

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 144, 260, 264, and 270

[FRL 3220-1]

Hazardous Waste Miscellaneous Units; Standard; Applicable to Owners and Operators

AGENCY: Environmental Protection Agency.

ACTION: Final rule.

SUMMARY: The Resource Conservation and Recovery Act (RCRA) authorizes the Environmental Protection Agency (EPA) to issue standards applicable to owners and operators of hazardous waste management facilities. Over the past several years, the Agency has promulgated standards for specific types of treatment, storage, and disposal units, including containers, tanks, surface impoundments, waste piles, land treatment units, landfills, incinerators, underground injection wells, and research, development, and demonstration facilities. However, because some hazardous waste management technologies are not covered by the existing permitting standards, owners and operators of facilities utilizing them cannot obtain the RCRA permits necessary to operate them.

To fill this gap, the Agency is today promulgating a new set of standards under Subpart X of Part 264. The standards are applicable to owners and operators of new and existing hazardous waste management units not covered under the existing regulations. This will enable the Agency, and the States that adopt equivalent authorities, to issue permits to miscellaneous waste management units.

DATE: This final rule is effective January 11, 1988.

ADDRESSES: The official record for this rulemaking under docket No. F-87-SPXF-FFFFF is located at the U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460. It is available for viewing from 9:00 a.m. to 4:00 p.m., Monday through Friday, excluding holidays. The public should make an appointment to review docket material by calling (202) 475-9327. The public may copy a maximum of 50 pages of material from any one regulatory docket at no cost. Additional copies cost \$0.20 per page.

FOR FURTHER INFORMATION CONTACT: For general information, contact the

RCRA/Superfund Hotline at (800) 424-9346 (toll free) or (202) 382-3000 in Washington, DC. For information on the technical aspects of this rule, contact Kent Anderson, Land Disposal Branch, Waste Management Division, Office of Solid Waste (WH-565E), U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460, telephone (202) 382-4654.

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I. Authority

These regulations are issued under authority of sections 1006, 2002(a), and 3001 through 3013 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. 6901 *et seq.*

II. Background

A. Development of the Hazardous Waste Regulatory Program

The Environmental Protection Agency is required by section 3004 of RCRA to establish standards for owners and operators of hazardous waste facilities in order to protect human health and the environment. These standards establish the duties of and provide the basis for issuing permits to the owners and operators of hazardous waste treatment, storage, and disposal (TSD) facilities under section 3005 of RCRA. Therefore, these standards serve not only to regulate the operations of these TSD facilities, but also to provide a basis for evaluating the issuance of these permits.

The Agency has promulgated these regulations in stages. On May 19, 1980 (45 FR 33221), the Agency issued regulations establishing administrative requirements for certain types of hazardous waste management, general provisions for facility owners and operators, permitting procedures for hazardous waste management facilities, and procedures for State program

authorization. On January 12, 1981 (46 FR 2802), the Agency issued regulations establishing technical standards and permitting requirements for certain storage and treatment facilities. On January 23, 1981 (46 FR 7678), and June 24, 1982 (47 FR 27516), the Agency issued technical standards for hazardous waste incinerators. On April 7, 1982 (47 FR 15032), and April 16, 1982 (47 FR 16544), the Agency issued regulations for demonstrating financial responsibility. On July 26, 1982 (47 FR 32274), the

Agency promulgated technical and permitting standards for new and existing TSD facilities on land, including surface impoundments, waste piles, land treatment units, and landfills.

On July 15, 1985 (50 FR 28702), the Agency amended its hazardous waste management rules to codify several statutory changes required by the Hazardous and Solid Waste Amendments of 1984 (HSWA). These changes included revisions to the technical requirements for land TSD

facilities, revisions to the permitting requirements for all TSD facilities, and limitations on the placement of hazardous waste in salt-dome formations, salt bed formations, underground mines, and caves. In addition, these amendments included new rules that allow for the permitting of certain research, development, and demonstration facilities.

These standards are presented in Table 1.

TABLE 1.—FEDERAL RULES PERTAINING TO THE MANAGEMENT OF HAZARDOUS WASTE

| RCRA Code | Description |
|-----------------|---|
| 40 CFR Part 260 | Basic regulatory definitions of what is covered under these standards. |
| 40 CFR Part 261 | Definition of a hazardous waste. |
| 40 CFR Part 262 | Requirements for hazardous waste generators. |
| 40 CFR Part 263 | Requirements for hazardous waste transporters. |
| 40 CFR Part 264 | Establishes the permitting standards in the form of specific conditions for facility operation, design, performance, and location. |
| 40 CFR Part 265 | Establishes operational standards for existing facilities (on or before November 19, 1980) with "interim standards" until the site has obtained a final permit or it loses its interim status because of the provisions outlined under HSWA. |
| 40 CFR Part 266 | Establishes standards applicable to generators and transporters of materials used in a manner that constitutes disposal. This also includes standards for disposal of specific hazardous wastes where hazardous materials are used/recycled for recovery of heat, precious metals, and reclaimed batteries. |
| 40 CFR Part 268 | Sets treatment standards and schedules for prohibition of wastes for land disposal (including surface units, injection wells, salt domes, salt beds, underground mines or caves, or concrete vaults or bunkers). |
| 40 CFR Part 269 | Establishes permitting standards for control and monitoring of air emissions at TSDs. |
| 40 CFR Part 270 | Outlines definitions and basic requirements for RCRA permits. |
| 40 CFR Part 271 | Sets out the guidelines for final approval of State hazardous waste programs that will be used instead of the Agency's program. |
| 40 CFR Part 124 | Establishes the permit process to be followed under several Agency programs. |

B. Summary of the Need for Subpart X

Although the Agency has issued regulations for the major hazardous waste management technologies and practices, gaps still remain. To close the gaps in the RCRA regulations and to cover unregulated hazardous waste management units, on November 7, 1986, the Agency proposed the Subpart X rule. Subpart X covers miscellaneous units and essentially completes the coverage of hazardous waste management units.

Currently, promulgated regulations in 40 CFR Parts 264 and 265 are the primary regulations for many types of hazardous waste management units as defined in § 260.10. These include containers, tanks, surface impoundments, waste piles, land treatment units, landfills, and incinerators. Research, development, and demonstration facilities and underground injection wells are regulated under Part 270 and the Underground Injection Control Program of the Safe Drinking Water Act (40 CFR Part 146), respectively.

The Agency is aware, however, that certain existing and future hazardous

waste management practices and technologies do not or may not fit the description of any of the units covered by the existing regulations. If they do not fit these descriptions, then they cannot be fully permitted and can only operate as interim status facilities. This is not desirable because it prevents the construction of new units or expansion of existing units. For example, thermal treatment of hazardous waste in units other than incinerators, boilers, or industrial furnaces may not be fully permitted because such units are not at present covered by Part 264 or Part 266. This means that existing units with interim permit status under Part 265 may not receive a full Part 264 RCRA permit. In addition, Part 264 permitting standards provide better environmental protection than the interim standards.

The Agency has received a number of requests that standards be issued to allow the construction of new hazardous waste management units not previously covered by Part 264. Furthermore, some types of new units that cannot now be constructed may reduce risks to human health and the environment from the management of hazardous waste.

Therefore, the Agency regards the Subpart X rule as a means of allowing flexibility for technological development and innovation.

C. General Approach and Scope of Subpart X

This regulation covers miscellaneous units not regulated under the standards for specific types of treatment, storage, and disposal units in Part 264 Subparts I through O or Part 146 or Part 270. Because these standards cover both existing and future treatment, storage, and disposal technologies, today's approach is to promulgate a new set of general standards that will cover diverse technologies and units. The Agency may develop specific technology standards in the future, if the need arises.

The Agency is regulating under today's rule most of those units that are not covered by a subpart under Part 264 or Part 146. For example, units that do not fit the definition of any of the units covered by the standards of Part 264 or Part 146 would be regulated as miscellaneous units. In addition, unless otherwise excluded, if a new type of unit

were developed that did not fit the definition of tank, container, surface impoundment, waste pile, land treatment unit, landfill, incinerator, boiler, industrial furnace, or underground injection well, it would be regulated under Subpart X. An example of a miscellaneous unit would be a thermal treatment unit such as a wet-air oxidation device that is not an incinerator or a tank. Another example would be a long-term retrievable storage unit that is not a tank, waste pile, landfill, or other Part 264 unit, or an underground injection well. An example of a unit that will not be regulated under Subpart X, as explained in III.B.2., is open burning of nonexplosive wastes.

Subpart X will not supersede or replace any specific restrictions on activities contained in another subpart or provide a vehicle for escaping from those restrictions. For example, 40 CFR 264.175 stipulates that container storage areas must have a secondary containment system to drain and remove leakage. This requirement may not be evaded by seeking a permit under Subpart X.

Likewise, miscellaneous units permitted under Subpart X that are also defined by RCRA as "land disposal" units (see final rule at 51 FR 40572) may not avoid the Part 268 restrictions on land disposal of untreated or improperly treated hazardous waste. For example, although the use of an underground mine, cave, or formation for the placement of hazardous waste may, under some circumstances, be considered a miscellaneous unit, such a unit would also be subject to the Part 268 land disposal restrictions, since it is defined as "land disposal" by RCRA. Therefore, any hazardous waste subject to land disposal restrictions that is placed into a miscellaneous "land disposal" unit must be treated prior to land disposal in compliance with a treatment standard promulgated under Part 268, unless the owner or operator demonstrates, to a reasonable degree of certainty, that there will be no migration of hazardous constituents from the unit for as long as the waste remains hazardous.

D. Comments Received on the Proposed Rule

The 43 sets of public comments received on the November 7, 1986, proposal generally favored the implementation of Subpart X. The Agency considered all the public comments and categorized them into three general areas to provide a collective response:

- Specificity of Subpart X standards,

- Definition of "miscellaneous unit," and
- Redefinition of "landfill."

General responses to the first two categories appear below. In addition, the Agency discusses certain comments more specifically in later sections of the preamble.

Comments applicable to the redefinition of "landfill" are discussed in Section IV.B of the preamble.

"Background Document: Subpart X Comments and Responses" contains all of the public comments that were received in accordance with the request for comments in the proposal and the Agency's response to these comments. This document is available in the Subpart X docket.

1. Specificity of Subpart X Standards

The Subpart X standards specify that health and environmental safety must be a primary concern during the management of hazardous wastes in miscellaneous units. The standards also require that existing regulations become an integral part of today's Subpart X standards for "miscellaneous" units. The Agency's intention of incorporating existing regulations with general Subpart X standards was the approach generally welcomed by the commenters.

The Agency has concluded that it is best to develop generic standards, not technology-specific standards, because the generic standards can cover a set of diverse technologies effectively. Most commenters have confirmed the need for such an approach. If the Agency developed technology-based standards, the Subpart X rule would not differ from the existing requirements in Parts 264 and 265. For most of the miscellaneous units, insufficient information is available to develop technology-based standards at this time. Even for those units for which there may be sufficient information available to develop technology-based standards, to do so would result in a major delay in permitting these units while standards were developed, proposed, and finalized. Therefore, the Agency chose to develop generic standards after considering the advantages and disadvantages of other approaches, including design and operating standards, technical and environmental performance standards, containment standards, and facility-specific risk assessment. Subpart X provides the Agency with flexibility in regulating miscellaneous units by providing generic permitting standards under Subpart X.

The Subpart X rule allows the hazardous waste management industry flexibility in developing new technologies or modifying existing

technologies. Public comments suggest that certain units, such as open burning/open detonation (OB/OD), physical/chemical/biological treatment units (e.g., pyrolysis, stripping, and in-situ biodegradation), and land-based hazardous waste disposal units (e.g., salt beds, salt domes, and underground mines or caverns), may require technology-specific standards. Some of these technologies are unique methods for managing specific types of hazardous wastes for which no alternative technology exists, and none of the existing permitting standards may be applicable. However, the Agency believes that the generic permitting standards under Subpart X would be just as applicable to open burning/open detonation, physical/chemical/biological treatment units, and land-based hazardous waste disposal units as any other Subpart X unit. Moreover, under Subpart X, the Agency has the flexibility to develop technology-specific standards for these units on a permit-by-permit basis when considering the technology-specific data submitted by the applicant to develop the permit conditions based on the environmental performance standards and to issue a permit.

A significant number of comments were received discussing different hazardous waste management technologies that the commenters considered should be eligible candidates for Subpart X permits. For a few technologies, extensive descriptions were submitted as part of the comment. For example, separate descriptions were submitted for each of these technologies: wet air oxidation, aboveground engineered vaults, enclosed buildings, in-situ biodegradation, in-situ vitrification, and open burning/open detonation of explosive wastes. The information obtained from these comments will be useful when the technology becomes widely used. At that time, the Agency will consider developing guidance or specific standards for those units included as miscellaneous units. As an example, the Agency is developing permit guidance for open burning/open detonation of explosive wastes.

A few commenters objected to the unlimited authority that Subpart X gives a permit writer when permitting a wide range of miscellaneous units. They saw this authority as a possible hindrance to the effective permitting of specific units.

The Agency agrees that there may be some cases in which permit writers must exercise some discretion. However, the Agency is developing permit guidance for certain types of units that will

provide assistance in the permitting process. While this guidance will not be binding on the Agency, and there still may be some permit variations between similar units, we believe that permit guidance will reduce any such variations by providing direction to permit writers and permit applicants, with regard to specific Subpart X technologies. For example, the Agency is developing specific Subpart X permit guidance for OB/OD and geologic repositories other than injection wells. This guidance will explain how to mitigate emissions or releases from these units and thus minimize long-term health and environmental hazards. As more experience is gained, the Agency may develop guidances on other Subpart X units. In addition, the Agency will use the support of EPA's Permit Assistance Teams (PAT) staff to promote nationwide consistency in the issuance of Subpart X permits. The PAT staff can also help the individual permit writer understand unfamiliar technologies.

Some commenters requested clarification on when ground water and/or surface water must be monitored at miscellaneous units. The Agency requires that when applying for a permit, the applicant must assess the potential for release or migration of hazardous constituent(s) to each of the media. Based upon this assessment, a determination will be made as to the type and frequency of monitoring that will be necessary at any specific unit or site.

2. Definition of "Miscellaneous Unit"

"Miscellaneous unit" is defined in the proposed Subpart X rule as a hazardous waste management unit that is used to treat, store, or dispose of hazardous wastes but that does not fit the current RCRA definition of container, tank, surface impoundment, pile, land treatment unit, landfill, incinerator, boiler, industrial furnace, or underground injection well.

Most of the commenters suggested that the Agency should provide a list of technologies or units that can be categorized as Subpart X units. They believed this would avoid confusion over which units should be permitted under Subpart X. If such an all-inclusive list were published with today's rule, however, it would become quickly outdated because new technologies are being developed frequently. In response to commenters' requests, the Agency has provided examples of units in Section III, B.1 and 2, that are covered and not covered under today's rule. Since Subpart X is a catchall category, the list provided here is not all-inclusive and comprehensive.

Commenters also indicated that a definitive listing of all applicable units would circumvent the need for requiring two types of permits (e.g., a tank-like unit would not need both a tank permit and a Subpart X permit). They claimed that obtaining two permits is very costly and time consuming and often duplicates efforts. The Agency does not intend to require two permits for any miscellaneous unit. Under the regulatory approach selected today, a Subpart X permit would be issued for the miscellaneous unit, which may include certain requirements that are specific to other types of units. For example, for a miscellaneous unit resembling a tank, a Subpart X permit would be issued that would include certain of the Subpart J tank standard requirements.

3. Redefinition of "Landfill"

Comments applicable to the redefinition of "landfill" are discussed in Section IV.B of the preamble.

III. The Agency's Approach

A. Alternative Approaches Considered

In preparing the proposed Subpart X rule, the Agency considered a number of regulatory approaches. The Agency selected a combination approach since no singular approach was best suited to protect human health and the environment while still providing flexibility in addressing the diversity of waste management units included in Subpart X. Under this approach, appropriate elements of design and operating standards, technical performance standards, containment standards, facility-specific risk assessment, and environmental performance standards will be applied to miscellaneous units on a case-by-case basis. This approach will result in less delay by providing permitting standards for those miscellaneous units for which sufficient data are not available to develop more specific standards. The alternative approaches considered were design and operating standards, technical performance standards, containment standards, facility-specific risk assessment, environmental performance standards, and a combination of these approaches.

1. Design and Operating Standards

Design and operating standards would require the installation of specific equipment or the use of particular processes. These standards would be process- and unit-specific.

The majority of commenters favored these standards, since many were interested in obtaining specific requirements for their units. The Agency

determined that preparing these standards would be resource-intensive because it would need to collect extensive data on each specific type of unit. In addition to collecting the data, the Agency would need to develop a proposed rule and promulgate a final rule which would also greatly delay the permitting of miscellaneous units. Therefore, this approach would be a detriment to the development of innovative technology, since owners or operators would need to wait for EPA to promulgate new rules before applying for a permit.

Under today's approach, all miscellaneous units will be permitted under the general standards of Subpart X. Nevertheless, in the future, the Agency may develop specific design and operating standards for the various types of units, when there is a better understanding of the technology, process efficiency, and process safety needs.

One commenter who disagreed with the Agency, believed that the design and operating standards (or technical performance standards) for Subpart X units would be easy to implement. In contrast, another commenter agreed with the Agency's decision *not* to propose specific design and operating standards for miscellaneous units, because it would be impossible to regulate a new technology by predetermined design and operating standards that may or may not be appropriate for the individual unit in question. In addition, he further claimed that these predetermined standards could be more or less stringent than necessary to protect human health and the environment.

The majority of the commenters were concerned about the lack of specific design and operating standards for OB/OD facilities. They feared that omitting specific standards may lead to extensive delays and considerable expense in the permitting process. They were concerned that they may not be able to address completely the permit reviewers' requirements and may have difficulty obtaining a permit.

After reviewing the comments, the Agency believes that the promulgation of unit-specific design and operating standards is not necessary at this time. The generic standards, in conjunction with the permit guidance under development for OB/OD units, should provide sufficient information to develop permits without excessive delays. Moreover, the Agency is uncertain whether it possesses sufficient information to promulgate specific design and operating standards for OB/

OD units. Even if it had such information, the process of developing, proposing, and promulgating unit-specific standards for these units would cause major delays in issuing permits for these units. At some later date, the Agency may decide to develop specific design and operating standards for these units.

2. Technical Performance Standards

This regulatory approach would establish specific engineering objectives and allow the permit applicant to develop a design or set of practices to achieve these objectives.

One commenter indicated that it is difficult to define technical performance standards, since the technologies and associated "engineering objectives" will be continually refined. Another commenter suggested "establishing performance standards whereby a treatment operator would be required to demonstrate a degree of minimal acceptable variability in a treated product with respect to constituents of concern." A third commenter stated that the Agency should determine performance capabilities and establish specific levels of performance for thermal treatment devices (e.g., pyrolysis, calcination, wet-air oxidation, and microwave destruction). The Agency agrees with the first commenter mentioned above and has decided not to use this approach, because the specificity of the engineering objectives contained in technical performance standards could make permitting extremely difficult for miscellaneous units involving innovative technologies.

In response to the second commenter, the Agency agrees that certain technical performance standards could be developed to protect human health and the environment, however, a single set of these standards in all likelihood may not be suitable for all of the diverse types of miscellaneous units. Second, other than for possibly one or two technologies, the development of all technology-inclusive technical performance standards is not feasible because of (a) the lack of adequate data for setting standards and (b) the continued development of new technologies. In response to both the second and third commenters, for those units for which there possibly is sufficient information available to develop technical performance standards, these units could be excluded from the Subpart X rule. However, to do so would result in several years' delay in permitting these units while the standards are being developed, proposed, and finalized. However, in the future, specific standards may be

developed for certain types of units when adequate data become available.

One commenter proposed setting waste-specific standards rather than technical performance standards. The Agency rejected this suggestion, since waste-specific standards would create the same problems as discussed for the technical standards for innovative technologies. Moreover, insufficient data are available to develop waste-specific standards. As more information becomes available, however, the Agency may consider developing such standards.

3. Containment Standards

Another approach the Agency considered was the development of performance standards requiring containment of hazardous waste within certain boundaries. While such an approach may prevent environmental contamination under some hydrogeological conditions, the Agency is concerned that it may only delay contamination in others. In addition, absolute containment in all media may not always be necessary to protect human health and the environment.

The Agency did not receive any support for this approach or any suggestions as to how this approach could be used for miscellaneous units. On a case-by-case basis, however, some permits issued under today's rule may be based on containment (for example, the containment features achieved by the design and operating standards for landfill units), such as liners and barriers or a combination of containment features and geological siting considerations.

4. Facility-Specific Risk Assessment

The Agency's evolving policy is to assess more explicitly the risks involved in its permitting and regulatory decisions. Under a facility-specific risk assessment regulatory approach, the permit applicant would be required to perform fate and transport analyses and human health and environmental risk assessments based on the RCRA goal of protecting human health and the environment. However, since the costs of risk analyses could be extremely high for miscellaneous units, and since the data available for estimating risks from Subpart X units are limited, this approach was not considered feasible as a sole regulatory approach.

Three commenters responded to this approach. They thought that facility-specific risk assessment would be expensive, time-consuming, inconclusive, and difficult to implement. In addition, they stated that there may not be enough data available to make

valid risk assessments. One commenter suggested that a comprehensive risk analysis should be required only when specific standards for other permitted operations or processes (e.g., wastewater discharges, air emissions) are unavailable.

The Agency agrees that using risk assessment as the sole approach is not appropriate for many of the same reasons identified by the commenters.

Today's approach assesses the risks from various releases and the potential emissions of hazardous constituents in a general way. Based on the assessment data submitted with a permit application, specific design and operating standards to mitigate the site-specific risks could be identified and incorporated during the permitting process.

5. Environmental Performance Standards

Environmental performance standards seek to set either the numerical health and environmental standards or the nonnumerical performance requirements necessary to protect human health and the environment. These standards may take the form of numerical exposure specifications (such as the allowable concentration of a chemical at the points of human exposure), pollutant concentrations permitted to be released to the environment, or general objectives or goals to serve as a guide for protecting human health and the environment.

The Agency views environmental performance standards as the most important feature of today's rule for new and existing miscellaneous waste management units. For example, existing environmental performance standards for air and water may be utilized, as appropriate, in permitting a facility. Section 3005 of RCRA requires that standards applicable to owners and operators of treatment, storage, and disposal facilities be those "necessary to protect human health and the environment."

If this approach was selected as the sole approach, however, then it might be difficult for permit applicants of certain types of miscellaneous units to consistently demonstrate compliance with these standards. For example, with the open burning/open detonation technology, emissions monitoring is not feasible. Thus, it would be difficult to demonstrate compliance with an established performance standard. For the same reason, enforcement of these standards for certain units might be difficult. In addition, this approach was not selected as the sole approach

because the existing performance standards for air and water do not address all constituents of concern under RCRA Subtitle C.

One commenter questioned the need for special performance evaluations under Subpart X. This commenter noted that air emissions and effluent standards are now required for more conventional technologies that could be applied to most Subpart X thermal, chemical, and biological treatment units, with the exception of open burning/open detonation of explosive wastes. In addition, the commenter asserted that treatment standards for the land disposal restrictions will apply to Subpart X units and, therefore, should reduce requirements for special operating and environmental standards.

The Agency disagrees with these comments. EPA foresees the need for special performance evaluations because the existing air and water standards, when applied to certain Subpart X units, may provide inadequate protection to human health and the environment since they do not address all constituents of concern under RCRA Subtitle C. As stated earlier, the existing applicable standards and any additional requirements specific to a given unit will minimize the health and environmental risks. Environmental performance standards as a part of today's approach allow flexibility in meeting goals for the protection of human health and the environment. The flexibility offered by this approach is needed in Subpart X because of the variability of miscellaneous units.

6. Combination of Approaches

This approach combines the appropriate elements of all five previously discussed alternatives, and applies them on a case-by-case basis. Several commenters supported this approach as providing flexibility for innovative technologies. One commenter, however, stated that the units included in Subpart X were so diverse that one general rule may be difficult to apply. But the Agency believes that the diversity of existing units and the need to include potential future technologies necessitate a general rule that can be applied on a case-by-case basis.

B. Selected Approach for Subpart X Standards

After evaluating the various alternatives, the Agency selected the proposed combination approach without modification for today's rule for miscellaneous units. This approach is based on appropriate elements of all

five alternatives discussed above and will be applied to miscellaneous units on a case-by-case basis. Under this approach, miscellaneous units will be required to be located, designed, constructed, operated, maintained, and closed in a manner that will prevent any release that may have adverse effects on human health or the environment due to migration of waste constituents into the ground water or subsurface environment; surface water, wetlands, or soil surface; or air.

The Agency has decided to use Subpart X standards to regulate all units that are not currently included elsewhere under RCRA. These include, but are not limited to, (a) placement of hazardous waste in geologic repositories other than injection wells; (b) placement of hazardous wastes in deactivated missile silos, other than injection wells or tanks; (c) thermal treatment units other than incinerators, boilers, or industrial furnaces; (d) units open burning and open detonating explosive wastes; and (e) certain chemical/physical/biological treatment units. The units that are excluded from Subpart X include: (a) units currently regulated under other portions of Part 264; (b) units open burning nonexplosive hazardous wastes; (c) units excluded from permitting under Parts 264 and 270; (d) certain mobile units; (f) enclosed buildings for treatment, storage, or disposal; (e) underground injection wells (40 CFR 146); and (g) RD&D units covered under 270-65.

Units covered under today's rule will comply with standards that provide performance objectives for protection of human health and the environment. The performance objectives require permit applicants to evaluate the potential environmental impacts of the unit or facility and to demonstrate that any releases from the unit will not adversely affect human health or the environment.

For technologies where (1) a particular hazardous waste management system resembles another type of unit for which EPA has promulgated standards and (2) the permit applicant has identified the differences between the potential effects on human health and the environment posed by the two units, the use of site-specific design, operating, monitoring, and containment procedures modified to account for the differences must be developed and, therefore, will be required parts of the facility permit. Generally, these standards will be drawn from existing regulatory requirements and guidance documents, as well as permit guidance being developed for specific types of miscellaneous units. For units that do not resemble another type of unit, the

applicant must still address the unit's effect on all media, and, where appropriate, specific requirements applicable to other types of units will be added to the facility permit.

In the permitting process, selected features of design and operation, technical performance, containment, and environmental performance standards, as well as the risk-based assessment, will be specified, so that the overall objective of protecting human health and the environment is achieved. Determination of the appropriate requirements will be made on a case-by-case basis and the rationale for their applicability will be provided in each permit. In certain cases, the design and operation of a Subpart X unit may resemble that of a specific type of unit now regulated under RCRA (e.g., a landfill). To the extent that they are similar, the appropriate requirements under the existing unit-specific subparts will be applied. For example, for some units, liners may be specified.

The regulatory approach finalized today by the Agency offers several advantages. First, it allows the Agency to address a full range of environmental issues raised by any waste management situation without waiting to establish specific design and operating conditions or other standards. By identifying several sets of environmental performance standards in today's rule, the Agency allows development of waste- and site-specific permits responsive to various ground-water, surface water, and air quality concerns, as well as complex natural processes in the surface and subsurface environments that may arise at each site. The Agency will also apply the authority of section 3005(c)(3) "omnibus" to other Part 264 hazardous waste management units as necessary to protect human health and the environment.

Second, for those Subpart X units requiring compliance with the standards developed for a specific medium, appropriate portions of the existing standards will be incorporated into the permit as required by today's rule. For example, in regulating air emissions from pyrolysis units, the Agency will incorporate the applicable portions of existing standards (e.g., incineration standards for meeting the air quality standards).

The Agency has concluded that it is not possible to set design and operating standards for all of the potential Subpart X units, since a variety of units will be covered by today's rule. One set of standards either will not be stringent enough or will be excessively stringent

when applied to these diversified technologies. Subpart X will cover a number of technologies for which little or no information is available; hence, the Agency's decision not to set technology-based standards. However, the site and unit-specific information submitted during the permitting process for individual units will allow the permit-issuing authority to tailor each permit to the particular risks and circumstances based on the nature of the technology, the types of wastes, the site location, and the regional meteorological, climatic, and hydrogeological characteristics. For example, in the case of innovative technologies, data collected under a RD&D permit may be submitted when risk assessment data are not available.

A comprehensive evaluation as required by today's rule will provide assurance that the permitted miscellaneous unit poses a minimal environmental threat. However, situations may arise when the Agency must deny a permit or defer a decision until additional data become available. Under certain circumstances, to obtain the additional data, a research, development, and demonstration permit might be appropriate. In cases where the permit application must be denied, the Agency will follow the procedures for the Notice of Deficiency (NOD) under 40 CFR 124.3.

The major disadvantage of the proposed approach is that the bulk of the design, construction, operation, monitoring, and closure specifications will be developed and specified through the permit process. As discussed above, the Agency will review and adopt or modify relevant requirements from Subparts I through O of Part 264, as appropriate. As more permitting or research experience and knowledge are gained, the Agency may develop guidances for specific types of facilities to aid the permit applicant and writer (e.g., the Agency is preparing guidance on open burning and open detonation of explosive wastes and on emplacement of wastes in certain massive geologic formations such as salt domes). In addition, the Agency will provide assistance to a permit applicant or writer.

1. Examples of Units Covered Under Subpart X

Because the Agency intends Subpart X to cover "miscellaneous" units, including future technologies, a definitive list of the units that will be covered under the subpart cannot be provided. However, the Agency agrees that it will be helpful to identify several

types of units that may receive permits issued under Subpart X.

a. *Placement of Hazardous Waste in Geologic Repositories.* Placement of containerized hazardous waste or bulk non-liquid hazardous waste in geologic repositories such as underground salt formations, mines, or caves, either for the purpose of disposal or long-term retrievable storage, is included under Subpart X. Clarification of units that are regulated under the RCRA permit-by-rule for injection wells with Underground Injection Control permits is included in III B.2.(e) of the preamble.

Restrictions on land disposal of hazardous waste imposed by sections 3004(d) through (m) of RCRA apply to these units. These standards dictate that restricted hazardous wastes cannot be disposed of on land beyond specified dates, unless they are treated in compliance with Agency-established treatment standards or unless EPA grants a variance that demonstrates that there will be no migration out of the unit for as long as the wastes remain hazardous.

b. *Placement of Hazardous Waste in Deactivated Missile Silos.* Treatment, storage, and disposal of hazardous waste in deactivated missile silos that are not underground injection wells or are not covered under Part 264 standards will be covered under Subpart X. However, to the extent that the deactivated missile silo meets the regulatory definition of an injection well or tank it would be regulated under 40 CFR Part 146 or Part 264, respectively. Clarification as to units that are regulated under the RCRA permit-by-rule for injection wells with Underground Injection Control permits is included in III B.2.(e) of the preamble.

c. *Thermal Treatment Units Other Than Incinerators.* A number of different types of thermal treatment units, including combustion and noncombustion types, are in operation today and have potential application to hazardous waste treatment. Combustion and noncombustion units such as molten salt pyrolysis, calcination, wet-air oxidation, and microwave destruction, which are not covered under Part 264 Subpart O regulations will be covered under Subpart X. Many of these units have not yet operated on a commercial scale, but owners of some of these units are expected to seek RCRA hazardous waste facility permits for commercial operation in the future.

d. *Open Burning/Open Detonation of Explosive Wastes.* These units (as defined in § 265.382) are neither typical thermal treatment units nor incinerators. The Agency promulgated interim status

standards applicable to open burning and open detonation units in Subpart P of Part 265 (§ 265.382 on May 19, 1980 (45 FR 33251)). These standards require (1) that units be operated in a manner that does not threaten human health and the environment and (2) that a minimum safe distance from other properties be maintained when waste explosives are disposed of by open burning or open detonation. Permitting of hazardous waste management units for open burning or open detonation of waste explosives is covered in the Subpart X rule. When upgrading existing units or permitting new units, the applicable portions of Part 265 Subpart P standards (e.g., minimum safe distances) will be incorporated during issuance of Subpart X permits. Because OB/OD is a treatment process, it is not subject to the land disposal restrictions imposed by sections 3004 (d) through (m) of RCRA.

e. *Certain Chemical, Physical, and Biological Treatment Units.* Hazardous waste management units that treat hazardous waste by chemical, physical, or biological methods in units other than tanks, surface impoundments, and land treatment units during interim status are covered under Subpart Q of Part 265. The Subpart X regulations of Part 264 and the applicable portion of Subpart Q of Part 265 will be considered in permitting these units. Under the land disposal restrictions, no *in-situ* hazardous waste treatment on land will be permitted (without the *prior* use of a best demonstrated available technology (BDAT) for treatment). Therefore, none of the *in-situ* treatment methods will be Subpart X units/technologies.

2. Examples of Units Not Covered or Units for Which Subpart X Permits Will Not Be Issued

a. *Treatment, Storage, and Disposal in Units Currently Regulated Under Part 264.* Under today's rule, treatment, storage, or disposal in units now regulated under Part 264 may be permitted only under the applicable subparts of Part 264. For example, placement of hazardous waste in a tank or surface impoundment for treatment is covered under Subpart J or Subpart K, respectively, and disposal of hazardous waste in a tank is covered under Subpart N, and must be permitted using those standards.

b. *Open Burning of Nonexplosive Hazardous Waste.* Although by its terms Subpart X applies to all units not covered under Part 264, including open burning and open detonation of nonexplosive hazardous waste, the Agency has concluded that open burning of such non-explosive waste cannot be

conducted in a manner that is protective of human health and the environment. The Agency made this finding in 1980 in promulgating the general ban on open burning of nonexplosive hazardous waste (40 CFR 265.382) and has no new information to suggest this conclusion should be revised. The Agency, therefore, intends to deny any permit applications it receives under Subpart X for such activities.

c. Units Excluded From Permitting Under Parts 264 and 270. Certain units are specifically excluded from permitting under the Part 264 and Part 270 standards. For example, publicly owned treatment works and ocean disposal activities are not permitted under Part 264 standards, since they are covered by permits-by-rule (see 40 CFR 264.1 (c) and (e)). Another example is operation of a wastewater treatment unit (40 CFR 264.1(g)(6)). These units continue to be excluded from Part 264 standards and would not be subject to Subpart X.

d. Mobile Units. Mobile waste management units are becoming available and may be used for treatment of hazardous wastes as part of a general waste treatment strategy or on a short-term basis to destroy specific wastes for remedial site cleanup, spill control, and other types of emergency responses. These units are presently regulated under 40 CFR 264 and 270, and certain changes to the permit requirements have been proposed and are currently being evaluated by the Agency. These units may also be involved in research, development, and demonstration activities and, as such, may be covered by a research, development, and demonstration permit.

Mobile units using technologies that are covered under other subparts of Part 264, such as incineration or treatment in containers, are excluded from Subpart X. However, those units included in Section IIIB.1., which are mobile, are covered under today's rule.

e. Placement of Hazardous Waste Underground That Is Currently Regulated Under Part 146. RCRA Subpart X permitting will not apply where EPA has an existing permit program which addresses the particular hazardous waste management practice. It is thus necessary to outline those waste management practices currently covered by the underground injection control (UIC) program. Hazardous waste injection is regulated under the authorities and mandates of both the Safe Drinking Water Act (SDWA) and RCRA. Wells must have authorization under both acts to operate. Authorization-by-rule under 40 CFR 144.21 or a UIC permit under 40 CFR 144

Subpart D provides the SDWA authorization for hazardous waste wells. Interim status under 40 CFR 265.430 or a RCRA permit-by-rule under 40 CFR 270.60(b) provides the RCRA authorization. This permit system is in place for the injection in bulk form of liquids, slurries, and sludges. Technical standards for these practices are in 40 CFR Part 146.

These current technical standards, however, do not fully address some potential disposal or storage practices that may fall under EPA's regulatory definition of well injection. EPA defines "well injection" in 40 CFR 144.3 and 146.3 as the "subsurface emplacement of fluids through a bored, drilled or driven well; or through a dug well, where the depth is greater than the largest surface dimension." EPA defines "fluids" in 40 CFR 144.3 and 146.3 as "material or substance which flows or moves whether in a semisolid, liquid, sludge, gas or any other form or state."

A broad reading of these definitions might suggest that granular hazardous waste poured into a salt dome, for example, would be within the scope of the UIC program. The very recent opinion in *NRDC v. EPA*, Cons. Cases No. 85-1915 and 86-1096 (1st Cir., July 17, 1987) contains language suggesting extremely broad interpretations of the scope of the UIC program. This opinion remands regulations for the disposal of high level radioactive waste, spent nuclear fuel, and transuranic wastes at 40 CFR Part 191 which were promulgated under the mandates of the Nuclear Waste Policy Act of 1982 (NWPAct) and the authority of the Atomic Energy Act of 1954. Some of the legal analysis, however, concerns interpretations of "well injection" and "fluids" under the SDWA. The opinion suggests that containers or solids lowered down a shaft would be "well injection" of "fluids" if contaminants in this material might ultimately "flow" or move into the accessible environment (Slip-Opinion at page 29). The court was particularly concerned that EPA had not evaluated the relationship of the SDWA and NWPAct.

We are currently evaluating the legal analysis in this opinion and will address the specific issues of these definitions at a later date. However, EPA believes that it can address the issue of RCRA Subpart X and UIC permitting at this time for the range of long-term retrievable storage and disposal practices. Part 146 technical standards do not currently address practices other than the injection of noncontainerized liquids, slurries, and sludges. Other management practices, such as the placement of containerized wastes or

solids, would require standards on a case-by-case basis. EPA intends the environmental objective for these latter practices to be the same, such as will meet the requirements of the SDWA and RCRA, whether a particular practice is termed to be "underground injection" or not. Specifically, in the context of this regulation, the Agency intends to apply the mandate of the SDWA to prevent the endangerment of underground sources of drinking water, as is consistent with RCRA's mandate to protect human health and the environment.

This final rule provides that the Director apply standards for these miscellaneous management practices through the RCRA Subpart X permit. RCRA permit procedures provide at least as much public participation as the UIC permit procedures and are thus, a fully appropriate vehicle to impose standards whether solely under the authority of RCRA or under the combined authority of RCRA and the SDWA (See 40 CFR Part 124). The final rule, therefore, contains amendments to 40 CFR Part 144.31 which requires that a Subpart X permit will constitute a UIC permit for hazardous waste well injection for which current Part 146 technical standards are not generally appropriate. In promulgating this amendment to § 144.31, we are not specifying that these miscellaneous management practices constitute underground injection, but rather, to the extent any of these practices may be determined to be underground injection § 144.21 will authorize a facility under the SDWA if the unit has a RCRA Subpart X permit.

The above permitting scheme does not, in and of itself, remove the restrictions on the placement of noncontainerized or bulk liquid hazardous waste in any salt dome formation, salt bed formation, underground mine, or cave under section 3004(b)(1). That provision requires the Administrator to find, after notice and opportunity for hearings on the record in the affected areas, that such placement is protective of human health and the environment to remove the prohibition. "Fluids" under the UIC program are "liquids" under § 3004(b) when they do not pass the Paint Filter Liquids Test contained in Method 9095 of the "Test Method for Evaluating Solid Wastes, Physical/Chemical Methods" [EPA Publication No. SW-8461].

f. Enclosed Buildings Used for Treatment, Storage, or Disposal. The Agency is considering under separate action the appropriate mechanism to permit activities in enclosed buildings.

While this does not rule out the possibility that these units could be permitted under Subpart X, no decision has been made at this time.

g. *Research, Development, and Demonstration (RD&D) Units Covered Under § 270.65.* The purpose of an RD&D permit is to allow for testing and demonstration of innovative and experimental technologies, including the modification of existing technologies. If a unit meets the requirements of an RD&D permit under § 270.65, then that unit will not be eligible for a Subpart X permit.

IV. Amendments to Part 260: Definitions

After evaluating the public comments and current definitions of Part 260, the Agency has added a new definition for "miscellaneous unit," and has amended the "landfill" definition.

A. Miscellaneous Unit

Today the Agency defines the term "miscellaneous unit" to refer to hazardous waste management units used to treat, store, or dispose of hazardous wastes that do not fit the current definition of container, tank, surface impoundment, pile, land treatment unit, landfill, incinerator, boiler, industrial furnace, underground injection well with appropriate technical standards under 40 CFR Part 146, or unit eligible for an RD&D permit under § 270.65.

None of the commenters suggested specific definitions for "miscellaneous unit." They did, however, address several units or processes that they believe should or should not be included as miscellaneous units. One commenter stated that the definition of "miscellaneous unit" is too broad and that the Subpart X standards along with this definition may further encumber the already overburdened RCRA permitting process. On the other hand, another commenter indicated that the definition of "miscellaneous unit" is adequate, provided the existing expansive definition of "landfill" is appropriately limited.

Two commenters requested clarification. One suggested that enclosed buildings should not be considered waste piles or tanks and, therefore, should be considered miscellaneous units. The other stated that clarification is necessary to avoid possible confusion between open burning/open detonation units and waste piles and other types of units.

An additional commenter suggested that "open burning," as defined in 40 CFR 260.10, does not accurately define the nature of the reaction that occurs at facilities treating explosive wastes.

Another commenter proposed that the definition of "open burning" be amended to include "detonation" and "deflagration." A few commenters suggested that the Agency define the types of wastes that can be burned or detonated in open burning/open detonation units.

In general, it appears that some of the commenters believe that a clear definition and understanding of "miscellaneous unit" is essential to meet applicable permitting requirements under Subpart X without undue delays. Second, commenters requested a definitive list of units, processes, or technologies that can be considered "miscellaneous units" under Subpart X in order to minimize any confusion in the permitting process that may result from this regulation.

Through both the definition and the discussion in this preamble, the Agency has made it clear what is meant by a "miscellaneous activity" and what units can be eligible candidates for Subpart X permits. The Agency concluded that by making the definition of "miscellaneous unit" broad, it allows the owner or operator and the regulatory authority to incorporate all types of units not previously covered under Part 264. In the preamble, we have attempted to further clarify the types of units that are covered and not covered under Subpart X by giving various examples under each category. However, an all-inclusive list of units covered by Subpart X is not provided. To do so would require amending the regulation each time a new process is developed. This would greatly delay the permitting of such units.

B. Landfill

Today's rule defines "miscellaneous unit" as a catchall category. Previous to today's change, landfills as defined in 40 CFR 260.10 covered certain units that did not fit within the definition of other land disposal units. Under that provision, "landfill" meant "a disposal facility or part of a facility where hazardous waste is placed in or on land and which is not a land treatment facility, a surface impoundment, or an injection well." Therefore, "landfill" was a catchall category for all disposal facilities that did not meet the definition of a land treatment facility, a surface impoundment, or an injection well. The use of the term "miscellaneous unit" as the catchall category requires redefining "landfill" so as to limit it to a discrete category of specific units covered under Subpart N of Part 264. Therefore, in the Subpart X proposal, the Agency requested comments on how to clarify

the landfill definition such that it no longer constituted a catchall category.

After considering all of the comments received on this issue, the Agency has decided to define the term "landfill" similar to the definition in § 260.10 with a few minor modifications. Under today's rule, the Agency has defined the term "landfill" to mean a disposal facility or part of a facility where hazardous waste is placed on or in land and which is not a land treatment facility, a surface impoundment, an injection well, a pile, a salt dome formation, a salt bed formation, a cave, or a mine.

In the proposed rule, the Agency requested comments specific to the redefinition of "landfill". After a careful review of all the comments, the Agency decided not to significantly change the previous "landfill" definition but rather to clarify those units that are classified as "landfill" facilities.

A significant number of comments were received on the proposal to revise the existing "landfill" definition. The majority of these comments addressed the adequacy of the proposed goal to identify more precisely the types of waste management practices included within this category. The Agency has accomplished this goal by listing additional practices that are either included in or excluded from the definition.

A "disposal facility", as defined in § 260.10, means a facility used for intentional placement, where waste will remain after closure. This distinguishes storage and treatment in tanks from disposal facilities. However, it also allows the placement of wastes in tanks and vaults used for disposal provided the unit meets the landfill standards.

The new "landfill" definition provides that piles are not landfills. When "landfill" was defined in 1980, it was clearly the intent of the Agency to exclude piles. By amending our landfill definition to reflect this fact, we are simply clarifying the scope of the definition.

In the 1984 Hazardous and Solid Waste Amendments (HSWA) to the Solid Waste Disposal Act, Congress recognized salt dome formations, salt bed formations, caves, and mines as separate types of hazardous waste facilities or units and in section 3004(b) directed the Agency to develop standards for these units. If these units were already covered by the landfill standards, this would be unnecessary. Similarly, under section 3004(k) of HSWA, the types of units covered by the land ban are separately listed as landfills, salt dome formations, salt bed

formations, underground mines, caves, etc. Clearly, Congress did not intend that these units be covered by the term "landfill."

"Landfill" will cover tanks or vaults used for disposal of hazardous waste. Subpart J of Part 264 only regulates storage and treatment in tanks and the Agency to date has not developed specific standards for disposal of hazardous waste in tanks. However, under limited circumstances, the Subpart J standards do allow treatment or storage tanks that cannot remove all contamination at closure to close and to perform post-closure care in accordance with the closure and post-closure requirements for landfills. Disposal in tanks will be regulated under the Subpart N standards as a landfill because "landfills" and the disposal of hazardous waste in tanks raises similar human health and environmental concerns and because tanks are similarly placed on or in the land. This does not result in a change in the way tanks used for disposal are regulated, since previous to today's rule the landfill category constituted a catchall category for disposal units not regulated elsewhere.

By changing the "landfill" definition, the Agency has not changed the status of those facilities that were previously considered to be "landfills". Rather, the change has clarified the previously described scope of the definition. Consequently, this change has not reduced the scope of facilities covered under either the land ban provisions of section 3004(d) of HSWA or the minimum technology requirements of section 3004(o) of HSWA.

V. Amendments to Part 264: Subpart X Regulation for Miscellaneous Units

The regulations promulgated today under 40 CFR Part 264 apply to miscellaneous waste management units that are used to treat, store, or dispose of hazardous waste. Conforming changes to accommodate the addition of Subpart X are provided for in Part 264, Subparts B, E, F, G, and H. These changes merely serve to make the general requirements of Part 264 applicable to miscellaneous units.

The Agency intends the general facility requirements of Part 264, Subparts A through E, G, and H, to apply to miscellaneous units. In addition, although the Agency made an oversight in the proposed rule, under today's final rule the corrective action requirements of section 3004(u) that were codified at 40 CFR 264.101 automatically apply to miscellaneous units. The Subpart F ground-water protection requirements will apply

somewhat differently to miscellaneous units compared to the conventional types of units. For miscellaneous units, Subpart F requirements under § 264.101 for corrective action will always apply. However, the requirements under § 264.91 through 264.100 for monitoring and response action programs apply only to those units that have a potential for contamination of ground water. These standards will apply on a case-by-case basis through the new § 264.602, which is explained below.

It should be noted that the term "Director" has been substituted for "Regional Administrator." "Director" means the Regional Administrator or the State Director in an authorized State, as the context requires. This change conforms to the terminology selected for use in other recent amendments to the hazardous waste management regulations.

The promulgated standards for miscellaneous units are discussed below, section by section.

A. Section 264.600—Applicability

This section limits the applicability of the regulations of Subpart X to owners and operators of miscellaneous hazardous waste management units. By using the term "miscellaneous," this section incorporates the definition of "miscellaneous unit" from § 260.10.

B. Section 264.601—Environmental Performance Standards

The most important features of the regulations for new and existing miscellaneous waste management units are the environmental performance standards set forth in § 264.601. Section 3004 of RCRA requires that standards applicable to owners and operators of treatment, storage, and disposal facilities be those "necessary to protect human health and the environment." In § 264.601, the Agency has translated this overall goal into a set of objectives that provide a guide for owners and operators of miscellaneous units and for permit writers. Those objectives are to protect ground water, surface water (including wetlands), air quality, and soil, which are the principal pathways for migration of hazardous constituents to receptors. While each of these objectives must be addressed in the permit, a permit may not need to specify conditions that protect each of these environmental media.

Most of the commenters suggested that the environmental performance standards, if made unit-specific, would aid in protecting human health and the environment from releases of contaminants. Other commenters objected to the requirement for detailed

ground-water, surface water, and air quality assessments, especially for facilities using technologies where it is unlikely that the waste or its constituents would come in contact with water, soil, or air media. As stated in the preceding paragraph, an assessment must be conducted for each medium, however, if the assessment shows that there will be no impact on a given medium; the permit need not specify conditions to protect that medium.

Another commenter said that these standards are geared to toxic wastes. The commenter further indicated that, in the case of explosive wastes, there will be a poor fit between these regulatory requirements and a particular unit. The commenter stated that ground-water migration is unlikely during open burning of explosive wastes. The performance standards require that an assessment be conducted for each of the media. If the assessment shows that, in this case, ground water will not be impacted, then the permit need not specify conditions to protect the ground water.

The Agency, however, does not feel that it is appropriate to promulgate specific environmental performance standards at this time. Given that miscellaneous units will be regulated by issuing individual permits that are unit- and site-specific, human health and the environment can be protected without being overly stringent in some cases and/or too lenient in others. It is expected that the unit-specific environmental performance standards defined in Subparts I through O will provide baseline, acceptable protection and, at the same time, will allow flexibility in issuing case-by-case variation during the permitting under the Subpart X regulation. In addition, the Agency is developing unit-specific guidance for certain units and may, in the future, provide additional technology-specific guidance, if necessary.

The Agency does not view § 264.601 as a set of specifications that will directly apply to all owners and operators of miscellaneous units. Rather, § 264.601 provides a general set of objectives that will guide the permit applicant (owner or operator), the Agency, and the public in evaluating the acceptability of each unit and the adequacy of the unit design and operation to mitigate risk. The permit applicant is expected to propose the specifications for location, design, construction, operation, monitoring, maintenance, closure, and, where appropriate, post-closure care based on

supporting data and information on the specific unit.

Detailed analysis of each factor in § 264.601 may not be necessary in a permit application, depending on its relevance to the type of unit under consideration and the associated health and environmental risks. For example, certain completely enclosed biological, physical, or chemical treatment units may not require permit conditions imposing monitoring requirements for air or ground water. On the other hand, specific thermal treatment units covered under this subpart may require extensive air monitoring. All of the factors identified in § 264.601, however, should be considered and their relevance should be addressed in the application.

Based on the information about the environmental impacts, specific conditions beyond those suggested by the applicant may be included by the Agency in the permit. Once issued, the permit governs where a unit is to be located and how it is to be designed, constructed, operated, monitored, maintained, and closed.

Few comments were received on each environmental medium—e.g., ground-water migration, surface water and soils, and air. The majority of commenters elaborated on their concerns related to the hazard assessment and the need for controls under the broad category of environmental performance standards. The commenters indicated that they favored development of Subpart X permitting standards because they provide flexibility for developing unit- and/or site-specific assessments of contamination of specific media in the permitting process.

The Agency below discusses what factors should be considered by applicants and permit writers in assessing the potential for adverse effects on each medium. These factors include the type of waste managed, the types of technologies, the types and quantities of emissions or releases, and the extent of migration or dispersion of the waste in various media. The permit applicant must submit information on these assessments, which must be included in the permit in order to be considered as a complete permit application. These assessments must be in sufficient detail to support the applicant's position in demonstrating minimal impact and/or minimizing adverse impacts on each medium.

1. Ground-Water and Subsurface Migration

Section 264.601(a) lists several factors to be considered to prevent any release

that may have adverse effects on human health or the environment due to migration of waste constituents in the ground water or subsurface environment. These factors must be addressed to prevent ground-water contamination and the subsurface migration of hazardous waste from miscellaneous units (e.g., geologic repositories and hazardous waste management units that are placed in or on land).

The first factor includes the volume, concentration, and physical and chemical characteristics of the waste placed in the unit. The volume and concentration determine the maximum amount and concentration of waste that may enter the ground water. Physical and chemical characteristics determine (1) the toxicity of the waste; (2) the ability of the waste to be contained, immobilized, degraded, or attenuated or to migrate in various soils and materials; and (3) the probability of undesirable reactions taking place among wastes or between wastes and liners or other containment structures.

The second, third, and fourth factors are the hydrogeologic characteristics of the site and surrounding land, the existing ground-water quality, and the quantity and direction of ground-water flow, respectively. Because these three factors affect the movement of waste constituents in the subsurface environment, they are crucial in assessing the impact on human health and the environment. The hydrogeologic characteristics of the site determine the effect of human activities in the area on the ground water. The third factor focuses on the existing ground-water quality and sources of contamination other than the miscellaneous unit. This factor is relevant for predicting future ground-water uses and the incremental risk of the new unit. The fourth factor assesses the rate and direction of migration and the potential contamination of the site.

The fifth factor is the proximity to and withdrawal rates of current and potential ground-water users. While ground water as a source of drinking water is a primary concern, agricultural and industrial uses of ground water should also be considered. Clearly, water that is contaminated by hazardous waste leachate may present health risks. Information on State ground-water planning and regulatory efforts should also be considered. Also, any changes in ground-water withdrawal rates or patterns can alter the rate of ground-water movement, which influences the rate and direction of migration of contaminants to exposure points. This information is not

only necessary to identify potential impacts to the ground water, but it also can be used in determining monitoring well locations, where necessary.

The sixth factor focuses on land-use patterns. Land-use patterns can change hydrogeologic characteristics and they in turn can alter the rate and direction of potential migration to and distribution of wastes in ground water. This information will be used to identify potential impacts to the ground water.

The seventh factor is movement of waste constituents in the subsurface. This includes migration of waste in gaseous or vapor forms. Subsurface migration of wastes is a type of environmental degradation apart from contamination of ground water. The Love Canal incident provides a classic example of unsaturated zone migration. There, waste constituents migrated from a landfill into the basements of nearby homes. The residents were directly exposed through physical contact with waste and inhalation of volatile contaminants. The potential adverse effects of subsurface migration of waste constituents must be considered in addition to any direct effects on surface water and ground water. The same factors that influence ground-water protection are significant when considering subsurface migration.

Both the saturated and unsaturated zones must be considered in evaluating the potential for subsurface migration. This requires knowledge of the characteristics of the waste in the unit and the hydrogeology of the surrounding area. The patterns of land use in the area, including proximity to residential buildings, are particularly important here.

Also considered in factor seven is the migration of wastes to the soil root zone of food-chain crops and other vegetation. Phytotoxicity may occur as a result, as in the case of heavy metals at high concentrations. Even more important, roots may absorb certain hazardous constituents, which the plant may uptake and pass into the human food chain.

The eighth and ninth factors are the potential adverse impacts that exposure to waste constituents can have on human health and on animal health, plants, and physical structures, respectively. This potential depends on many factors, including the concentration, quantity, toxicity, and transport of the waste constituents.

One commenter agreed that the factors listed in § 264.601 for ground water were necessary to evaluate the adequacy of protection provided by a particular unit. Another commenter

suggested that the rule is unclear on how the need for ground-water monitoring will be evaluated. One other commenter questioned why all units must provide data on hydrogeologic characteristics, land-use patterns, ground-water quality, associated human health effects, and animal and crop exposure assessments. This commenter further suggested that data requirements be tailored to the specific type of unit. Another commenter pointed out that it is not necessary to perform a detailed ground-water and surface water assessment for a facility managing or treating a waste that never comes in contact with the surface of the ground. For example, some open detonation facilities have a synthetically lined detonation range.

In response to the above concerns, the Agency does not necessarily require that all miscellaneous units provide a detailed assessment for each of the nine factors. The standard in § 270.23(b) requires that the factors be considered and evaluated, and assessment data must be presented in the permit application. If the permit applicant's preliminary assessment of these factors indicates that the facility will not impact the factor, and the preliminary assessment of that factor is convincing to the Director, then a detailed assessment is not needed. However, a detailed assessment and associated permit conditions must be developed for those factors found by the preliminary assessment to have the potential for ground-water contamination and migration. The preliminary and detailed assessment procedures are not envisioned as a two-tiered permit process. The preliminary assessment is a tool used by an applicant to avoid the need to conduct a detailed assessment, if the preliminary assessment shows that a detailed assessment is not necessary. The adequacy and findings of the assessments will be considered by the Director as part of the permit review process.

2. Surface Water (Including Wetlands) and Surface Soils

Improper disposal of hazardous wastes can have immediate, far-reaching, and long-term effects on human health or the environment due to migration of waste constituents in surface water or wetlands or on surface soils. Units for which factors related to surface water, wetlands, and surface soils may require particular emphasis are those that are situated on land and are used in an open or semi-enclosed manner. It is, therefore, essential to ensure that these structures are designed and constructed to prevent

surface water, wetlands, and surface soil contamination.

Many of the same factors that influence ground-water protection and minimize risk from subsurface migration of waste constituents are significant for the protection of surface water, wetlands, and surface soils. Therefore, the sections listed in § 264.601(b) are similar to those in § 264.601(a).

The first factor to be evaluated is the volume of the waste in the unit and the waste's physical and chemical characteristics. This factor determines the potential for contamination of surface water, wetlands, and surface soils.

The effectiveness of containment structures should be considered in the second factor because surface waters, wetlands, and surface soils may be contaminated by ground-water migration and by overland flow of waste constituents. Precipitation, run-on, and runoff controls and subsurface structures should be considered, including liners, dikes, diversion ditches, and cut-off walls.

The third, fourth, fifth, and sixth factors require considerations of the hydrogeology and climate of the area. These factors evaluate the area's topography, rainfall patterns, characteristics of ground-water flow, and the proximity of a unit to surface waters. These factors determine the distribution and degree of surface water, wetlands, and surface soil contamination.

The seventh, eighth, and ninth factors evaluate patterns of surface water and land use, existing surface water, wetlands, and surface soil quality, other sources of contamination, and water quality standards. This information is needed to provide insight into the likelihood of health or environmental impacts. Water quality standards provide numerical and narrative criteria tied to particular uses of water bodies. These criteria should guide the Agency, permit applicants, and the public in evaluating the acceptability of managing waste in a particular unit.

In the tenth and eleventh factors, the impacts of waste constituents entering surface waters on human health and on animals, plants, and physical structures must also be analyzed.

One commenter suggested that surface soil for the active portion of open burning/open detonation facilities, as well as soil samples from the primary downwind areas, be monitored and that the monitoring schedule be based on the volume of waste destroyed. The Agency has concluded that establishment of monitoring schedules is more

appropriately defined in the permitting process than in the standards. However, because open burning/open detonation of explosive waste is carried out in pits, trenches, or on the ground surface, or in areas exposed to precipitation, the Agency agrees that it is vital that the factors in this section be adequately addressed so that run-on and runoff are controlled and residual wastes are effectively contained within a well-defined open burning/open detonation area.

3. Air

Some waste management units may present a significant potential for adverse effects on air quality. Section 264.601(c) requires the prevention of any release that may have adverse effects on human health or the environment due to migration of waste constituents in the air, and lists various factors that may be considered in protecting air quality.

The first factor considers the volume and characteristics of the waste in the unit and its potential to react or evaporate to form gaseous, aerosol, or particulate products that enter the atmosphere.

The second factor considers the effectiveness of systems and structures to prevent gaseous, aerosol, or particulate emissions.

The third factor considers the operating parameters of the units that make air emissions likely and create a potential for the production of toxic or explosive gases, aerosols, or particulates.

The fourth and fifth factors take into account the atmospheric, meteorologic, and topographic conditions of the site location, the existing air quality, and the sources of contamination near the site.

The sixth and seventh factors assess the potential adverse impacts on human health and on plants, animals, and physical structures. Of special concern is the inhalation of hazardous constituents by humans exposed to air emissions from these units.

Units for which these air standards have particular importance include open burning/open detonation units and thermal treatment units, such as calcination, pyrolysis, and multi-hearth furnaces. In most cases, air emissions from open burning/open detonation cannot be controlled since it is impossible to operate these units under totally enclosed conditions. Because of this, it is essential that open burning/open detonation (OB/OD) permit applicants consider the volumes and characteristics of the waste, as well as the meteorologic and topographic conditions of the site location. However,

one commenter suggested an alternative technology for controlling air emissions from open burning (not detonation) of explosive wastes. This technology effectively reduces emissions by using an air scrubber. It may, therefore, be an attractive option for some facilities that open burn explosive wastes. In addition, units that thermally treat hazardous wastes can release hazardous air emissions. While permits for these thermal treatment units may incorporate most of the incinerator performance standards under Part 264, these standards may not be sufficient or applicable for Subpart X units; therefore, these units must provide the assessment of air quality factors.

One commenter observed that just as a surface facility must consider and guard against accidental contamination of waters or soils, it must also consider the possibility of contaminated air or gas emissions. Therefore, this commenter suggested that the seven factors included in § 264.601(c) be fully considered. In contrast, commenters expressed concern over the use of the word "any" release, viewing it as too restrictive and not warranted for general applicability to all units. Three commenters noted that air emissions resulting from OB/OD cannot be controlled and, therefore, this technology should be exempt from the requirements of § 264.601(c).

By using the word "any," the Agency does not necessarily mean "no" releases. When a potential exists for a release (e.g., during OB/OD, where air emissions are difficult to control), an assessment must be made of all the factors important in protecting air quality.

There was also concern that if the unit is subject to evaluation and to permitting requirements for stationary sources under the Clean Air Act or under State and local air pollution control standards, such standards should be implemented by these authorities, as they are beyond the Agency's authority under RCRA in those jurisdictions. The Agency does not agree that its RCRA authority does not apply to air emissions. Section 3004(n) clearly requires EPA to control air emissions from hazardous waste facilities. EPA will attempt to minimize any duplication of control by incorporating applicable standards from the Clean Air Act into the RCRA permit. A permit may also include additional necessary conditions imposed under RCRA authorities. For example, current standards under the Clean Air Act may not address all types of hazardous air emissions at treatment, storage, and disposal facilities.

One commenter also objected to the use of "hazardous constituent" in § 264.601. He preferred "hazardous constituent of the waste." The Agency did not change the wording "hazardous constituent" because if the unit is only monitored for hazardous constituents of the waste, then hazardous constituents of possible reaction products will go undetected.

Another commenter suggested that since most State air pollution control regulations prohibit open burning but provide an exemption for explosive waste, the RCRA permitting of open burning should be limited to those exemptions or waivers. The Agency agrees with this commenter and has restricted permitting of OB/OD to explosive wastes.

One commenter indicated that a study is being completed to identify and characterize emissions generated at military OB/OD facilities. This commenter suggested that the Agency consider the data, conclusions, and recommendations from this study in determining the type of monitoring requirements for OB/OD disposal activities. The Agency intends to use this information in developing a permit guidance document on OB/OD.

C. Section 264.602—Monitoring, Analysis, Inspection, Response, Reporting, and Corrective Action

Under § 264.602, each miscellaneous waste management unit must have a monitoring program that includes, where appropriate, a ground-water, surface water, soils, and air quality monitoring system. (Alternatives to ambient air monitoring and analysis may include analysis of waste, emissions measurements, and periodic monitoring with portable detectors.) A monitoring program must include procedures for sampling, analysis, and evaluation of data, suitable response procedures, and a regular inspection schedule. This requirement is intended to ensure that the permit specifies all monitoring, inspection, and response activities and the frequency with which these activities are to be conducted. Including these specifications in the permit will require monitoring by the owner or operator to prevent violation of permit requirements and to prevent damage. It will also enable the oversight agency, through inspections and enforcement, to assess whether the unit is in compliance with the permit and, therefore, with the requirements of § 264.601.

Since each miscellaneous unit covered by this section may be distinctive in its design, operation, and location, the Agency is leaving the specifications as well as the extent of the monitoring,

inspection, and response program to the evaluation of the permitting official. At a minimum, the monitoring program for a miscellaneous unit should be capable of determining the unit's impacts on ground water in the uppermost aquifer, surface water, air quality, and the extent of surface and subsurface contaminant migration, to ensure compliance with § 264.601.

The program should consider the following: (1) The depth and location of monitoring wells or other sampling devices necessary to obtain representative samples of constituents in various media; (2) the constituents to be monitored and the frequency of monitoring; (3) procedures to maintain the integrity of monitoring devices; (4) sample collection and preservation procedures; (5) analytical methods used for sampling and analysis; (6) applicable procedures for the evaluation of data from the monitoring program; and (7) appropriate response procedures for cases where the monitoring program indicates that the unit is not in compliance with § 264.601.

The monitoring, inspection, and response program under a Subpart X permit will include requirements linking inspections and monitoring of the unit to the appropriate response. The Agency will incorporate the Part 264 Subpart F standards for ground-water monitoring, protection, and corrective action for establishing a ground-water monitoring program at appropriate Subpart X units.

The owner or operator of each miscellaneous waste management unit covered by this section must comply with the biennial reporting requirements specified under § 264.75. These requirements are the same as those in effect for all hazardous waste treatment, storage, and disposal facilities that are specifically regulated under Part 264.

Under RCRA authority contained in sections 3004 (u) and (v), the Agency is developing standards for corrective action at facilities seeking a RCRA permit. EPA has already codified the general obligation to perform corrective action for release from Solid Waste Management Units (SWMUs) at hazardous waste facilities (see 40 CFR 264.101). In the interim, EPA will make a decision on appropriate corrective actions for SWMUs on a case-by-case basis in individual permit proceedings. These standards, scheduled to be proposed in late 1987, will be applicable to hazardous waste management units including Subpart X units to the extent that they can be applied without resulting in highly hazardous situations or adverse cross-media contamination and are technically feasible. Until these

new standards are finalized, the corrective action requirements in § 264.101 apply to Subpart X.

One commenter suggested that the regulations relating to ground-water and surface water monitoring are necessary but should be clarified. The commenter further noted that for some operations (e.g., OB/OD) only some of the factors need to be addressed. Additionally, this commenter suggested that the scope of the requirements should be clarified when a more extensive analysis is indicated. In this commenter's opinion, the requirement in § 270.23(b) is overly broad and the information necessary for detailed assessments often will not be available. Thus, these assessments may be prohibitively expensive if the requirement is broadly interpreted. Another commenter was concerned that the Agency is leaving the specifications, as well as the extent of the monitoring, inspection, and response requirements, to the evaluation of the permitting official.

The Agency agrees to some extent with these commenters. If the Agency provides a comprehensive list of permit requirements, it will be easier for both permit applicants and permit writers in addressing the informational requirements. However, because of the diversity of the types of miscellaneous units, it is impossible to identify specific information requirements for individual units. Where applicable, the Agency prefers that a permit applicant provide (a) detailed plans and engineering reports; (b) hydrologic, geologic, atmospheric, and meteorologic assessments; (c) information on the potential pathways of exposure of humans or environmental receptors and the extent of exposure; and (d) closure and post-closure procedures. In addition, because the nature of each unit can vary a great deal, any steps taken to meet the requirements of the Subpart X environmental performance standards must also be furnished.

One commenter was concerned that the Subpart F standards for ground-water monitoring are not mandated, *carte blanche*, but are used where appropriate. He noted that in some sections it is clearly stated that miscellaneous units need not comply with Subpart F requirements, and that conversely, in other sections of the rules, the Agency implies that the permit applicant must comply with Subpart F where ground-water monitoring is deemed necessary. This commenter suggested that these inconsistencies should be clarified to require permit applicants to establish a ground-water monitoring program where it is

necessary to protect human health and the environment. The Agency agrees and requires compliance with Subpart F ground-water monitoring requirements on a case-by-case determination when necessary to protect human health and the environment.

The monitoring, analysis, inspection, response, and reporting requirements described in this rule are designed to be generic with the establishment of unit-specific requirements during the permitting process. By providing specifics for OB/OD units and geologic repositories in permit guidance to be developed, the Agency will identify unit-specific monitoring and analysis needs.

D. Section 264.603—Post-Closure Care

In addition to complying with the appropriate post-closure standards of Subpart G of Part 264 during the post-closure care period, owners and operators of miscellaneous units permitted under Subpart X that dispose of hazardous wastes must continue to meet the environmental performance standards of § 264.601 that applied in the operating period. This requirement is included to ensure that units used for disposal are maintained properly after closure. It is also applicable to treatment or storage units that cannot completely remove or decontaminate soils or ground water at closure.

Maintaining the unit during this period must be based upon procedures that are specified in a written post-closure plan, as required in § 264.118. Where appropriate, the post-closure plan must include monitoring, response, and maintenance procedures.

In response to post-closure requirements, one commenter recommended that the miscellaneous unit concept also be incorporated into Part 265. He stated that this would allow for the use of innovative technologies during closure of facilities with interim status. He also stated that often materials present at sites regulated under Part 265 must be treated as part of the closure activity and that preparation of a RCRA Part B permit application for new activities at a facility can take up to two years. He argued that some regulatory mechanism should be available for the amendment of a RCRA Part A permit to allow for new activities related to the closure of a site. Unless the miscellaneous unit concept is expanded to Part 265 and an expeditious procedure is developed to amend Part A permits, new technologies for treating hazardous waste will be largely unavailable to facilities closing under interim status.

The Agency recognizes the commenter's concern related to

innovative technologies developed under interim status. This commenter is attempting to close a facility using an innovative technology. If the commenter is developing a new technology to treat hazardous waste at the facility being closed, or if he is demonstrating the application of a newly developed technology to treat hazardous waste, then this commenter may be able to use a research, development, and demonstration permit under § 270.65, assuming that he meets all of the requirements of that section. The purpose of RD&D permits is to allow for testing and demonstration of innovative and experimental technologies, including the modification of existing technologies, if the technology is experimental or innovative and there are no permit standards for the activity. Cleanup of facilities may occur, incident to testing and demonstration, under an RD&D permit. If the activity does not qualify for an RD&D permit, then the facility owner or operator must apply for a Subpart X permit.

The commenter stated that guidance on what is meant by removing all "contamination," as well as other "how clean is clean" issues, would be useful in closing Subpart X units. The Agency agrees and is preparing a "clean closure" guidance for release in the fall of 1987 that will provide useful information on one option for closure of land-based units.

Another commenter suggested that Subpart X should address closure of miscellaneous units in a fashion similar to that set forth in subparts relating to tanks, landfills, waste piles, etc. Specifically, § 264.110 should be amended to reference Subpart X. A new section in Subpart X should address closure and post-closure in language similar to the analogous sections in Subparts I through O.

The Agency disagrees with this commenter. Because of the unique characteristics of the miscellaneous units, the specific requirements given in Subparts I through O for closure and post-closure are not necessarily appropriate. Therefore, under § 264.603, these units must continue to comply with the appropriate post-closure standards of Subpart G of Part 264 and the environmental performance standards of § 264.601 during the post-closure care period. However, for a unit that resembles, by definition, one of the units in Subparts I through O, those standards may provide a starting point in developing closure and post-closure requirements for the miscellaneous unit.

In one commenter's opinion, requiring post-closure care if a facility cannot

"remove all contaminated soils or ground water" at closure is unduly restrictive and should be limited to toxic and hazardous constituents remaining at the facility after closure at a level determined to be a threat to human health and the environment. In response to this comment, the Agency, under a separate action, is developing a clean closure guidance. In addition, the Agency in the preamble to the March 19, 1987, Part II, Federal Register sets forth the RCRA standards for "clean closure."

VI. Amendments to Part 270: Permit Requirements

A. General Permit Requirements

Application and review requirements for permitting hazardous waste management facilities under RCRA are contained in Part 270. All owners and operators of units that treat, store, or dispose of hazardous waste in miscellaneous units must obtain permits under Part 270 regulations. Subpart X applicants must comply with the general application requirements, including Part A permit requirements, Part B general application requirements of § 270.10, and Part B specific information requirements. Part 270 regulations specify what information owners and operators of facilities must submit in their permit applications to demonstrate compliance with the Part 264 standards (both the general standards in Subparts A through E, G and H, F when required, and the specific standards in Subpart X). The general information requirements in Part 270 apply to all owners and operators of miscellaneous units.

Most of the comments specific to the permit requirements indicated a need for (1) standardization and acceleration of the permitting process; (2) minimization of the need for individual permits by providing an industry-specific variance, a class permit, or a special permit; and (3) an individual analysis of the applicability of permits and regulations prior to the permitting process. Some commenters were concerned that permit writers will be too autonomous, and that too much specialization will be required to issue Subpart X permits effectively. This could complicate the permitting process by causing both a shortage of qualified permit writers and increased costs to industry, as well as creating an inconsistency in the implementation of the permit standards by the writers.

The Agency has attempted to alleviate to some degree the commenters' concerns over the diverse permit requirements in today's rule by providing a standard, generic permit requirement for miscellaneous units. This standard permit requirement

incorporates Part 264's individual compliance standards required under Subparts A through H, as well as the specific standards in Subpart X. In the Agency's opinion, technical support from the Permit Assistance Teams, any technology-specific permit guidance, and the availability of detailed technology descriptions, engineering reports, and information on monitoring, operational features, as well as maintenance, inspection, analysis, and closure procedures contained in the permit application should provide the permit writer with sufficient information to effectively develop permits on the miscellaneous units.

One commenter suggested that the Agency should incorporate standards developed by other agencies, such as the Department of Defense (DOD), Department of Energy (DOE), and the Nuclear Regulatory Commission (NRC). Another commenter requested that a generic permit application form for Subpart X units be developed. Other commenters preferred a specific exemption for *de minimis* quantities of waste processed by certain units operated by the explosives industry. Under RCRA, Small Quantity Generators (SQG)s are provided exemption from the permitting requirement in § 261. However, none of the treatment and disposal standards contained in Part 264 provide exemption from the permitting requirements for managing *de minimis* quantities and the Agency has no authority to, nor does it see any reason to exempt *de minimis* quantities.

The Agency regards these comments as very constructive and has incorporated portions of them in the development of today's rule. For example, in cooperation with the Department of the Army, the Agency is developing a permit guidance for OB/OD. The Agency also intends to review DOE's and NRC's permitting standards developed for the disposal of nuclear wastes in salt domes and deactivated missile silos. In the Agency's opinion, existing Part B permit application forms used for all other subparts of Part 264 are sufficient and provide adequate detail. Hence, no specific permit application form for Subpart X units is warranted. Although the Agency is not providing specific Subpart X permit applications, it is identifying the specific information requirements in the following section.

Another commenter suggested that the Agency should concentrate on establishing an information system capable of informing permit writers of miscellaneous units and providing up-to-

date information on what units have been permitted in various States and EPA regions. In his judgment, this would shorten the time spent "reinventing the wheel." The Agency welcomes this suggestion and wants to point out that the Hazardous Waste Data Management System (HWDMS) data base, even though not seen as a perfect information dissemination tool, does serve the purpose of data transfer among the States, EPA regions, and EPA Headquarters.

The HWDMS data base can be accessed through the National Computer Center (NCC), Research Triangle Park, North Carolina, by the Headquarters, Regional, and State EPA officials or their approved contractors. This data base provides hazardous waste generators and management facility-specific information related to Parts A and B permit status. For each type of hazardous waste facility, detailed information is coded. The information includes Standard Industrial Codes (SIC); the facility's name and address; the permit status; the quantities and types of wastes generated and managed; the types of treatment, storage, and disposal methods and their capacities; and financial and ownership status. The data base is updated and revised frequently.

Currently, such a status-reporting mechanism is used by the Agency for tracking research, development, and demonstration (RD&D) permits. Similarly, the Agency may provide the status of various Subpart X permits to Permit Assistance Teams (PAT) staff and permit writers. The intent of the Subpart X units' status reports is to provide current information, such as (a) the types of units for which permit applications are submitted, (b) the unit's permit status, and (c) a brief description of the unit. This will allow various permit writers and PAT staff in different regions to permit similar units consistently and efficiently.

B. Specific Information Requirements for Miscellaneous Units In § 270.23

The specific information requirements for miscellaneous units included in § 270.23 are intended to clarify and define the type of unit that is being permitted. The applicant must describe the unit, its physical characteristics, materials of construction, and dimensions. The bulk of the application is expected to contain detailed plans and engineering reports describing how the unit will be located, designed, constructed, operated, maintained, monitored, inspected, and closed to comply with the requirements of

§§ 264.601 and 264.602. The plan should include a detailed process description.

In developing the application, each of the environmental performance standards must be assessed. Where this assessment indicates that releases to air, surface water, or ground water are possible, the applicant is expected to provide detailed hydrologic, geologic, and meteorologic assessments and maps for the region surrounding the site. Applications for disposal units must contain a description of the plans to comply with the post-closure requirements of § 264.603.

The permit application must contain information (a) on the potential pathways of exposure to humans or environmental receptors of hazardous waste or hazardous constituents and (b) on the potential magnitude and nature of such exposures. In addition, for each treatment unit, any reports on demonstrations of the effectiveness of similar treatment based on laboratory, bench-scale, pilot-scale, or field data gathered under an RD&D permit should be submitted.

If the unit to be permitted involves an innovative or experimental waste treatment process or technology where insufficient data are available to assess its effectiveness, if it is to be demonstrated over a short period of time, and if the technology will be conducted in a unit that meets the RD&D criteria, an RD&D permit may be necessary. For additional information on RD&D permits, refer to § 270.65 and EPA Publication No. EPA/530-SW-86-008, "Guidance Manual for Research, Development, and Demonstration Permits Under 40 CFR Section 270.65." If the demonstration is to be long term (i.e., may eventually be used as a commercial-scale treatment process) or does not meet the RD&D criteria, a permit may be obtained under Subpart X. Under certain circumstances, an RD&D permit may be necessary to gather additional data that may be required to fulfill Subpart X permit-related risk assessment needs. To gather such data the owner/operator can use the RD&D permit as a vehicle to demonstrate the effectiveness of a technology.

If a multi-stage demonstration project is to be permitted under Subpart X, two possible permitting options are available. First, a single permit that covers the entire demonstration could be written. As revisions are needed to a permit to reflect the outcome of individual stages, permit modifications could be requested under 40 CFR 270.41 and 270.42, provided the reason for requesting a modification meets one of the criteria for modification in these

subparts. Alternatively, where the outcome of one stage may radically change the subsequent stages, a permit could be obtained for this first stage. At its completion, a permit could be issued for the subsequent stages. Each permit would terminate with the completion of a stage, and a new permit would be issued for the succeeding stage, based upon an evaluation of the results of the concluded stage. The exact permitting strategy to be used would be determined by the permit writer, based upon the type of treatment process and the demonstration.

Under § 270.23, a detailed description of the unit will be required specific to the development of a unit's design, construction, location, operation, maintenance, inspection, and closure so that it meets the requirements of the environmental performance standards.

One commenter was concerned over the information requirements on potential pathways of exposure of humans or environmental receptors to hazardous wastes or constituents. He suggested that knowledge of the potential magnitude and nature of such requirements for every miscellaneous unit to be permitted under Subpart X standards may be unnecessary in certain cases. In his opinion, development of such extensive data for fate and transport studies would be cost-prohibitive and time-consuming. He further suggested that a petition process could be instituted to demonstrate on a case-by-case basis an exemption from such an information requirement.

As mentioned previously, a detailed risk assessment is not necessary. However, at a minimum, the applicant must identify the potential impacts of hazardous constituents in different media. If the preliminary assessment conducted by the permit applicant indicates that releases to each of the media are possible, the permit applicant must further evaluate whether releases will occur and demonstrate ways to minimize the potential releases. This allows the permit writer to develop specific monitoring, analysis, and reporting guidelines for each particular unit.

C. Conforming Changes

Conforming changes are in other sections of Part 270 to accommodate the new Subpart X regulations. The Agency is not proposing to make changes to the Part 124 permit processing procedures. Issuance of permits for miscellaneous units would be subject to Part 124 in the same manner as other hazardous waste permits.

VII. Applicability to State Hazardous Waste Management Programs

A. Applicability of Rules in Authorized States

Under section 3006 of RCRA, the Agency 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 3008, 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 own hazardous waste program, rather than the Agency administering the federal program in that State. The Federal requirements no longer applied in the authorized State, and the Agency could not issue permits for any facilities that 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. 6927, new requirements and prohibitions imposed by HSWA take effect in authorized States at the same time that they take effect in nonauthorized States. The Agency 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, HSWA applies in authorized States in the interim.

B. Effect on State Authorizations

Today's announcement promulgates standards that are not effective in authorized States because the requirements are not being imposed pursuant to HSWA. 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 State revises its program to adopt equivalent requirements under State law.

Under 40 CFR 271.21(e)(2), States that have final authorization must modify their programs to reflect equivalent requirements and by July 1, 1989, must submit the modifications to the Agency

for approval. This deadline can be extended in certain cases (40 CFR 271.21(e)(3)). Once the Agency 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 promulgated today to determine whether they meet the tests for authorization. Thus, a State is not authorized to carry out requirements in lieu of the Agency until the State program modification is submitted to the Agency 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 applications for final authorization less than 12 months after the effective date of these standards are not required to include equivalent standards in their applications. However, they must modify their programs by the deadlines set forth in § 271.21(e). States that submit official applications for final authorization 12 months after the effective date of these standards must include standards equivalent to these standards in their applications. The requirements a State must meet when submitting its final authorization application are set forth in 40 CFR 271.3.

The Agency is precluded from issuing permits to new units in States authorized to implement RCRA in lieu of the Agency. However, 40 CFR 264.1(f)(2) provides an exception: the Agency may issue permits in authorized States if the unit was not regulated under RCRA at the time of the State's authorization and its standards for permitting the unit were promulgated after the State received final authorization. Thus, according to this provision, the Agency may issue a permit to a new facility under Subpart X in an authorized State. The Agency's permitting authority would cease, however, once the State modified its program, in accordance with § 271.21(e), to reflect the Federal Subpart X standards.

VIII. Effective Dates

Today's rule is effective 30 days from date of publication (in compliance with section 553(d) of the Administrative Procedures Act). EPA believes that it has a sound basis for suspending the statutory six-month effective date (RCRA Section 3010(b)) for this regulatory amendment. Section 3010(b) provides that EPA may shorten the effective date for good cause found and published with the regulation. The Agency believes that there is good cause

to suspend this six-month period because of the demand by the regulated community to apply for and obtain Subpart X permits. Currently, persons are prohibited from building new Subpart X facilities or expanding existing interim status facilities that will be covered under Subpart X. By shortening the effective date of today's rule to 30 days, the Agency enables such persons to obtain the necessary permits expeditiously. Since such permits are not required to be obtained within the six-month period, shortening the effective date will not burden the regulated community.

IX. Regulatory Analyses

A. Regulatory Impact Analysis

Under Executive Order No. 12291, the Agency must judge whether a regulation is "major" and thus subject to the requirement of a Regulatory Impact Analysis. The notice published today is not major because the rule will not result in an effect on the economy of \$100 million or more, will not result in increased costs or prices, will not have significant adverse effects on competition, employment, investment, productivity, and innovation, and will not significantly disrupt domestic or export markets. Therefore, the Agency has not prepared a Regulatory Impact Analysis under the Executive Order.

This regulation was submitted to the Office of Management and Budget for review as required by Executive Order No. 12291.

B. Regulatory Flexibility Act

The Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) requires each Federal agency to consider the effects of their regulations on small entities and to examine alternatives that may reduce these effects. With respect to today's rule, there is no means of anticipating exactly how many miscellaneous units, if any, will be owned and operated by small entities. In general, the Agency believes that the large amounts of capital required and the technical complexity necessary to establish safe and secure miscellaneous units will mean that larger entities will predominate. Therefore, the Agency certifies that this regulation will not have a significant impact on a substantial number of small entities.

C. Paperwork Reduction Act

The information collection requirements contained in this rule have been approved by the Office of Management and Budget (OMB) under the provisions of the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et*

seq. have been assigned OMB control number 2050-0074.

X. Supporting Documents

In preparing the final rule, the Agency has used the following major sources of information. They have been placed in the rulemaking docket at U.S. Environmental Protection Agency, EPA RCRA Docket (sub-basement), 401 M Street, SW., Washington, DC 20460. The docket is open from 9:00 a.m. to 4:00 p.m., Monday through Friday, except for Federal holidays. The public must make an appointment to review docket materials by calling (202) 475-9327.

The major sources are: 1. Public Comments on the November 7, 1986, proposal to regulate miscellaneous units. All the public comments received on the proposal are included in the docket at EPA Headquarters. These comments were considered by EPA in developing today's final rule.

2. Background Document: Subpart X Comments and Responses, Versar Inc. (November 1987). This document provides the Agency's response to specific comments to the proposal.

List of Subjects

40 CFR Part 144

Administrative practice and procedure, Hazardous materials, Waste treatment and disposal.

40 CFR Part 260

Administrative practice and procedures, Confidential business information, Hazardous materials, Waste treatment and disposal.

40 CFR Part 264

Hazardous material, Packaging and containers, Reporting requirements, Security measures, Surety bonds, Waste treatment and disposal.

40 CFR Part 270

Administrative practice and procedures, Reporting and recordkeeping requirements, Hazardous materials, Waste treatment and disposal, Water pollution control, Water supply, Confidential business information.

Date: November 25, 1987

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Administrator.

For the reasons set out in the preamble, Parts 144, 260, 264, and 270 of Chapter I of Title 40 of the Code of Federal Regulations are amended as follows.

PART 144—UNDERGROUND INJECTION CONTROL PROGRAM

1. The authority citation for Part 144 continues to read as follows:

Authority: Pub. L. 93-523, as amended by Pub. L. 95-190, Pub. L. 96-63, Pub. L. 96-502, and Pub. L. 99-339, 42 U.S.C. 300f *et seq.*

2. Section 144.31(a) is amended by adding the following sentence at the end of the paragraph to read as follows:

§ 144.31 Application for a permit; authorization by permit.

(a) * * * A RCRA permit applying the standards of Part 264 Subpart X will constitute a UIC permit for hazardous waste injection wells for which the technical standards in Part 146 are not generally appropriate.

PART 260—HAZARDOUS WASTE MANAGEMENT SYSTEM: GENERAL

3. The authority citation for Part 260 is revised to read as follows:

Authority: 42 U.S.C. 6905, 6912(a), 6921 through 6927, 6930, 6934, 6935, 6937, 6938, 6939, and 6974.

4. Section 260.10 is amended by adding the definition "Miscellaneous Unit" in alphabetical order and revising the definition "Landfill" to read as follows:

§ 260.10 Definitions.

"Landfill" means a disposal facility or part of a facility where hazardous waste is placed in or on land and which is not a pile, a land treatment facility, a surface impoundment, an underground injection well, a salt dome formation, a salt bed formation, an underground mine, or a cave.

"Miscellaneous unit" means a hazardous waste management unit where hazardous waste is treated, stored, or disposed of and that is not a container, tank, surface impoundment, pile, land treatment unit, landfill, incinerator, boiler, industrial furnace, underground injection well with appropriate technical standards under 40 CFR Part 146, or unit eligible for a research, development, and demonstration permit under § 270.65.

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

5. The authority citation for Part 264 is revised to read as follows:

Authority: 42 U.S.C. 6905, 6912(a), 6924, and 6925.

6. Section 264.10 is amended by revising paragraph (b) to read as follows:

§ 264.10 Applicability.

(b) Section 264.18(b) applies only to facilities subject to regulation under Subparts I through O and Subpart X of this part.

7. Section 264.15 is amended by revising the last sentence of paragraph (b)(4) to read as follows:

§ 264.15 General inspection requirements.

(4) * * * At a minimum, the inspection schedule must include the terms and frequencies called for in §§ 264.174, 264.194, 264.226, 264.253, 264.254, 264.303, 264.347, and 264.602, where applicable.

8. Section 264.18 is amended by revising the introductory text of paragraph (b)(1)(ii) to read as follows:

§ 264.18 Location standards.

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

9. Section 264.73 is amended by revising paragraph (b)(6) to read as follows:

§ 264.73 Operating record.

(6) Monitoring, testing or analytical data, and corrective action where required by Subpart F and §§ 264.226, 264.253, 264.254, 264.276, 264.278, 264.280, 264.303, 264.309, 264.347, and 264.602;

10. Section 264.90 is amended by adding a new paragraph (d) to read as follows:

§ 264.90 Applicability.

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

11. Section 264.111 is amended by revising paragraph (c) to read as follows:

§ 264.111 Closure performance standard.

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

12. Section 264.112 is amended by revising paragraph (a)(2) to read as follows:

§ 264.112 Closure plan; amendment of plan.

(2) The Director's approval of the plan must ensure that the approved closure plan is consistent with §§ 264.111 through 264.115 and the applicable requirements of §§ 264.90 *et seq.*, 264.178, 264.197, 264.228, 264.258, 264.280, 264.310, 264.351, and 264.601. Until final closure is completed and certified in accordance with § 264.115, a copy of the approved plan and all approved revisions must be furnished to the Director upon request, including request by mail.

13. Section 264.114 is amended by revising the first sentence to read as follows:

§ 264.114 Disposal or decontamination of equipment, structures, and soils.

During the partial and final closure periods, all contaminated equipment, structures, and soils must be properly disposed of or decontaminated, unless otherwise specified in §§ 264.228, 264.258, 264.280, or 264.310, or under the authority of § 264.601 and § 264.603.

14. Section 264.117 is amended by revising paragraphs (a)(1)(i) and (a)(1)(ii) to read as follows:

§ 264.117 Post-closure care and use of property.

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

15. Section 264.118 is amended by revising paragraphs (b)(1) and (b)(2)(i) and (b)(2)(ii) to read as follows:

§ 264.118 Post-closure plan; amendment of plan.

(b) * * *

(1) A description of the planned monitoring activities and frequencies at which they will be performed to comply with Subparts F, K, L, M, N, and X of this part during the post-closure care period; and

(2) * * *

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

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

16. Section 264.142 is amended by revising the introductory text of paragraph (a) to read as follows:

§ 264.142 Cost estimate for closure.

(a) The owner or operator must have a detailed written estimate, in current dollars, of the cost of closing the facility in accordance with the requirements in §§ 264.111 through 264.115 and applicable closure requirements in §§ 264.178, 264.197, 264.228, 264.258, 264.280, 264.310, 264.351, and 264.601 through 264.603.

17. Section 264.144 is amended by revising the introductory text of paragraph (a) to read as follows:

§ 264.144 Cost estimate for post-closure care.

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

Section 264.147 is amended by revising the first sentence of paragraph (b) introductory text to read as follows:

§ 264.147 Liability requirements.

(b) *Coverage for nonsudden accidental occurrences.* An owner or operator of a surface impoundment, landfill, land treatment facility, or miscellaneous disposal unit that is used to manage hazardous waste, or a group of such facilities, must demonstrate financial responsibility for bodily injury

and property damage to third parties caused by nonsudden accidental occurrences arising from operations of the facility or group of facilities. * * *

19. Part 264 is amended by adding Subpart X consisting of §§ 264.600 through 264.999 to read as follows:

Subpart X—Miscellaneous Units

Sec.

- 264.600 Applicability.
- 264.601 Environmental performance standards.
- 264.602 Monitoring, analysis, inspection, response, reporting, and corrective action.
- 264.603 Post-closure care.
- 264.604 through 264.999 [Reserved]

Subpart X—Miscellaneous Units

§ 264.600 Applicability.

The requirements in this subpart apply to owners and operators of facilities that treat, store, or dispose of hazardous waste in miscellaneous units, except as § 264.1 provide otherwise.

§ 264.601 Environmental performance standards.

A miscellaneous unit must be located, designed, constructed, operated, maintained, and closed in a manner that will ensure protection of human health and the environment. Permits for miscellaneous units are to contain such terms and provisions as necessary to protect human health and the environment, including, but not limited to, as appropriate, design and operating requirements, detection and monitoring requirements, and requirements for responses to releases of hazardous waste or hazardous constituents from the unit. Permit terms and provisions shall include those requirements of Subparts I through O of this part, Part 270, and Part 146 that are appropriate for the miscellaneous unit being permitted. Protection of human health and the environment includes, but is not limited to:

(a) Prevention of any releases that may have adverse effects on human health or the environment due to migration of waste constituents in the ground water or subsurface environment, considering:

- (1) The volume and physical and chemical characteristics of the waste in the unit, including its potential for migration through soil, liners, or other containing structures;
- (2) The hydrologic and geologic characteristics of the unit and the surrounding area;
- (3) The existing quality of ground water, including other sources of

contamination and their cumulative impact on the ground water;

(4) The quantity and direction of ground-water flow;

(5) The proximity to and withdrawal rates of current and potential ground-water users;

(6) The patterns of land use in the region;

(7) The potential for deposition or migration of waste constituents into subsurface physical structures, and into the root zone of food-chain crops and other vegetation;

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

(9) The potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents;

(b) Prevention of any releases that may have adverse effects on human health or the environment due to migration of waste constituents in surface water, or wetlands or on the soil surface considering:

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

(2) The effectiveness and reliability of containing, confining, and collecting systems and structures in preventing migration;

(3) The hydrologic characteristics of the unit and the surrounding area, including the topography of the land around the unit;

(4) The patterns of precipitation in the region;

(5) The quantity, quality, and direction of ground-water flow;

(6) The proximity of the unit to surface waters;

(7) The current and potential uses of nearby surface waters and any water quality standards established for those surface waters;

(8) The existing quality of surface waters and surface soils, including other sources of contamination and their cumulative impact on surface waters and surface soils;

(9) The patterns of land use in the region;

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

(11) The potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents.

(c) Prevention of any release that may have adverse effects on human health or the environment due to migration of

waste constituents in the air, considering:

- (1) The volume and physical and chemical characteristics of the waste in the unit, including its potential for the emission and dispersal of gases, aerosols and particulates;
- (2) The effectiveness and reliability of systems and structures to reduce or prevent emissions of hazardous constituents to the air;
- (3) The operating characteristics of the unit;
- (4) The atmospheric, meteorologic, and topographic characteristics of the unit and the surrounding area;
- (5) The existing quality of the air, including other sources of contamination and their cumulative impact on the air;
- (6) The potential for health risks caused by human exposure to waste constituents; and
- (7) The potential for damage to domestic animals, wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents.

§ 264.602 Monitoring, analysis, inspection, response, reporting, and corrective action.

Monitoring, testing, analytical data, inspections, response, and reporting procedures and frequencies must ensure compliance with §§ 264.601, 264.15, 264.33, 264.75, 264.76, 264.77, and 264.101 as well as meet any additional requirements needed to protect human health and the environment as specified in the permit.

§ 264.603. Post-closure care.

A miscellaneous unit that is a disposal unit must be maintained in a manner that complies with § 264.601 during the post-closure care period. In addition, if a treatment or storage unit has contaminated soils or ground water that cannot be completely removed or decontaminated during closure, then that unit must also meet the requirements of § 264.601 during post-closure care. The post-closure plan under § 264.118 must specify the

procedures that will be used to satisfy this requirement.

§§ 264.604 through 264.999 [Reserved]

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

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

Authority: 42 U.S.C. 6905, 6912, 6925, 6927, 6939, and 6974.

21. Section 270.14 is amended by revising paragraphs (b)(5) and (b)(13) to read as follows:

§ 270.14 Contents of Part B: General requirements.

* * * * *

(b) * * *

(5) A copy of the general inspection schedule required by § 264.15(b). Include, where applicable, as part of the inspection schedule, specific requirements in §§ 264.174, 264.194, 264.226, 264.254, 264.273, 264.303, and 264.602.

* * * * *

(13) A copy of the closure plan and, where applicable, the post-closure plan required by §§ 264.112 and 264.118. Include, where applicable, as part of the plans, specific requirements in §§ 264.178, 264.197, 264.228, 264.258, 264.280, 264.310, 264.351, 264.601, and 264.603.

* * * * *

22. Part 270 is amended by adding a new § 270.23 to Subpart B to read as follows:

§ 270.23 Specific Part B information requirements for miscellaneous units.

Except as otherwise provided in § 264.600, owners and operators of facilities that treat, store, or dispose of hazardous waste in miscellaneous units must provide the following additional information:

(a) A detailed description of the unit being used or proposed for use, including the following:

(1) Physical characteristics, materials of construction, and dimensions of the unit;

(2) Detailed plans and engineering reports describing how the unit will be located, designed, constructed, operated, maintained, monitored, inspected, and closed to comply with the requirements of §§ 264.601 and 264.602; and

(3) For disposal units, a detailed description of the plans to comply with the post-closure requirements of § 264.603.

(b) Detailed hydrologic, geologic, and meteorologic assessments and land-use maps for the region surrounding the site that address and ensure compliance of the unit with each factor in the environmental performance standards of § 264.601. If the applicant can demonstrate that he does not violate the environmental performance standards of § 264.601 and the Director agrees with such demonstration, preliminary hydrologic, geologic, and meteorologic assessments will suffice.

(c) Information on the potential pathways of exposure of humans or environmental receptors to hazardous waste or hazardous constituents and on the potential magnitude and nature of such exposures.

(d) For any treatment unit, a report on a demonstration of the effectiveness of the treatment based on laboratory or field data.

(e) Any additional information determined by the Director to be necessary for evaluation of compliance of the unit with the environmental performance standards of § 264.601.

(The information requirements in this section have been approved by the Office of Management and Budget and assigned OMB Control Number 2050-0074.)

§§ 270.24 through 270.29 [Reserved].

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