B A C K G R O U N D D O C U M E N T

HAZARDOUS WASTE MANAGEMENT SYSTEM: GENERAL; STANDARDS APPLICABLE TO OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES; AND HAZARDOUS WASTE PERMIT PROGRAM (40 CFR 260, 264, and 122)

Permitting of Land Disposal Facilities: Overview

This document (ms. 1941.33) provides background information on EPA's proposed regulations for land disposal of hazardous waste

U.S. ENVIRONMENTAL PROTECTION AGENCY
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INTRODUCTION

Section 3004 of Subtitle C of the Resource Conservation and Recovery Act (RCRA) of 1976, as amended (42 U.S.C. §§6901 et seq.), requires EPA to promulgate regulations establishing such performance standards, applicable to owners and operators of hazardous waste treatment, storage, and disposal facilities, as may be necessary to protect human health and the environment. On 5 February 1981, regulations were reproposed for land disposal facilities. Regulations had been originally proposed on 28 December 1978, and on 8 October 1980 the agency published a supplemental notice of proposed rulemaking discussing its intent to deviate significantly from the standards that had been originally proposed.

REGULATORY APPROACH

The regulatory approach for the "Permitting of Land Disposal Facilities" embodied in the reproposal has been established based on a recognition that the "disposal" of "hazardous waste" into or on the land represents the permanent emplacement of "solid waste" (i.e., discarded material in a solid, liquid, semisolid, or contained gaseous form). Unless such waste is contained all semisolid, liquid, and contained gaseous materials which are part of the waste can be expected to migrate from the location in which it is placed; and all solid materials which are part of the waste can be expected to exhibit some finite solubility and vapor pressure and will also migrate from the locations in which it is placed. This migration of wastes or constituents (i.e., "decomposition byproducts" and "reaction byproducts") as direct discharge, "leachate", or as gaseous emissions is what must be controlled in a permitted facility.

When the emplacement of waste into or on the land is for some limited period of time (i.e., for the purpose of storage or treatment) after which the residual waste and constituents are removed, "disposal" occurs only due to the migration of wastes, leachate, or gaseous emissions. Under such circumstances, the migration of wastes or constituents only occurs during the period when the wastes or constituents are present.

The regulations promulgated on 12 January 1981 presently apply to "storage and treatment" facilities, namely those facilities at which the waste is removed at closure. Those regulations established specific facility design requirements as standards which are intended to preclude discharge or leaking of wastes and constituents into or on the land or to ground waters, and require waste and waste residue to be removed at closure. If the 12 January 1981 regulations are complied with, it is presumed that wastes and waste constituents will be contained within the facility so that no waste or leachate will escape into the land or into groundwater. Wastes or waste constituents can exit the facility as gaseous emissions to the atmosphere eminating directly from the wastes, or as liquid point source discharges to surface waters.

Facilities to be permitted as land disposal facilities in accordance with the 5 February 1981 reproposed regulations include (1) all facilities where the wastes are permanently emplaced into or on the land; and (2) certain facilities where the wastes are temporarily emplaced into or on the land for the purpose of storage or treatment but from which some discharge into or on the land or to ground waters can be reasonably expected to occur or cannot be

prevented from occuring to some degree. Included within this second group are storage and treatment facilities which, although designed to prevent discharge, from which discharge could occur and not be detectable soon enough to be recoverable, not be recoverable at all, or where recovery would constitute an unreasonable expense since adverse effects to human health or the environment may not accrue even in the event of discharge. An example of such a type of facility could be one with an "impermeable liner" but without a leachate detection system other than ground-water monitoring.

The basic regulatory approach therefore is to, by analysis, determine what discharges will or could occur into or on the land or to ground waters; to determine where such discharges will migrate when or if they occur; and to establish how much exposure will or may result due to such discharges. If the discharges will not result in any human health or environmental exposure, or if the amount of exposure can be judged acceptable; the facility could be permitted. Primary emphasis is placed on the complete avoidance of human health exposure through the use of affected or potentially affected ground water.

For the majority of facilities initially subject to the permitting requirements for land disposal facilities (existing facilities), the analysis will be based on the locational and (if necessary) exposure conclusions which can be drawn or extrapolated from ground-water monitoring and a physical understanding of the wastes which are being or have been disposed of, the facility design, and the the geology and the hydrology in the area where the discharge occurs (or may occur) and is (or will be) migrating.

For new facilities, the same analysis must be totally predictive based on knowledge of the wastes to be disposed of, the facility design, and the geology and hydrology of the area where the facility is to be operated. These predictions and extrapolations are recognized to be best estimates or "best engineering judgements" and are subject to periodic (tri-annual) review based on monitoring data to improve the accuracy of the predictions and verify that the facility performance remains within permitted maximum limits.

A similar analysis is required to evaluate air emissions, but it is unique from the type of evaluation needed for other types of facilities (i.e., storage and treatment facilties) only in that the gaseous emissions may occur below the land surface and migrate within the land before being emitted into the atmosphere.

Additional discussion of the regulatory approach is presented in Sections III through V of the preamble to the 5 February 1981 Federal Register notice, and in the numbered background documents referenced herein.

COVERAGE OF THE BACKGROUND DOCUMENTS

The preamble to the 5 February 1981 promulgation included a notice in Section VIII that the Agency had developed or was preparing background documents to support the reproposed regulations. Nine specific background documents were enumerated. These nine documents are listed below together with an identification of the coverage of each document keyed to the sub-titles in Section VII of the preamble.

Background Document No. 1 - Surface Impoundments

D. Subpart K - Surface Impoundments

Background Document No. 2 - Waste Piles

E. Subpart L - Waste Piles

Background Document No. 3 - Land Treatment

F. Subpart M - Land Treatment

Background Document No. 4 - Landfills

G. Subpart N - Landfills

Background Document No. 5 - Underground Injection and Underground Seepage

A. Subpart A - General
   1. Purpose, scope and applicability - §264.1
L. Amendments to Part 122
   8. Permits by rule - §122.26
H. Subpart R - Underground Injection
I. Subpart S - Seepage Facilities

Background Document No. 6 - Information Requirements for Permitting Discharges from Land Disposal Facilities

L. Amendments to Part 122
   5. Permit application requirements - Contents of PartB of the RCRA permit application §122.25
      (a) Specific technical information
      (b) Specific generic information
      (c) Reports required
      (d) Site investigation requirements
   6. Informational requirements for permitting discharges from land disposal facilities §122.25(d)
   7. Variations in precision - §122.25(e)

Background Document No. 7 - Ground Water Protection Standard

A. Subpart A - General
   2. Ground water protection standard - §264.2

Background Document No. 8 - Ground-water and Air Emission Monitoring

C. Subpart F - Ground-water and Air Emission Monitoring
L. Ammendments to Part 122
   9. Triannual reprediction of leachate plume migration - §122.28(f)
   2. Modification or revocation and reissuance of permits - §122.15(a)(8)
   3. Minor modification of permits §122.17(a)(8)

Background Document No. 9 - Performance Standards for Land Disposal Facilities

B. Subpart B - General Facility Standards
J. Subpart T - Minimum Acceptable Treatment of Hazardous Wastes Prior to Disposal

No background documents have been prepared to supplement the Preamble discussion of the proposed amendments to Part 260, or certain of the proposed amendments to Part 122. These portions of the regulations are discussed in Section VII of the Preamble under the following sub-titles:

K. Amendments to Part 260
   1. Definitions - §260.10
   2. Petitions to Amend Part 264 or Part 265 to Allow Special Types of Treatment, Storage, and Disposal Facilities at a Particular Location, for a Particular Hazardous Waste, or for a Hazardous Waste from a Particular Source - §260.23

L. Amendments to Part 122
   1. Definitions - §122.3
   4. Application for a permit - §122.22(a)
   10. Establishing RCRA permit conditions - §122.29

SUMMARY DISCUSSION AND FORMAT

The background documents which have been developed provide response to public comments, as applicable, and the rationale for how and why the regulations have come to be written the way they are. In conjunction with the references listed in them, these documents provide the basis for and defense of the reproposed regulations.

Background Documents No. 1, 2, 3, 4, and part of Background Document No. 8 are very similar to the background documents issued in support of the 19 May 1980 promulgation. These background documents have been expanded to include: (a) summaries and responses to applicable comments on the 19 May 1980 interim final, interim

status regulations; (b) summaries and response to comments on the 8 October 1980, supplemental notice of proposed rulemaking; (c) additional summaries and responses to comments on the originally proposed (December 1978) general standards; and (d) rationale for the general standards as reproposed. As appropiate, the remaining background documents also include discussion of the items listed in (a) through (d) above.

The general format used in the background documents as follows:

INTRODUCTION

I. NEED FOR REGULATION

II. ANALYSIS OF STANDARDS

These major headings establish the format for discusssion of the portion of the regulations under consideration in the background document. In some cases there are more than one enumeration of the major headings. When that situation exists, it is discussed in the "INTRODUCTION".

Minor headings establish the framework for the discussion of specific issues under the major heading "ANALYSIS OF STANDARDS". The minor headings unsually used are listed below:

A. Proposed Regulation and Rationale

B. Summary of Comments

C. Discussion

D. Regulatory Language

Specific issues may be enumerated in a variety of formats such as preamble headings, section or paragraph titles, or by a listing or narrative statement of issues. In general, specific issues parallel the preamble headings.