the map. The contour interval must be sufficient to clearly show the pattern of surface water flow in the vicinity of and from each operational unit of the facility. For example, contours with an interval of 1.5 meters (5 feet), if relief is greater than 6.1 meters (20 feet), or an interval of 0.6 meters (2 feet), if relief is less than 6.1 meters (20 feet). Owners and operators of HWM facilities located in mountainous areas should use larger contour intervals to adequately show topographic profiles of facilities. The map shall clearly show the following:

(i) Map scale and date.

(ii) 100-year floodplain area.

(iii) Surface waters including intermittant streams.

(iv) Surrounding land uses (residential, commercial, agricultural, recreational).

(v) A wind rose (i.e., prevailing wind-speed and direction).

(vi) Orientation of the map (north arrow).

(vii) Legal boundaries of the HWM facility site.

(viii) Access control (fences, gates).

(ix) Injection and withdrawal wells both on-site and off-site.

(x) Buildings; treatment, storage, or disposal operations; or other structures (recreation areas, runoff control systems, access and internal roads, storm, sanitary, and process sewerage systems, loading and unloading areas, fire control facilities, etc.)

(xi) Barriers for drainage or flood control.

(xii) Location of operational units within the HWM facility site, where hazardous waste is (or will be) treated, stored, or disposed (include equipment cleanup areas).

Note.—For large HWM facilities, the Agency will allow the use of other scales on a case by case basis.

(20) Applicants may be required to submit such information as may be necessary to enable the Regional Administrator to carry out his duties under other Federal laws as required in § 122.12 of this Part.

(b) *Specific information requirements.* The following additional information is required from owners or operators of specific types of HWM facilities that are

used or to be used for storage or treatment:

(1) For facilities that store *containers* of hazardous waste, except as otherwise provided in § 264.170.

(i) A description of the containment system to demonstrate compliance with § 264.175. Show at least the following:

(A) Basic design parameters, dimensions, and materials of construction.

(B) How the design promotes drainage or how containers are kept from contact with standing liquids in the containment system.

(C) Capacity of the containment system relative to the number and volume of containers to be stored.

(D) Provisions for preventing or managing run-on.

(E) How accumulated liquids can be analyzed and removed to prevent overflow.

(ii) Sketches, drawings, or data demonstrating compliance with § 264.176 (location or buffer zone and containers holding ignitable or reactive wastes) and § 264.177(c) (location of incompatible wastes), where applicable.

(iii) Where incompatible wastes are stored or otherwise managed in containers, a description of the procedures used to ensure compliance with §§ 264.177 (a) and (b), and 264.17 (b) and (c).

(2) For facilities that use *tanks* to store or treat hazardous waste, except as otherwise provided in § 264.190, description of design and operation procedures which demonstrate compliance with the requirements of §§ 264.191, 264.192, 264.198 and 264.199 including:

(i) References to design standards or other available information used (or to be used) in design and construction of the tank.

(ii) A description of design specifications including identification of construction materials and lining materials (include pertinent characteristics such as corrosion or erosion resistance).

(iii) Tank dimensions, capacity, and shell thickness.

(iv) A diagram of piping, instrumentation, and process flow.

(v) Description of feed systems, safety cutoff, bypass systems, and pressure controls (e.g., vents).

(vi) Description of procedures for handling incompatible ignitable, or reactive wastes, including the use of buffer zones.

(3) For facilities that store or treat hazardous waste in *surface impoundments,* except as otherwise provided in § 264.220, the owner or operator must submit detailed plans and specifications accompanied by an engineering report which must collectively include the information itemized in paragraphs (i) through (x). For new facilities, the plans and specifications must be in sufficient detail to provide complete information to a contractor hired to build the facility even if the owner or operator intends to construct the facility without hiring a contractor. For existing facilities, comparable detail must be provided, but the form of presentation need not assume contractor construction except to the extent that the facility will be modified.

(i) A statement of the minimum freeboard to be maintained at the facility and the basis of the design to demonstrate compliance with freeboard requirements of §§ 264.221(a) and 264.222 (a) and (b). For flow through facilities include a hydraulic profile.

(ii) Detailed drawings of the structure which is or will be provided to immediately stop flow into the impoundment to comply with § 264.221(b); or, if no structure is needed to comply with § 264.227(c)(1), a description of the means by which waste additions will be stopped.

(iii) Detailed drawings of any dikes which exist or will be constructed.

(iv) A basis of design and design analysis of any dikes to comply with §§ 264.221(d) and 264.223(a). The design analysis must show that any dike will meet the requirements of § 264.226(c)(1).

(v) Detailed design drawings and specifications of the liner(s) and the leachate detection, collection, and removal system and the basis of design and design analysis to comply with §§ 264.221(c), 264.221(e), and 264.223 (b), (c), and (d).

(vi) Liner installation instructions to comply with the requirements of § 264.226(a). For existing facilities, when the owner or operator proposes to rely on existing liners, a description of the installation procedures used.

(vii) Design details of the leachate removal system, the basis of design, and a description of the operating procedures to be used to ensure free flow from the collection system in accordance with § 264.222(c).

(viii) Design plans and specifications and basis of design of any structures needed to comply with § 264.222(e).

(ix) A description of the maintenance and repair procedures proposed to comply with §§ 264.222(d) and 264.15(c).

(x) A description of the operating procedures that will ensure compliance with §§ 264.229 and 264.230.

(xi) A certification by a qualified engineer which complies with § 264.226(c). The owner or operator of a new facility must submit a statement by a qualified engineer that he will provide such a certification upon completion of construction in accordance with the plans and specifications.

(4) For facilities that store or treat hazardous waste in *waste piles,* except as otherwise provided in § 264.250.

(i) A description of practices to control wind dispersal (e.g., cover or frequent wetting) of hazardous waste in piles so that the Director, where necessary, can specify appropriate control measures.

(ii) A detailed engineering description of the facility design including:

(A) A description of measures to divert run-on away from the pile;

(B) A description of the leachate and run-off collection and control system;

(C) A description of the foundation supporting the base;

(D) Design specifications of the pile base and liner (or liners) including the estimated containment life of the base and the permeability of the liner(s);

(E) Estimated life of the hazardous waste pile; and

(F) If applicable under § 264.253(a)(3), a description of the leachate detection, collection, and removal system including the system's relation to the water table and a description of any efforts to control the water table.

(iii) A detailed description of the facility operating procedures which demonstrate compliance with §§ 264.252, 264.253, 264.256 (ignitable or reactive waste), and 264.257 (incompatible waste) including:

(A) A description of efforts to protect the containment system from plant growth which could puncture any component of the system;

(B) A description of design and operating procedures to properly manage and dispose of any leachate that is a hazardous waste;

(C) A description and listing of all equipment and procedures used to place the waste in or on the pile or to clean and expose the liner surface; and

(D) A description of efforts to separate hazardous waste that is incompatible with any waste or material stored nearby including the design specifications of any dike, berm, wall, or other device used to separate the materials.

(c) [Reserved]

Note.—Requirements set forth in § 122.25 (a) and (b) reflect the Part 264 regulations promulgated on May 19, 1980 and today. Additional permit application requirements including those for other treatment and disposal facilities will be promulgated when the remaining portions of Part 264 are promulgated.

2. Revise § 122.29 to read as follows; paragraph (a) is issued as an interim final rule:

§ 122.29 Establishing RCRA Permit Conditions.

(Applicable to State RCRA programs, see § 123.7)

In addition to the conditions established under § 122.8(a), each RCRA permit shall include:

(a) A list of the wastes or classes of wastes which will be treated, stored, or disposed of at the facility, and a description of the processes to be used for treating, storing, and disposing of these hazardous wastes at the facility including the design capacities of each storage, treatment, and disposal unit. Except in the case of containers, the description must identify the particular wastes or classes of wastes which will be treated, stored, or disposed of in particular equipment or locations (e.g., "Halogenated organics may be stored in Tank A", and "Metal hydroxide sludges may be disposed of in landfill cells B, C, and D"), and

(b) Each of the applicable requirements specified in 40 CFR Parts 264 and 266.

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