

Thursday
March 19, 1987

United States Environmental Protection Agency

Part III

Environmental Protection Agency

40 CFR Parts 264, 265, and 270
Proposed Amendments for Landfill,
Surface Impoundment, and Waste Pile
Closures; Proposed Amendment to Rule

ENVIRONMENTAL PROTECTION AGENCY**40 CFR Parts 264, 265, and 270****[SW-FRL-3092-2]****Proposed Amendments for Landfill, Surface Impoundment, and Waste Pile Closures; Proposed Rule****AGENCY:** U.S. Environmental Protection Agency (EPA).**ACTION:** Proposed Amendment to rule.

SUMMARY: The Agency is proposing to supplement the currently authorized options found in 40 CFR Parts 264 and 265 for closing and providing post-closure care for landfills, surface impoundments, and waste piles that are used to treat, store, or dispose of hazardous wastes. Under the supplemental option proposed today, the Agency and authorized States may establish appropriate closure and post-closure requirements on a site-specific basis. The requirements would be established by analyzing detailed data concerning the waste and site characteristics, and assessing all potential pathways by which hazardous constituents may migrate and pose threats to human health and the environment. The public will be provided an opportunity to comment fully in permit hearings on the appropriateness of the site-specific closure and post-closure requirements for individual facilities before they are made final.

The purpose of this proposed regulatory amendment is to allow increased technical flexibility for situations not adequately addressed by the broad nationwide closure standards now in effect. However, as with the existing standards, any alternative requirements established under the proposed regulatory amendments must be designed to protect human health and the environment.

DATE: Written comments should be submitted on or before May 18, 1987. An original and two copies of your comments on this proposal should be mailed to the Docket Clerk, Office of Solid Waste (WH-562), U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460 and should be identified as follows: F-87-ACP-FFFFF.

ADDRESS: The official docket for this regulation including comments received by the Agency is located in Room MLG100, U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460, and is available for viewing from 9:00 a.m. to 3:30 p.m., Monday

through Friday, excluding holidays. Call Mia Zmud at 475-9327 or Kate Blow at 382-4675 for appointments.

FOR FURTHER INFORMATION CONTACT: RCRA Hotline at 800-424-9346 (in Washington, DC, call 382-3000) or for technical information contact Ossi Meyn, Office of Solid Waste (WH-565E), U.S. Environmental Protection Agency, Washington, DC 20460, telephone (202) 382-4654.

SUPPLEMENTARY INFORMATION:**I. Authority**

These regulations are issued under the authority of sections 1006, 2002(a), 3004, 3005, and 3007 of the Solid Waste Disposal Act (SWDA), as amended by the Resource Conservation and Recovery Act of 1976 (RCRA), as amended (42 U.S.C. 6905, 6912(a), 6924, and 6925).

II. Background

Subtitle C of RCRA creates a "cradle-to-grave" management system intended to ensure that hazardous waste is safely treated, stored, or disposed. First, Subtitle C requires the Agency to identify hazardous waste. Second, it creates a manifest system designed to track the movement of hazardous waste, and requires hazardous waste generators and transporters to employ appropriate management practices as well as procedures to ensure the effective operation of the manifest system. Third, owners and operators of treatment, storage, and disposal facilities must comply with standards that "may be necessary to protect human health and the environment" that are established by the Agency under section 3004 of RCRA. Ultimately, these standards will be implemented through permits that are issued by authorized States or the Agency to owners and operators of hazardous waste treatment, storage, and disposal facilities. Until these permits are issued, existing facilities are controlled under the interim status regulations of 40 CFR Part 265 that were largely promulgated on May 19, 1980. Interim status waste facilities are waste management facilities in existence on November 19, 1980 (or on the effective date of statutory or regulatory changes under the Hazardous and Solid Waste Amendments (HSWA) of 1984).

In regulations promulgated on July 26, 1982 (47 FR 32274), the Agency established permitting standards in 40 CFR Part 264 covering the treatment, storage, and disposal of hazardous wastes in surface impoundments, waste piles, land treatment units, and landfills. Owners and operators of such facilities

must meet these standards to receive a RCRA permit.

III. Discussion of Today's Amendments

At present, the regulations afford one, and, for some units, two options for closing landfills, surface impoundments, and waste piles. In the case of surface impound and landfill units, one may close by placing a highly impermeable cap over the unit (and in the case of a surface impoundment, the unit must be dewatered and the wastes stabilized) and conducting a 30-year (or other appropriate period) post-closure program of monitoring and maintaining the cap; monitoring, maintaining, collecting and removing liquids in the leachate collection system if present; and monitoring the ground water. Where monitoring data indicates ground-water contamination, corrective action may be required pursuant to Part 264 Subpart F (for permitted facilities) or section 3008(h) of HSWA (for interim status facilities). This option is available to waste piles only after all wastes have been removed or decontaminated and it is not practical to remove contaminated subsoils.

A second option, available to surface impoundments and waste piles, is to remove or decontaminate all waste residues, contaminated design and operating system components (e.g., liners, leachate collection systems, and dikes), contaminated subsoils, and structures contaminated with waste and leachate. If this is successfully accomplished, no post-closure monitoring or other post-closure care is required. This type of closure is more fully discussed in the final amendments to § 265.228 published elsewhere in today's Federal Register.

These two closure options evolve out of the Agency's approach for minimizing the post-closure release of hazardous constituents into the environment. The first option, leaving waste in place but installing a low permeability cap, derives from the Agency's overall liquids management strategy for land disposal units. As described in the preamble to the minimum technology regulations (47 FR 32274, July 26, 1982 and 51 FR 10706, March 28, 1986), the Agency's general strategy for such units is to impose design and operational requirements to minimize leachate generation (e.g., caps and prohibition on liquids in landfills) and then to require removal of the leachate before liquids can migrate into the environment. Consistent with this control strategy, the "disposal" closure option requires very low permeability caps at closure in order to minimize post-closure

infiltration of liquid through the unit and the need for post-closure monitoring and corrective action.

The second closure option, closure by removal, eliminates the potential for leachate production after closure by removing the source of contamination. The goal at closure is to remove or decontaminate all materials on site that could potentially contribute to future contamination problems.

While each closure option adopts a different strategy to achieve protection of human health and the environment, the goal of both closure as a disposal unit and closure by removal is to minimize or eliminate potential threats to human health and the environment and the need for future corrective action at the site.

The Agency now has several years of experience in reviewing and approving closure plans under RCRA. Moreover, the Agency has gained considerable experience in effecting remedial actions under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) that are in many ways analogous to RCRA closures. Based on this experience, EPA believes that in many circumstances a "hybrid" approach that combines the strategies of closure by removal and closure as a disposal unit may be equally or more effective than either the pure "disposal" or "removal" closure option. Rather than designing all caps to minimize infiltration and allowing the waste to remain in place, this "hybrid" approach would consist of the removal of the majority of contaminated materials and would allow covers and post-closure monitoring to be designed based on the exposure pathway of concern. For example, if the constituents remaining in the soil were highly immobile and would not migrate to the ground water, the cover could be designed to prevent direct contact and inhalation of constituents (the pathways of concern), rather than to minimize infiltration. This allows the method of closure to be tailored to the specific circumstances under which the unit is being closed. It also creates an incentive to remove waste from the unit rather than leaving waste in place and relying on control strategies such as capping to minimize migration of constituents.

A few examples may help to explain how closure requirements may be altered to suit the site-specific conditions of the unit undergoing closure. Generally, situations in which alternate closure requirements may be appropriate are when: (1) Substantial removal of waste and waste residues will occur (but some minimal residual contamination is left in the unit); (2)

residual contamination has low mobility and toxicity; (3) pathways of potential exposures to contaminants are limited; and (4) long-term monitoring/care will be provided. The following examples should not be interpreted as scenarios that will in all cases qualify for the alternate closure requirements nor the only possible scenarios. However, these examples illustrate the point that site-specific conditions may in some cases call for site-specific closure requirements.

The following is an example of a closing unit, located in an arid region where infiltration is very low and evapotranspiration significantly exceeds precipitation, for which site-specific requirements are appropriate. The unit contains residual levels of relatively immobile contaminants; conservative estimates of attenuation of residual contaminants in the unsaturated zone show that the waste constituents will never migrate to the ground water, which is 100 feet below the unit. The owner or operator is able to show, based on waste and site conditions, that the residual wastes pose no surface water or atmospheric threat, and that direct contact with the waste is the only potential exposure pathway of concern. In this situation, a cover designed to prevent infiltration would be unnecessary, but a cover designed to protect against the direct contact threat would be required to fully protect human health and the environment at this site.

Indeed, the Agency has already acknowledged through rulemaking that a unit existing in such an environment may warrant reduced requirements. Such a unit is eligible for an exemption under § 264.90(b)(4) and § 264.221(b) from the ground-water monitoring requirements and single-liner requirements for surface impoundments if an owner or operator can demonstrate that no potential migration of liquid from the unit into ground water is possible during the active life and post-closure care period. The minimum technology requirements in the 1984 amendments to the Solid Waste Disposal Act allow for a similar waiver in section 3004(o)(2) from the statutory requirements. A unit in a low precipitation, high evapotranspiration environment with a deep water table may well be able to make such a demonstration of no migration.

Another situation that may warrant specific consideration is where an owner or operator may have removed all wastes and liner systems from a unit but residual waste constituents still remain in the unsaturated soil. If the waste constituents in the unsaturated

soil exceed Agency established health and environmental effect levels, then the unit may not meet the closure by removal test in §§ 264.228 and 265.228. (See the discussion of the "remove or decontaminate" standard in the preamble to § 265.228 elsewhere in today's Federal Register). However, when these residual concentrations are sufficiently low, fate and transport calculations based on waste constituent characteristics and site hydrogeologic and locational conditions may show that the waste residuals in the unsaturated soils will never produce ground-water contamination above an Agency established exposure level (see discussion below for explanation of Agency-established exposure levels). Since in this example the ground water will remain potable, the cap design for the unit does not have to prevent infiltration. Furthermore, if the owner or operator can show that the waste residuals pose no atmospheric, surface water, direct contact, or ingestion threat, then capping the unit may not be necessary to protect human health and the environment from the residual contamination. However, ground-water, vadose zone or soil monitoring is generally necessary to confirm or verify the fate and transport predictions.

Today's proposal specifies a set of factors that the Regional Administrator (or State) must consider when establishing alternate closure requirements under §§ 264.310(c) and 265.310(c). The Agency expects to limit the use of the alternate closure option to situations where residual hazardous constituents are present in low concentrations, are of low toxicity, and have low mobilities, where migration of the waste residuals to any medium is unlikely, and where long-term monitoring is guaranteed. The factors used in the Regional Administrator's analysis are designed to ensure that wastes and waste residues will not pose a threat to human health and the environment through any potential exposure pathway. These potential pathways include exposure to the waste constituents through direct contact, ground water, surface water, and atmospheric routes. Basically, the following topics must be examined: (1) The potential for the waste or waste constituents to migrate from the closing unit, (2) the toxicity of the waste or waste constituents that migrate from the unit, (3) the health and environmental effects associated with potential exposure to the waste or waste constituents that migrate from the unit, and (4) the uncertainty in each of the above analyses.

The factors the Regional Administrator would consider when establishing alternative closure requirements under §§ 264.310(c) and 265.310(c) are similar in many ways to factors the Regional Administrator considers when setting alternate concentration limits (ACLs) under § 264.94. The basic test of both of these alternate programs is the same: The alternate requirements must protect human health and the environment. The factors related to ground-water and surface-water impacts are the same for the alternate closure requirements as for the setting of ACLs. The main difference between the two procedures is that in the proposed closure demonstration the Regional Administrator may take into account attenuation in the unsaturated zone and may require different types of monitoring. In addition, where ACLs address only ground-water contamination, the proposed closure analysis would also address surface water and the potential exposure pathways of direct contact and atmospheric releases.

The closure demonstration submitted by facility owners and operators should rely on Agency-recommended exposure limits that have undergone peer review by the Agency. These include water quality standards and criteria (Ambient Water Quality Criteria: 45 FR 79318, November 28, 1980, 49 FR 5831, February 15, 1984; 50 FR 30784, July 29, 1985), health-based limits based on verified reference doses (RfDs) developed by the Agency's Risk Assessment Forum (Verified Reference Doses of USEPA, EACO-CIN-475, January 1986) and Carcinogenic Potency Factors (CPF) developed by the Agency's Carcinogen Assessment Group (Table-11, Health Assessment Document for Tetrachloroethylene (Perchloroethylene) USEPA, OHEA/6008-82/005F, July 1985), or site-specific Agency-reviewed public health evaluations, issued by the Agency for Toxic Substance and Disease Registry of the Center for Disease Control, Department of Health and Human Services.

The Agency is currently compiling toxicity information on many of the hazardous constituents contained in Appendix VIII of 40 CFR Part 261. The facility owners and operators should check with the Office of Solid Waste, Characterization and Assessment Division, Technical Assessment Branch (202) 382-4761 for the latest toxicity information. If no Agency-recommended exposure limits exist for a hazardous constituent then the facility owner or operator must either remove the constituent down to background levels,

submit data of sufficient quality for the Agency to determine the environmental and health effects of the constituent, or follow landfill closure and post-closure requirements. All data submitted by the owner or operator on environmental and health effects of a constituent should, when possible, follow the toxicity testing guidelines of 40 CFR Parts 797 and 798 (50 FR 39252, September 27, 1985). The Agency does not believe there are many situations where exposure limits will be developed by owners or operators, since testing required by 40 CFR Parts 797 and 798 to produce reliable toxicity estimates is an expensive and time-consuming effort.

For purposes of fate and transport modeling, it is necessary to identify points of exposure. In calculations that may be used to estimate the potential impacts of releases of hazardous constituents from closing units, points of exposure would be assumed as below. The points of exposure were chosen because the Agency believes that they are realistic and conservative estimates of where either environmental or human receptors would likely be exposed to the contaminants released from the unit. Furthermore, the Agency feels that they are conservative enough to be protective of human health and the environment in all situations that would be encountered during the alternate closure scenario. For closure under the proposed alternate requirements of §§ 264.310(c) and 265.310(c), the potential point of exposure for analysis of the direct contact and atmospheric routes is at or within the unit boundary. The potential point of exposure for surface water is at the edge of the closest on-site surface water runoff pathway (including ditches and intermittent streams) or actual surface water body that is affected by the unit. The potential point of exposure for ground water is the first aquifer found at the unit boundary. Generally the ground-water protection standard should be met in this first saturated zone at the unit boundary, if a cap and long-term management will be required. The ground-water protection standard should also be met at the first aquifer directly beneath the unit if no cap or long-term management will be required.

The Agency is soliciting comments on the concept of allowing the defined points of exposure to be moved beyond the unit boundary. For example in some situations, effective measurement of leakage may be better determined away from the unit. In such case, it may be equally protective to assume a point of exposure away from the unit boundary.

Comments are requested on the following points:

- (1) Under what conditions may the points of exposure be extended, and
- (2) What criteria must be met in specifying the extended points of exposure.

If any adjustments are made to the points of exposure, then long-term monitoring will be necessary to verify that no unacceptable levels of contaminants are migrating to or past the points of exposure.

The regulations require an owner or operator requesting approval of alternate site-specific closure requirements to submit site-specific supporting data. The data and data analysis submitted by the owner or operator must be of sufficient quality for the Regional Administrator to assess the factors for each of the exposure pathways listed in §§ 264.310(c) and 265.310(c). In addition, the following information must be submitted by the owner or operator: (1) A description of closure activities designed to meet the closure performance standard, (2) any data, models, and assumptions used to support fate and transport predictions, (3) design and operating plans of any proposed monitoring system used to verify fate and transport predictions, and (4) a plan which identifies subsequent contingency closure activities that may be needed if the alternate requirements are not successful and shows how these closure activities will be conducted. The specific information requirements are codified at §§ 265.310(c)(2) and 270.21(e)(2).

Any unit undergoing closure under the alternate requirements will need verification monitoring systems to confirm fate and transport predictions of hazardous constituents through any of the exposure pathways. Because of the uncertainties inherent in any form of modeling, the Agency plans to rely on monitoring to ensure that actual migration rates and concentrations of hazardous constituents are consistent with those projected as the basis of any alternate closure option. The verification monitoring may include, but is not limited to the following: (1) Leachate collection and analysis, (2) unsaturated zone monitoring, (3) air monitoring, (4) surface water runoff analysis, and (5) ground-water monitoring. For example, if the migration of hazardous constituents through the unsaturated zone is expected to be attenuated, then soil pore monitoring should be performed to verify this projection.

The Agency is asking for comments on whether to provide flexibility in specifying ground-water well locations (point of exposure for the ground-water pathway) for units that have

institutional or physical obstacles (e.g. buried pipelines, natural geologic features) which prevent the installation of downgradient monitoring wells directly at the unit boundary. Comments are requested on the criteria by which adjustments can be made to the placement of ground-water monitoring wells. The Agency believes that the distance the ground-water monitoring wells can be moved in order to avoid physical or institutional obstacles should be limited (perhaps to less than 50 feet) so that early detection of leakage from the unit could be detected.

The verification monitoring program for ground water may vary from the ground-water monitoring programs in §§ 264.97 and 264.100 in terms of well placement, sampling protocols, and duration (Note: § 264.117 already grants the Regional Administrator authority to modify the length of time that ground-water monitoring must be performed based on site-specific factors). The program, however, must be sufficient to verify the accuracy of fate and transport predictions and ensure that the alternate closure requirements are indeed meeting the closure performance standard. The Agency may, for example, require monitoring between the unit and the potential point of exposure to ensure that actual concentrations of constituents in air or water never exceed Agency approved levels or so that actual travel times of constituents can be compared with those predicted by the model. If observed constituent concentrations or migration rates differ from expected values, the Regional Administrator may invoke § 264.310(c)(3) or § 265.310(c)(3) to require further model validation, additional closure activities or ground-water corrective action to ensure compliance with the requirements of §§ 264.111 and 265.111.

Alternate closure requirements will not be established under § 265.310(c) on the basis that adverse effects on human health and the environment will simply be delayed for some period of time. Thus, the owner or operator would not be allowed to meet alternate closure requirements by arguing that a ground-water plume of contamination would not reach potential ground-water users (e.g., not migrate beyond the area of the unit or property boundary) for some period of time. The same concept applies for all the potential pathways for exposure: temporary prevention of adverse impacts is not grounds for alternate closure requirements under §§ 264.310(c) and 265.310(c).

The Agency believes that the alternative proposed in §§ 264.310(c)

and 265.310(c) generally will not be applicable to landfill and surface impoundment units closing with significant quantities of waste remaining in place. Under those circumstances, the possibility of a successful alternate closure is minimal since the potential for harm to human health and the environment posed by high concentrations of hazardous waste will be demonstrated by most valid fate and transport modeling processes. Likewise, facilities with units located in areas vulnerable to flooding and/or seismic activity will most likely be unable to make successful demonstrations for alternate closure requirements.

The Agency is soliciting comments on whether all wastes that were placed in the unit should be removed before an owner or operator can close under §§ 264.310(c) and 265.310(c). Could some wastes be allowed to remain in the unit if they are stabilized, have been treated, or if there are engineering controls (e.g. slurry walls)? Should geological characteristics, such as fractured bedrock or Karst topography be considered? In addition what location factors besides flooding and/or seismic activity should be assessed before allowing closure under the alternate approach?

The Agency is also requesting comments on how ground-water use should be considered in alternate closure considerations. The Agency is proposing to consider ground-water use when deciding on exposure assumptions for alternative closures (§§ 264.310(c)(i)(G) and 265.310(c)(i)(G)). For this purpose, ground water that is potentially potable, e.g. has less than 10,000 parts per million Total Dissolved Solids (TDS), will be considered to be a potential drinking water resource and drinking water exposure to possible contaminants will be considered. If the ground water is nonpotable (greater than 10,000 parts per million TDS), then drinking water exposure is unlikely and ground-water concerns may be secondary to other environmental exposures (direct contact, surface water, or atmospheric exposures).

The Agency is proposing to require closure approaches under §§ 264.310(c) and 265.310(c) to meet specific performance standards. The general closure performance standards of §§ 264.111 and 265.111 require the owner or operator to close the facility in a manner that: (1) Minimizes the need for further maintenance, and (2) 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. Today's proposed regulation includes more specific performance requirements for closure under §§ 264.310(c) and 265.310(c) to ensure that the site-specific closure requirements will be as effective in protecting human health and the environment as the final cover required by the closure option under §§ 264.310(b) and 265.310(b).

The owner or operator should submit a request for permit modification for an alternate closure at least one year before the expected closure date. He must then modify the closure and postclosure plan, filed with the permit application, to conform to the alternate set of closure and post-closure requirements, established by the Regional Administrator.

While the proposed rule allows an owner or operator to apply for approval of alternative closure one year before the expected closure date, the Agency is asking for comments on whether or not EPA should allow the owner or operator to request such a closure approach during the initial permit application stage. Because it may be difficult for an owner or operator to anticipate all of the waste and site factors that would be crucial in completing closure under the alternative approach, the Agency has chosen to require the approval of one of the two standard closure options (i.e., landfill closure or "clean closure") to assure that the intended closure is protective and supported by adequate financial responsibility. A modified closure plan, incorporating alternative closure could be submitted for Agency approval at the end of the operating period of the unit, when more definite information on waste and site factors would be available to the unit's owner or operator. The Agency is requesting comments on approval of alternative closure during the permitting process or prior to one year before the expected closure date. Commenters should address the Agency's concerns with respect to the uncertainties regarding alternative closure.

A final and very important area where the Agency seeks public comment is the issue of whether a unit should be allowed to close under the proposed alternative if hazardous constituents have already migrated to ground water above Agency approved levels. The Agency is presently considering four options for defining closure alternatives for units with existing ground-water contamination.

Option I: Units with ground-water contamination above Agency-approved levels would be considered ineligible for the alternate closure option and must instead close as a landfill.

Option II: Units where levels of constituents in ground water are above Agency approved levels would be considered eligible to close under § 264.310(c) or § 265.310(c) only if owners or operators undertake ground-water remediation during the closure period in order to meet Agency-approved levels.

Option III: Units with ground-water contamination would be allowed to close under § 264.310(c) or § 265.310(c) without immediately addressing ground-water contamination originating from that unit, but the facility would not be allowed to certify final facility closure until all ground-water contamination had been addressed.

Option IV: Units with ground-water contamination would be allowed to close under § 264.310(c) or § 265.310(c) but must conduct corrective action during the post-closure period.

The following paragraphs discuss each of these options.

Option I: No Contamination

The alternate closure option would only be available to units *without* ground-water contamination at the time of closure. Availability for the alternate closure under this option would be essentially the same as for "clean" closures under the existing regulations. However, in contrast to "clean" closures which require levels of constituents in the unsaturated zone to be below Agency-approved levels, Option I of the alternate closure rule would allow modeling through the unsaturated zone to show that levels of constituents unacceptable in the leachate would be attenuated to safe levels before reaching the ground water. As described elsewhere in today's *Federal Register*, the current regulations normally force units with ground-water contamination into the landfill option because contaminated ground water and soils cannot be completely excavated during the limited time allowed for closure.

A drawback to taking this approach is that there may be situations where capping an old unit (i.e., closing as a landfill) may provide no incremental environmental benefit even though there is an existing ground-water problem. For example, the mobile and toxic fractions of a waste may have already migrated away from the unit at the time of closure, or the owner or operator may be able to remove a sufficient volume of waste so that he can demonstrate that the level of contamination remaining in the soil will not contribute further to the existing ground-water problem. In such situations, the installation of an impervious cap may serve no useful

purpose in preventing further ground-water degradation and will not help clean up the existing problem. In fact, a cap may complicate or prohibit certain corrective actions by adding additional material that must be excavated or by interfering with a pump and treatment program that relies on "flushing" contaminants through the aquifer. Recognizing this, the Agency is also considering options II, III and IV below.

Option II: Clean up Ground Water To Meet Ground-Water Protection Standard

Under this option, units with ground-water contamination would have to meet Agency-approved health-based levels in the ground water before certifying closure under the alternate closure option (§§ 264.310(c) or 265.310(c)). However, owners or operators would be allowed to undertake corrective action as a closure activity in order to meet the ground-water protection standard of § 264.92 in the ground water.

To make this option available, the Agency would have to amend Subpart G §§ 264.113(b) and 265.113(c) to authorize the Regional Administrator to extend the closure period in certain limited circumstances, including the need to incorporate long-term corrective action into the closure process. The drawback of this approach is that if corrective action were incorporated into the closure process, final closure certifications would be delayed (possibly for many years) because owners or operators would not be allowed to certify unit closure until any contamination emanating from that unit had been cleaned up. The benefit of this approach is assurance that ground-water problems are addressed without imposing costly requirements (such as impervious caps) in situations where they arguably provide no environmental benefit and may, in fact, impede corrective action.

Option III: Facility Closure Contingent on Ground-Water Clean-up.

In option III, units with existing ground-water contamination would be allowed to close under the alternate closure option without necessarily addressing the plume originating from that unit, but final facility closure would be dependent on addressing *all* ground-water problems at that site. In effect, this option would disassociate an owner or operator's responsibility to address soil contamination at a particular unit from his obligation to clean up ground water at his facility. Capping decisions for individual units would be based on direct contact and inhalation concerns

and the need to prevent additional contamination of ground water. If existing ground-water contamination warrants immediate attention, corrective action could be compelled through a section 3008(h) order, a post-closure permit, or appropriate State Authority. If, however, the contamination from the closing unit commingles with ground-water contamination from other units (and the plume is not posing an immediate threat), it may make more sense to address the ground-water problem as a whole rather than trying to address the individual contribution from each unit through separate actions. As with the landfill option, the owner or operator closing a unit under § 264.310(c) and § 265.310(c) would know that although the unit has been closed, they still have outstanding corrective action requirements. The owner or operator would remain subject to a facility-wide responsibility for future ground-water clean-up, not just responsibility for addressing the contribution from the individual closing unit.

Option IV: Clean up Ground Water During the Post-Closure Care Period.

This option would allow a unit to be closed under § 264.310(c) or § 265.310(c), although ground-water contamination was evident at the time of certification of closure. The owner or operator of the closed unit would be responsible for performing corrective action during the post-closure period to meet the ground-water protection standard of § 264.92. The post-closure permit would include provisions for performing corrective action, including identification of remedial methods, chemical constituents, target concentrations levels and ground-water monitoring. The owner or operator would continue to be responsible for meeting the requirements of § 264.117 or § 265.117. The advantage of the option would be to allow completion of all other closure activities (e.g., installation of a cover system), to begin all other post-closure-care activities (e.g., monitoring and maintaining the leachate collection, leak detection, and cover system), and complete all corrective action, which may involve a much longer period of time than was envisioned for routine closure activities. The rule as proposed today does not reflect any of the four options. Based on public comment, the Agency will select an approach and make modifications to the rule as proposed to make clear the Agency's position on how existing ground-water contamination will affect the specific closure options.

IV. State Authority

A. Applicability of Rules in Authorized States

Under section 3006 of RCRA, EPA may authorize qualified States to administer and enforce the RCRA program within the State. (See 40 CFR Part 271 for the standards and requirements for authorization. Following authorization, the Agency retains enforcement authority under sections 3006, 7003 and 3013 of RCRA, although authorized States have primary enforcement responsibility.

Prior to the Hazardous and Solid Waste Amendments of 1984 (HSWA), a State with final authorization administered its hazardous waste program entirely in lieu of EPA administering the Federal program in that State. The Federal requirements no longer applied in the authorized State, and EPA could not issue permits for any facilities in the State which the State was authorized to permit. When new, more stringent Federal requirements were promulgated or enacted, the State was obliged to enact equivalent authority within specified time frames. New Federal requirements did not take effect in an authorized State until the State adopted the requirements as State law.

In contrast, under section 3006(g) of RCRA, 42 U.S.C. 6926(g), new requirements and prohibitions imposed by the HSWA take effect in nonauthorized States. EPA is directed to carry out those requirements and prohibitions in authorized States, including the issuance of permits, until the State is granted authorization to do so. While States must still adopt HSWA-related provisions as State law to retain final authorization, the HSWA applies in authorized States in the interim.

B. Effect on State Authorizations

Today's rule proposes standards that would not be effective in authorized States since the requirements would not be imposed pursuant to the Hazardous and Solid Waste Amendments of 1984. Thus, the requirements will be applicable only in those States that do not have interim or final authorization. In authorized States, the requirements will not be applicable until the States revise its program to adopt equivalent requirements under State law.

40 CFR 271.21(e)(2) requires that States that have final authorization must modify their programs to reflect Federal program changes and must subsequently submit the modifications to EPA for approval. (For proposals: The deadline by which the State must modify its

program to adopt this proposed regulation will be determined by the date of promulgation of the final rule in accordance with § 271.21(e). (Note to regulation writer: See attached chart to determine the appropriate date)). These deadlines can be extended in certain cases (40 CFR 271.21(e)(3)). Once EPA approves the modification, the State requirements become Subtitle C RCRA requirements.

States with authorized RCRA programs may already have requirements similar to those in today's rule. These State regulations have not been assessed against the Federal regulations being proposed today to determine whether they meet the tests for authorization. Thus, a State is not authorized to carry out these requirements in lieu of EPA until the State program modification is submitted to EPA and approved. Of course, States with existing standards may continue to administer and enforce their standards as a matter of State law.

States that submit their official application for final authorization less than 12 months after the effective date of these standards are not required to include standards equivalent to these standards in their application. However, the State must modify its program by the deadlines set forth in § 271.21(e). States that submit official applications for final authorization 12 months after the effective date of those standards must include standards equivalent to these standards in their application. 40 CFR 271.3 sets forth the requirements a State must meet when submitting its final authorization application.

V. Regulatory Impact

Under Executive Order 12291, the Agency must determine whether a regulation is "major" and, therefore, subject to the requirement of a Regulatory Impact Analysis. The Agency does not believe that these changes will result in an annual effect on the economy of \$100 million or more; a major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions; or significant adverse effects on competition, employment, investment, productivity, innovation, or in domestic or export markets. In addition, the proposed changes allow another closure option which, in many cases, will be less expensive to implement than the existing standard. Therefore, the Agency believes that today's rule is not a major rule under Executive Order 12291.

This regulation was submitted to the Office of Management and Budget for

review as required by Executive Order 12291.

VI. Regulatory Flexibility Act

Under the Regulatory Flexibility Act (5 U.S.C. 601, et seq.), the Agency must prepare a regulatory flexibility analysis for all regulations that may have a significant impact on a substantial number of small entities. The Agency conducted such an analysis on the land disposal regulations and published a summary of the results in the *Federal Register*, Vol. 48, No. 15, on January 21, 1983. The additional burdens imposed by this regulation are not significant. In fact, this regulation will likely reduce economic burden by allowing for another closure option.

VII. Paperwork Reduction Act

The information collection requirements in this proposed rule have been submitted for approval to the Office of Management and Budget (OMB) under the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 et seq. Submit comments on these requirements to the Office of Information and Regulatory Affairs, Office of Management and Budget (OMB), 726 Jackson Place, NW., Washington, DC 20503, marked "Attention: Desk Officer for EPA". The final rule will respond to any OMB or public comments on the information collection requirements.

List of Subjects

40 CFR Part 264

Hazardous waste, Insurance, Packaging and containers, Reporting and recordkeeping requirements, Security measures, Surety bonds.

40 CFR Part 265

Hazardous waste, Insurance, Packaging and containers, Reporting and recordkeeping requirements, Security measures, Surety bonds, Water supply.

40 CFR Part 270

Administrative practice and procedure, Confidential business information, Hazardous materials transportation, Hazardous waste, Reporting and recordkeeping requirements, Water pollution control, Water supply.

Dated: March 8, 1987.

Lee M. Thomas,
Administrator.

Therefore, it is proposed that 40 CFR Chapter I be amended as follows:

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

1. The authority citation for Part 264 continues to read as follows:

Authority: Secs. 1008, 2002(a), 3004, and 3005 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, as amended (42 U.S.C. 6905, 6912(a), 6924, and 6925).

2. In § 264.90 by adding paragraph (c)(4).

§ 264.90 Applicability.

(c) * * *

(4) May be modified or replaced by an alternate monitoring program, incorporated in an approved closure plan, designed to verify the adequacy of a closure undertaken pursuant to § 264.310(c).

3. In § 264.228 by removing paragraph (b) and redesignating paragraph (c) as paragraph (b) and revising paragraph (a)(2) to read as follows:

§ 264.228 Closure and post-closure care.

(a) * * *

(2)(i) Eliminate free liquids by removing liquid wastes and solidifying the remaining wastes and waste residues;

(ii) Stabilize remaining waste to a bearing capacity sufficient to support final cover; and

(iii) Comply with the requirements of § 264.310.

4. In § 264.310 by revising it to read as follows:

§ 264.310 Closure and post-closure care.

(a) At final closure of the landfill and upon closure of any cell, the owner or operator must perform closure and postclosure care in accordance with the requirements of either paragraph (b) or (c) of this section.

(b)(1) The owner or operator must cover the landfill or cell with a final cover designed and constructed to:

(i) Provide long-term minimization of migration of liquids through the closed landfill;

(ii) Function with minimum maintenance;

(iii) Promote drainage and minimize erosion or abrasion of the cover;

(iv) Accommodate settling and subsidence so that the cover's integrity is maintained; and

(v) Have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present.

(2) After final closure, the owner or operator must comply with all post-

closure requirements contained in §§ 264.117 through 264.120, including maintenance and monitoring throughout the post-closure care period (specified in the permit under § 264.117). The owner or operator must:

(i) Maintain the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, or other events.

(ii) Continue to operate the leachate collection and removal system until leachate is no longer detected;

(iii) Maintain and monitor the ground-water monitoring system and comply with all other applicable requirements of Subpart F of this part;

(iv) Prevent run-on and run-off from eroding and otherwise damaging the final cover; and

(v) Protect and maintain surveyed benchmarks used in complying with § 264.309, or

(c) The owner or operator must comply with an alternate set of closure and post-closure requirements that are established by the Regional Administrator by modifying the permit at the time of closure and that are specific to the unit being closed.

The Regional Administrator shall authorize alternate requirements under this paragraph only if he or she finds, based upon consideration of the factors set forth in paragraph (c)(1) of this section and the data submitted by the owner or operator under paragraph(c)(2) of this section, that the requirements will assure the achievement of the closure performance standard in § 264.111 and will be at least as effective in protecting human health and the environment as the final cover required under paragraph (b) of this section. These requirements shall include, an appropriate closure/post-closure verification monitoring program for exposure pathways of concern at the site. This monitoring program must be sufficient to verify the accuracy of any fate and transport calculations used in the design of the closure system being proposed.

(1) In determining whether to authorize alternate closure requirements under this paragraph the Regional Administrator will consider the following factors:

(i) Potential adverse effects on ground-water quality, considering:

(A) The physical and chemical characteristics of the waste in the unit(s) to be closed, including its toxicity and bioaccumulation potential and its mobility and persistence.

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

(C) The characteristics of the unsaturated zone that may affect the fate and transport of waste constituents from the unit(s) to be closed;

(D) The direction and rate of ground-water flow;

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

(F) The current and future uses of ground water in the area;

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

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

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

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

(ii) Potential adverse effects on surface water quality, considering:

(A) The physical and chemical characteristics of the waste and waste constituents in the unit(s) to be closed, including its toxicity and bioaccumulation potential and its mobility and persistence.

(B) The topographic characteristics of the facility and surrounding land, including run-off and run-on patterns;

(C) The quality of ground-water and the direction of ground-water flow;

(D) The patterns of precipitation and evapotranspiration of the region;

(E) The proximity of the unit(s) to be closed to surface waters;

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

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

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

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

(J) The persistence and permanence of the potential adverse effects, and

(iii) Potential adverse effects caused by direct contact to the waste and waste constituents considering:

(A) The physical and chemical characteristics of the waste and waste constituents in the unit(s) to be closed, including its toxicity and

bioaccumulation potential and its mobility and persistence.

(B) The current and future uses of the area;

(C) The potential for human exposure to waste constituents;

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

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

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

(iv) Potential adverse effects caused by release to the atmosphere of waste or waste constituents considering:

(A) The physical and chemical characteristics of the waste and waste constituents in the unit(s) to be closed; including its toxicity and bioaccumulation potential and its mobility and persistence.

(B) The current and future uses of the area;

(C) The potential for human exposure to waste constituents;

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

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

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

(v) The engineered characteristics of the unit(s) to be closed that affect ground-water, surface water, direct contact, or atmospheric exposure pathways.

(2) An owner or operator submitting closure and post-closure plans to conduct closure and post-closure care under this paragraph must submit data that is of sufficient quality for the Regional Administrator to assess the factors listed in subparagraph (1) of this paragraph. At a minimum, the information required by § 270.21(e)(2) must be submitted to the Regional Administrator.

(3) If, at any time during the post-closure care period, the Regional Administrator determines that any of the assumptions underlying fate and transport calculations used to justify the closure systems are incorrect or that the alternate requirements have not ensured compliance with § 264.111, the Regional Administrator may impose such additional requirements, including those set forth in paragraph (b) of this section, as may be necessary to ensure compliance with § 264.111.

PART 265—INTERIM STATUS STANDARDS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES

5. The authority citation for Part 265 continues to read as follows:

Authority: Secs. 1006, 2002(a), 3004, 3005, and 3015, Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, as amended (42 U.S.C. 6905, 6912(a), 6924, 6925, and 6935).

6. In § 265.90 by adding paragraph (c)(3).

§ 265.90 Applicability.

(c) ***

(3) May be modified or replaced by an alternate ground-water monitoring program, incorporated in an approved closure plan, designed to verify the adequacy of a closure undertaken pursuant to § 265.310(c).

7. In § 265.228 by removing paragraph (b) and designating paragraph (c) as paragraph (b) and revising paragraphs (a)(2) to read as follows:

§ 265.228 Closure and post-closure.

(a) ***

(2)(i) Eliminate free liquids by receiving liquids wastes or solidifying the remaining wastes and waste residues;

(ii) Stabilize remaining waste to a bearing capacity sufficient to support final cover; and

(iii) comply with requirements of § 265.310.

8. In § 265.310 by revising it to read as follows:

§ 265.310 Closure and post-closure care.

(a) At final closure of the landfill or upon closure of any cell, the owner or operator must perform closure and post-closure care in accordance with the requirements or either paragraphs (b) or (c) of this section.

(b)(1) The owner or operator must cover the landfill or cell with a final cover designed and constructed to:

(i) Provide long-term minimization of migration of liquids through the closed landfill;

(ii) Function with minimum maintenance;

(iii) Promote drainage and minimize erosion or abrasion of the cover;

(iv) Accommodate settling and subsidence so that the cover's integrity is maintained; and

(v) Have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present.

(2) After final closure, the owner or operator must comply with all post-closure requirements contained in §§ 265.117 through 265.120, including maintenance and monitoring throughout the post-closure care period. The owner or operator must:

(i) Maintain the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, or other events.

(ii) Maintain and monitor the ground-water monitoring system and comply with all other applicable requirements of Subpart F of this part;

(iii) Prevent run-on and run-off from eroding or otherwise damaging the final cover; and

(iv) Protect and maintain surveyed benchmarks used in complying with § 265.309, or

(c) The owner or operator must comply with an alternate set of closure and post-closure requirements that are established by the Regional Administrator at the time of closure and that are specific to the unit being closed. The Regional Administrator shall authorize alternate requirements under this paragraph only if he or she finds, based upon considerations of factors set forth in paragraph (c)(1) of this section and the data submitted by the owner or operator under paragraph (c)(2) of this section, that the requirements will assure the achievement of the closure performance standard in § 265.111 and will be at least as effective in protecting human health and the environment as the final cover required under paragraph (b) of this section. These requirements shall include, an appropriate closure/postclosure verification monitoring program for exposure pathways of concern at the site. This monitoring program must be sufficient to verify the accuracy of any fate and transport calculations used in the design of the closure system being proposed.

(1) In determining whether to authorize alternate closure requirements under this paragraph the Regional Administrator will consider the following factors:

(i) Potential adverse effects on ground-water quality, considering:

(A) The physical and chemical characteristics of the waste in the unit(s) to be closed, including its toxicity and bioaccumulation potential and its mobility and persistence.

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

(C) The characteristics of the unsaturated zone that may affect the

fate and transport of waste constituents from the unit(s) to be closed.

(D) The direction and rate of ground-water flow;

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

(F) The current and future uses of ground water in the area;

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

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

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

(J) The persistence and permanence of the potential adverse effects; and
(ii) Potential adverse effects on surface water quality, considering:

(A) The physical and chemical characteristics of the waste and waste constituents in the unit(s) to be closed; including its toxicity and bioaccumulation potential and its mobility and persistence.

(B) The topographic characteristics of the facility and surrounding land, including runoff and runoff patterns;

(C) The quality of ground-water and the direction of ground-water flow;

(D) The patterns of precipitation and evapotranspiration of the region;

(E) The proximity of the unit(s) to be closed to surface waters;

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

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

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

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

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

(iii) Potential adverse effects caused by direct contact to the waste and waste constituents considering:

(A) The physical and chemical characteristics of the waste and waste constituents in the unit(s) to be closed; including its toxicity and bioaccumulation potential and its mobility and persistence.

(B) The current and future uses of the area;

(C) The potential for human exposure to waste constituents;

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

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

(F) The persistence and permanence of the potential adverse effects; and
(iv) Potential adverse effects caused by release to the atmosphere of waste or waste constituents considering:

(A) The physical and chemical characteristics of the waste and waste constituents in the unit(s) to be closed; including its toxicity and bioaccumulation potential and its mobility and persistence.

(B) The current and future uses of the area;

(C) The potential for human exposure to waste constituents;

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

(E) The potential damage to wildlife, crop vegetation, and physical structures caused by exposure to waste constituents.

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

(v) The engineered characteristics of the unit(s) to be closed that affect ground water, surface water, direct contact, or atmospheric exposure pathways.

(2) An owner or operator submitting closure and post-closure plans to conduct closure and post-closure care under this paragraph must submit data that is of sufficient quality for the Regional Administrator to assess the factors listed in paragraph (c)(1) of this section. At a minimum, the following information must be submitted to the Regional Administrator:

(i) A description of all closure activities proposed to meet the closure performance standard of § 265.111 including:

(A) Detailed design and construction plans for any proposed cover;

(B) Methods for any proposed removal, treatment, or immobilization of waste, waste residues, surrounding and underlying contaminated soil and/or ground water necessary to meet the closure performance standard in § 265.111;

(C) Sampling methods to verify the levels of constituents remaining in waste residue, soil, and/or ground water after any proposed removal and a schedule for submitting these data to the Administrator; and

(D) Design plans for any proposed engineered barriers.

(ii) A proposed modeling approach, where required, for predicting the fate

and concentration of hazardous constituents or waste degradation products at the point(s) of exposure. The model(s) used must be appropriate for simulating the environmental conditions at the site. Data and documentation to support any fate and transport predictions must include but not be limited to:

(A) The physical and chemical characteristics of the waste or waste residue including the maximum concentration and characteristics of each Appendix VIII constituent that could reasonably be derived from the original waste(s) placed in the unit(s);

(B) The concentration of Appendix VIII constituents that could be expected in leachate produced by the remaining waste, waste residue, and/or contaminated soil;

(C) Estimated quantity of waste residue and contaminated soil expected to remain on site;

(D) Hydrogeologic properties of the saturated and unsaturated zone that may affect the fate and transport of hazardous constituents;

(E) A method and justification for any proposed grouping of constituents for the purpose of fate and transport analysis;

(F) An evaluation of the performance of any engineered components of the unit or any proposed closure activities and an explanation of how these control strategies figure into fate and transport predictions;

(G) The capabilities, assumptions, and limitations of any proposed model(s) including rationales for selected input criteria, methods and QA/QC for obtaining necessary data, and a comparison of the model's assumptions to actual site characteristics; and

(H) The concentration in ground water of all Appendix VIII constituents that could reasonably be derived from the waste.

(iii) Design and operating plans for a proposed monitoring system to verify the accuracy of any fate and transport predictions, including:

(A) A proposed period of operation; and

(B) Levels in each medium of concern that will prompt notifications of the Regional Administrator.

(iv) A topographic map showing a distance of 1000 feet around the facility at 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 large contour intervals to adequately show topographic profiles of facilities. The map shall clearly show the following:

- (A) Map scale and date;
- (B) 100-year floodplain area;
- (C) Surface waters including intermittent streams;
- (D) Surrounding land uses (residential, commercial, agricultural, recreational);
- (E) A wind rose (i.e., prevailing windspeed and direction);
- (F) Orientation of the map (north arrow);
- (G) Legal boundaries of the HWM facility site;
- (H) Access control (fences, gates);
- (I) Injection and withdrawal wells both on-site and off-site;
- (J) Buildings; treatment, storage, or disposal operations; or other structure (recreation areas, runoff control systems, access and internal roads, storm, sanitary, and process sewerage systems, loading and unloading areas, fire control facilities, etc.);
- (K) Barriers for drainage or flood control;
- (L) Location of operational and closed units within the HWM facility site, where hazardous waste is or was treated, stored, or disposed (include equipment cleanup areas); and
- (M) Location of faults and other geologic seismic zones.

(3) If, at any time during the post-closure care period, the Regional Administrator determines that any of the assumptions underlying fate and transport calculations used to justify the closure systems are incorrect or the alternate requirements have not ensured compliance with § 265.111, the Regional Administrator may impose such additional requirements including those set forth in paragraph (b) of this section as may be necessary to ensure compliance with § 265.111.

PART 270—EPA-ADMINISTERED PERMIT PROGRAMS: THE HAZARDOUS WASTE PERMIT PROGRAM

9. The authority citation for Part 270 is revised to read as follows:

Authority: Secs. 1006, 2002, 3004, 3005, 3007, 3019, and 7004, Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. 6905, 6912, 6924, 6925, 6927, 6939, and 6974).

10. § 270.17 is amended by revising paragraph (g) to read as follows:

§ 270.17 Specific Part B information requirements for surface impoundments.

(g) A description of how hazardous waste residues and contaminated materials will be removed from the unit at closure, as required under § 264.228(a)(1). For any wastes not to be removed from the unit upon closure, the owner or operator must submit detailed plans and an engineering report describing compliance with § 264.310(b). This information should be included in the closure plan and, where applicable, the post-closure plan submitted under § 270.14(b)(13). The owner or operator may apply at the time of closure for alternate closure requirements under § 264.310(c) by requesting a permit modification and submitting the information required in § 270.21(e)(2).

11. § 270.18 is amended by revising paragraph (h) to read as follows:

§ 270.18 Specific Part B information requirements for waste piles.

(h) A description of how hazardous waste residues and contaminated materials will be removed from the waste pile at closure, as required under § 264.258(a). For any waste not to be removed from the waste pile upon closure, the owner or operator must submit detailed plans and an engineering report describing compliance with § 264.310(b). This information should be included in the closure plan and, where applicable, the post-closure plan submitted under § 270.14(b)(13). The owner or operator may apply at the time of closure for alternate closure requirements under § 264.310(c) by requesting a permit modification and submitting the information required in § 270.21(e)(2).

12. In § 270.21 by revising paragraph (e) to read as follows:

§ 270.21 Specific Part B information requirements for landfills.

(e)(1) Detailed plans and an engineering report describing the final cover which will be applied to each landfill or landfill cell at closure in accordance with § 264.310(b)(1), and a description of how each landfill will be maintained and monitored after closure in accordance with § 264.310(b)(2). This information should be included in the closure and post-closure plans submitted under § 270.14(b)(13).

(2) For owners and operators requesting permit modifications at the time of closure to perform closure and post-closure care under § 264.310(c), the following additional information:

(i) A description of all closure activities proposed to meet the closure performance standard of § 264.111 including:

(A) Detailed design and construction plans for any proposed cover;

(B) Methods for any proposed removal, treatment, or immobilization of waste, waste residues, surrounding and underlying contaminated soil and/or ground water necessary to meet the closure performance standard in § 264.111;

(C) Sampling methods to verify the levels of constituents remaining in waste residue, soil, and/or ground-water after any proposed removal and a schedule for submitting these data to the Administrator; and

(D) Design plans for any proposed engineered barriers.

(ii) A proposed modeling approach for predicting the fate and concentration of hazardous constituents or waste degradation products at the point(s) of exposure. The model(s) used must be appropriate for simulating the environmental conditions at the site. Data and documentation to support any fate and transport predictions must include but not be limited to:

(A) The physical and chemical characteristics of the waste or waste residue including the maximum concentration and characteristics of each Appendix VIII constituent that could reasonably be derived from the original waste(s) placed in the unit(s);

(B) The concentration of Appendix VIII constituents that could be expected in leachate produced by the remaining waste, waste residue, and/or contaminated soil;

(C) Estimated quantity of waste residue and contaminated soil expected to remain on site;

(D) Hydrogeologic properties of the saturated and unsaturated zone that may affect the fate and transport of hazardous constituents;

(E) A method and justification for any proposed grouping of constituents for the purpose of fate and transport analysis;

(F) An evaluation of the performance of any engineered components of the unit or any proposed closure activities and an explanation of how these control strategies figure into fate and transport predictions;

(G) The capabilities, assumptions, and limitations of any proposed model(s) including rationales for selected input criteria, methods and QA/QC for obtaining necessary data, and a comparison of the model's assumptions to actual site characteristics; and

(14) The concentration in ground-water of all Appendix VIII constituents that could reasonably be derived from the waste.

(iii) Design and operating plans for a proposed monitoring system to verify the accuracy of any fate and transport predictions, including:

(A) A proposed period of operation; and

(B) Contaminant levels in each medium of concern that will prompt notification of the Regional Administrator.

Note.—The following information, relevant to evaluating closure demonstrations under § 264.310(c), is required elsewhere in Part 270:

General facility location and design information as required in § 270.14(b)(11) and § 270.14(b)(19):

Description of any plume of contamination including the maximum concentration of all Appendix VIII constituents.

13. In § 270.41 by revising paragraph (a)(5)(i) to read as follows:

§ 270.41 Major modification or revocation and reissuance of permits.

(a) * * *

(5) * * *

(i) When modification of a closure plan is required under § 264.112(b) or § 264.118(b), or when an owner or operator requests authorization to perform closure and post-closure care under § 264.310(c).

[FR Doc. 87-5576 Filed 3-18-87; 8:45 am]

BILLING CODE 6540-50-M