BACKGROUND DOCUMENT

RESOURCE CONSERVATION AND RECOVERY ACT
SUBTITLE C - HAZARDOUS WASTE REGULATIONS

SECTION 3004 - STANDARDS APPLICABLE TO OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES

40 CFR PART 265

SUBPART J - INTERIM STATUS STANDARDS FOR TANKS
SUBPART Q - INTERIM STATUS STANDARDS FOR CHEMICAL, PHYSICAL, AND BIOLOGICAL TREATMENT

U.S. ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF SOLID WASTE
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FOREWORD

This is one of a series of documents providing support and background information for regulations issued under Section 3004 of the Resource Conservation and Recovery Act (RCRA). This background document concerns the management of hazardous waste in tanks and in chemical, physical, and biological treatment facilities other than surface impoundments and land treatment facilities (40 CFR Parts 265, Subparts J and Q). It is divided into two parts. The first part contains introductory material which addresses the Congressional authority for the regulation, key definitions used in the regulation, examples of damage incidents which illustrate the need for the regulation, and a description of precedents set for the regulation by State and/or other Federal statutes. The second part of this document describes the regulations as originally proposed, summarizes and responds to comments received that relate to the proposed regulation, and indicate the Agency's rationale for the final regulation.

On December 18, 1978, in §§250.44 and 250.44-1 of the proposed RCRA Section 3004 regulations, the Agency proposed standards for the storage of hazardous waste in tanks. In §§250.45-4 and 250.45-6, the Agency proposed standards for the treatment of hazardous waste in basins. (The proposed §250.45-6 standards applied also to treatment facilities other than basins.) As specified in §250.40(c)(2) of the proposed rules, certain of the proposed §§250.44, 250.45-4, and 250.45-6 standards applied to facilities during the interim status

period (i.e., the time from the effective date of the interim status regulations until the Agency's final decision on a facility owner's or operator's permit application).

Several commenters asked that the set of standards applicable to facilities with interim status be expanded, pointing out that the Agency has predicted (43 Federal Register 58984) that the ultimate permitting process may take several years to complete. In response to these comments, the Agency has added several of the proposed permanent status standards to the set of final interim status standards. As explained in the preamble discussion entitled "Interim Status Standards", in general, the Agency included permanent status standards in the set of final interim status standards if the standard:

(a) can be implemented by the regulated community within the six-month period between the time the regulations are promulgated and their effective date;

(b) does not require large capital expenditures for items which would later require approval as part of the permitting process; and

(c) can be implemented directly by the regulated community without the need for consultation with or interpretation by the Agency.

The Agency believes that some of the proposed permanent status technical requirements for the design and construction of tanks, basins, and chemical, physical, and biological treatment facilities -- e.g., the requirements for spill confinement

structures, an impermeable base beneath tanks, and emergency storage capacity -- should not be implemented during the interim status period. The costs of upgrading these aspects of facilities will be considerable and the designs will require Agency approval, which is properly part of the permit issuance process. Therefore, these requirements are not included in the final interim status standards.

Some of the proposed §250.45-4 and 250.45-6 standards for basins and other types of treatment facilities contained "Notes", which provided alternative standards to those in the text of the regulation, available upon making a specified showing to the Agency. To avoid the burden to the Agency of having to pass on such requests during the interim status period, the final interim status standards have been rewritten so that, although alternative standards may be available only under specified conditions, no showing or Agency approval is necessary.

In the proposed rules, the standards for tanks were somewhat different than those for basins. Tanks were regulated as covered containment devices used for <u>storing</u> hazardous waste, while basins were regulated as uncovered containment devices used for <u>treating</u> hazardous waste. (The proposed rules did not address the use of tanks for treating hazardous waste.) Both tanks and basins, however, were defined to be constructed out of man-made materials.

The comments revealed that this distinction between covered storage devices and uncovered treatment devices did not reflect actual practice very well. The final rules call all non-portable

containment devices made of non-earthen materials "tanks", whether they are covered or uncovered, or used for storage or treatment. All tanks are covered by a single set of regulations (40 CFR Part 265, Subpart J). The Subpart J standards include standards from the proposed §§250.44-1 (Storage Tanks) and 250.45-4 (Basins), and also standards applying to tanks and basins in the proposed §§250.44 (General Storage) and 250.45-6 (Chemical, Physical, and Biological Treatment Facilities).

Subpart Q contains requirements which pertain to chemical, physical, and biological treatment conducted in facilities other than tanks, surface impoundments (Subpart K), or land treatment facilities (Subpart M). For example, facilities which treat hazardous waste using distillation columns, centrifuges, or filter presses must comply with the Subpart Q standards if they do not meet the definition of "tank" specified in the final Part 260 rules.

The Phase I Subpart Q standards are essentially identical to the Phase I standards for tanks. Therefore, the standards in these two Subparts will be discussed together. References to tanks in the following discussion are also meant to include the waste containment components of chemical, physical, and biological treatment equipment.

INTRODUCTION AND RATIONALE FOR THE REGULATION

I. RCRA Authority for the Regulation:

In Section 3004 of Subtitle C of the Solid Waste Disposal Act, as substantially amended by the Resource Conservation and Recovery Act (RCRA) of 1976, as amended (42 U.S.C. §§6901 et seq.), the Congress of the United States requires the Administrator of the U.S. Environmental Protection Agency (EPA) to promulgate regulations to establish such standards, for hazardous waste treatment, storage, and disposal facilities as may be necessary to protect human health and the environment.

Sections 3004(3) and (4) of RCRA state that the standards to be promulgated by the EPA must include requirements for -

> "(3) treatment, storage, or disposal of all such waste received by the facility pursuant to such operating methods, techniques, and practices as may be satisfactory to the Administrator;
>
> "(4) the location, design, and construction of such hazardous waste treatment, disposal, or storage facilities; [emphasis added].

To comply with this mandate, the Agency must, among other things, promulgate regulations that will protect human health and the environment from the potential adverse effects of (1) treating or storing hazardous waste in tanks and (2) treating hazardous waste in facilities subject to regulation under Subpart Q.

II. Key Definitions

The following terms, which are defined in Part 260, are key to this area of regulation:

° "Freeboard" means the vertical distance between the top of a tank or surface impoundment dike, and the surface of the waste contained therein.

° "Incompatible Waste" means a hazardous waste which is unsuitable for:

(i) Placement in a particular device or facility because it may cause corrosion or decay of containment materials (e.g., container inner liners or tank walls), or

(ii) Commingling with another waste or material under uncontrolled conditions because the commingling might produce heat or pressure, fire or explosion, violent reaction, toxic dusts, mists, fumes, or gases, or flammable fumes or gases.

(See Part 265, Appendix V, of this Chapter for examples).

These definitions are further discussed in the background document supporting the final Part 260 rules.

o "Inner liner" means a continuous layer of material placed inside a tank or container which protects the construction materials of the tank or container from the contained waste or the reagents used to treat the waste.

This definition was added to the final rules to distinguish between continuous layers of materials used to line facilities constructed primarily of non-earthen materials (e.g., tanks) and those constructed of earthen materials (e.g., landfills). The former type of facility is always lined with man-made materials, the latter is often lined by earthen materials. Because the precautions needed to protect these linings depend on the materials used to make them, it is appropriate to have different terms to

refer to the them in the regulations. Accordingly, continuous layers of material used to line facilities constructed primarily of non-earthen materials are called "inner liners", and materials used to line facilities constructed of earthen materials are called "liners".

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

This new definition expands and clarifies the definition of "storage" in RCRA. It makes clear that the underlying difference between storage and disposal is one of intent to remove the waste after a limited time, rather than any difference in facilities and equipment. The need for this new definition is discussed in the background document entitled " Containers and Piles".

° "Surface Impoundment" or "impoundment" means a facility or part of a facility which is a natural topographic depression, man-made excavation, or dike area formed primarily of earthen materials (although it may be lined by man-made materials), which is designed to hold an accumulation of liquid wastes or wastes containing free liquids, and which is not an injection well. Examples of surface impoundments are holding, storage, settling, and aeration pits, ponds, and lagoons.

The analysis of comments received on the proposed definition of "Surface Impoundment" and the rationale for the modifications made to the definition in the final rules is contained in the background document entitled "Surface Impoundments".

° "Tank" means a stationary device, designed to contain an accumulation of hazardous waste which is constructed primarily of non-earthen materials (e.g., wood, concrete, steel, plastic) which provide structural support.

The analysis of comments received on the proposed definition of "Storage Tank" and the rationale for the modications made to the definition in the final rules is contained on page 10 of this document.

o "Treatment" means any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous; safer to transport, store, or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.

The analysis of comments received on the proposed definition and the rationale for modifications made to it in the final rules is contained on page 16 of this document.

o "Totally enclosed treatment facility" means a facility for the treatment of hazardous waste which is directly connected to an industrial production process and which is constructed and operated in a manner which prevents the release of hazardous waste or any constituent thereof into the environment during treatment. An example is a pipe in which waste acid is neutralized.

The rationale for adding this definition to the final rules is contained on page 19 of this document.

III. Damage Cases

The following damage cases illustrate the potential hazards associated with the improper storage or treatment of hazardous waste. They demonstrate the need to regulate any type of containment device that is used to treat or store hazardous waste -- to guard against the damage that these kind of operations can entail. The influence which these damage incidents had in establishing the final standards for tanks and chemical, physical, and biological treatment facilities is explained in the sections of the document where the individual standards are discussed.

(1) In 1977, a 20,000 gallon storage tank filled with highly flammable waste (a solvent and ethyl acetate) exploded at a chemical disposal site in New Jersey. Eleven other storage tanks were ruptured in the blast, releasing heavy chemical fumes. Three tanks were blown into the air and thrown several hundred feet across the plant. The tanks were interconnected by a common vapor recovery system which could have allowed the flame to propagate through the system to all the tanks. The tanks were being renovated by a contractor at the time of the fire. The suspected cause of the explosion is improper welding, a smoldering cigarette or some other worker-related incident. Six workmen were killed and 30 others injured.[1]

(2) Lagooned wastes from a copper reclamation company in Noxamixon Township, Pennsylvania, had been the source of ground water, stream, and soil contamination there. The company, which was in operation from 1965 to 1969,

bought industrial wastes from other plants, extracted copper, and stored the rest of the toxic liquids in lagoons. Three of the cement lagoons developed open seams on the bottom and leaked toxic fluids into an adjacent creek, killing all aquatic life. After an injunction was issued requiring the wastes to be treated, the company defaulted, leaving 3 1/2 million gallons of toxic wastes on the site. Heavy rains in April 1970 caused the lagoon to overflow and spill the hazardous wastes (e.g., acids, copper, nickel, and iron chloride) into the creek which is a tributary of the Delaware River. County officials then built a dike around the area. Soil contamination persists at the site and the entire area is devoid of vegetation. In 1971, the wastes were finally neutralized and ocean dumped.[2]

(3) An open gate valve in a retention lagoon at a chemical company in Venango County, Pennsylvania released phenolic substances to Oil Creek. Some fish and turtles were killed in the Creek.[3]

(4) A firm engaged in the disposal of spent chemicals was storing and disposing of toxic chemicals at two Louisiana locations. At one of these sites, several thousand drums of waste (some with and some without lids) were in storage. Many of the drums were leaking, and visible vapors were emanating from the area. As a result, all of the pine trees beside the storage area were killed.[4]

(5) An employee transferred two 5-gallon cans of waste vinyl cyanide and water from a still to a supposedly empty waste drum. As the employee rolled the drum to a storage area across the road, it exploded. Waste materials sprayed the employee. The drum was thrown approximately 48 feet, wrapping around a steel guard post. The employee received thermal and possible chemical burns to both feet. The exothermic reaction that caused the drum to rupture was probably a combination of cyanoethylation and polymerization.[5]

(6) In 1978, the owner of a facility in Dallas, Texas, who had declared bankruptcy, left behind the following items on his property: parts of an incinerator which burned during a fire, acid and alkali recovery basins with a "home-made" fiberglass liner, a variety of storage tanks, approximately 150 55-gallon drums, a landfill, and a number of other small containers of chemicals. The facility owner had been in the business of storing and processing a variety of wastes, which included car-wash and grease-trap wastes, chromium sludge, acid and alkaline wastes, plating waste, cyanide, ketones, tannins, and aromatic solvents. Water samples, from monitoring wells, at a depth of approximately 10 feet detected metal comtamination.[6]

IV. State Legislation

EPA reviewed the solid waste management regulations and guidelines of several States to ascertain the various State approaches to regulating the storage and treatment of solid and/or hazardous waste in tanks and in other types of facilities used to treat wastes. The following is a synopsis of those aspects of the States' regulations or guidelines which the Agency used as models in developing the RCRA interim status standards for these facilities.

Several States' regulations or guidelines have standards which specifically address the incompatibility of stored and/or treated wastes with each other, or with the construction materials of the containment devices (i.e., containers or tanks) in which the wastes are treated or stored. For example:

- Texas,[7] Louisiana,[8] and Tennessee[9] prohibit placing incompatible wastes together in the same

containment device. However, Texas' Guidelines provide an exception to this rule where the placement of incompatible wastes in the same containment device is done for controlled neutralization of acids and alkalies.[10]

- Texas[11] and South Carolina[12] prohibit adding hazardous waste to an unwashed containment device that previously held a material or waste with which it is incompatible.
- Minnesota[13] requires tanks to be constructed of materials, or protected by a liner, that will not react chemically with the contained waste, if such a reaction may impair the tank's ability to contain the waste. Louisiana[14] has a similar requirement, but it specifies that the construction materials of the containment device must be resistant to the emplaced waste for at least the estimated life of the operation. A bond, or warranty satisfactory to the Secretary of Louisiana's Department of Natural Resources is required for construction materials or liners for which historical performance data is not available.
- Texas[15] and Louisiana[16] require tests to be conducted for determining the compatibility of the waste to be contained with the construction materials of the containment device, or with

the liner used to protect them.*

In addition to standards which deal with incompatibility, the following other State standards were also used as prototypes in developing the Subparts J and O interim status standards:

- Texas[17] specifies that all ponds (which include containment devices comparable to uncovered tanks) should have adequate freeboard. The suggested height of the freeboard varies from 1 1/2 to 2 feet, depending upon the characteristics of the waste. For example, Texas' standards specify that Class IA waste (which includes those wastes which are classifed to be hazardous in Section 3001 of the RCRA rules) should be contained in ponds with 2 feet of freeboard.
- Louisiana[18] requires that before introducing any new or altered hazardous waste into an existing or new treatment sequence, pilot or bench scale tests, or reliable operating data, must be obtained for the waste.

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* Louisiana's regulations gives owners or operators the option of collecting data (presumably from the literature or from other facilities) in lieu of performing the tests themselves.

ANALYSIS OF STANDARDS, ORGANIZED BY SUBJECT

I. Subject: The Definitions of "Basin" and "Storage Tank"

A. Proposed Definitions:

"Basin" means any uncovered device constructed of artificial materials, used to retain wastes as part of a treatment process, usually with a capacity of less than 100,000 gallons. Examples of basins include open mixing tanks, clarifiers, and open settling tanks.

"Storage Tank" means any manufactured non-portable covered device used for containing pumpable hazardous waste. (As defined in §250.41.)

"Storage Tank" means any manufactured non-portable covered device used for containing but not treating hazardous waste. (As defined in §250.21.)

B. Rationale for the Proposed Definitions

BASIN: The purpose of the proposed wording of the definition of "basin" was to help owners or operators decide if the uncovered containment devices in which they treat hazardous waste are "basins" or "surface impoundments". This distinction was important because the proposed requirements for surface impoundments were far more rigorous than they were for basins.

The primary characteristic which distinguished basins and surface impoundments in the proposed rules was the type of materials used to build the containment devices. Basins were made out of man-made, "artificial materials" (e.g., steel, plastic, concrete). Surface impoundments, on the other hand, could be lined by "artificial materials" (e.g., PVC), but the construction material that provided structural support for surface impoundments was earthen material (e.g., natural in-place soil, or reworked/reconstructed soil).

A secondary characteristic which the Agency believed would be helpful to distinguish between basins and surface impoundments was size. Because man-made materials are typically more expensive than earth, basins tend to be smaller than surface impoundments. Based on the Agency's belief that most basins hold less than 100,000 gallons, the definition of "basin" contained a statement to this effect.

STORAGE TANK: The Agency mistakenly provided two different definitions of the term "storage tank" in the proposed rules, one in §250.21, and the other in §250.41. The two proposed definitions were similar in that they defined a storage tank to be any manufactured non-portable covered device used to store hazardous waste. However, the definition provided in §250.41 also stated that the waste contained in storage tanks is pumpable. This was not intended and has been removed from the final definition.

The purpose of the proposed wording of the definition(s) of "storage tank" was to help owners or operators decide if their covered containment devices were "containers" or "tanks". Again, the ability to make this determination was important because some of the proposed requirements for containers were different than those for tanks.

The primary characteristic which distinguished containers and tanks in the proposed rules was size. Con-

tainers were small enough to be portable, whereas tanks were too large to be portable (i.e., they are stationary).

C. Summary of Comments:

Regarding the definition of "Basin":

1. The word "uncovered" should be deleted.
2. The definition should specify whether the term "artificial material" means man-made, manufactured, not natural in place, or something else.
3. The volume restriction of 100,000 gallons should be deleted, because containment devices constructed of man-made materials frequently have a capacity greater than 100,000 gallons.
4. The public normally understands the word "basin" to mean a geologic or topographic depression or a small bathroom or kitchen bowl; therefore, the term should not be used to stand for a large device constructed of artificial materials.

Regarding the definition of "Storage Tank":

5. The word "covered" should be deleted because:
   - the storage of a non-volatile waste does not require a covered tank.
   - the word is not part of the commonly understood meaning of "tank". The special need for "covered" devices is properly addressed elsewhere in the proposed regulations, with respect to storing volatile materials.

- the word "covered" places an unwarranted limitation on facilities which would be considered storage tanks.
- an uncovered steel tank would be designated as a "basin". Consequently, it would require ground-water monitoring, even though the absence of a cover -- by itself -- does not significantly increase the potential for contaminating ground water.

6. The word "pumpable" should be deleted from §250.41(b)(84) because:
   - it makes this definition inconsistent with the definition of the same term given in §250.21(b)(27).
   - the definition does not specify the circumstances under which the material must be "pumpable". In some instances, material may be liquid and "pumpable" going in, but may become non-pumpable during storage -- e.g., because of evaporation, or reaction, or solidification, etc.
   - the storage of solid or semi-solid wastes should be permitted.

D. Analysis of and Response to Comments:

The Agency's re-evaluation of its conception of storage for regulatory purposes now permits storage to be conducted in uncovered as well as covered devices, and in devices such as surface impoundments. Thus basins,

as they were defined in the proposed regulations, are now recognized as appropriate storage devices. In addition, the Agency has recognized that treatment as well as storage may be conducted in tanks. These changes have made the proposed regulations' concepts of basins and storage tanks essentially identical, with the exception that one is uncovered and the other is covered. As a result, the Agency has combined the two concepts into one: a tank is now defined to be "a stationary device, designed to contain an accumulation of hazardous waste, which is constructed primarily of non-earthen materials ... which provide structural support." Tanks are referred to as covered or uncovered when appropriate. The terms "basin" and "storage tank" have been deleted from the final rules.

These revisions should satisfy most of objections to including "uncovered" in the definition of "basin", and "covered" in the definition of "storage tank"; these objections appear to reflect mainly a discontent with restricting basins (uncovered tanks) to treating waste, and storage tanks (covered tanks) to storing it. The final rules also contain no standards requiring the use of covered tanks. As explained in the background document on Storage and Containers, the purpose of requiring tanks to be closed was to control air emissions. However, air emissions are primarily a problem for volatile waste, and the Agency has deferred issuing any rules concerning volatile waste.

The meaning of the term "artificial materials" was unclear in the proposed definition of "basin" and has been replaced by the words "non-earthen ... (e.g., wood, concrete, steel, plastic)" in the final definition, to make clear the types of construction materials which can be used to build a tank.

The proposed definition of "basin" stated that they usually had a capacity of less than 100,000 gallons. The Agency did not intend owners or operators to interpret this to mean that containment devices which hold more than 100,000 gallons are excluded from the definition of basin. Rather, the statement was included in the definition as general guidance to help differentiate between basins and surface impoundments. However, since the statement seems to have confused, rather than helped the regulated community to distinguish between basins (uncovered tanks) and surface impoundments, the Agency has deleted the reference to the capacity of tanks from the final rules.

The Agency also agrees that tanks need not be restricted to holding "pumpable" waste, and this requirement has been deleted.

II. Subject: The Definitions of "Treatment" and "Treatment Facility"

A. Proposed Definitions:

"Treatment" has the same meaning as that given in Section 1004 of the Act.

"Treatment Facility" means any facility which treats hazardous waste.

B. Summary of Comments:

1. The definition of "treatment" should exclude:

(a) operations performed to meet Clean Water Act requirements (i.e., it should exclude pretreatment of wastewater to be discharged to industrial NPDES facilities in the same way that it excludes the pretreatment of wastewater to be discharged to POTWs). Otherwise, wastewater streams would be subject to dual regulation -- and this is inconsistent with Section 1006 of RCRA, which requires integration with other environmental laws.

(b) processing methods and techniques which are designed to reduce the volume or quantity of a waste being generated.

(c) processing operations which separate oil and water by gravity, because the reporting requirements for these facilities would be staggering.

2. The definition of "treatment facility" should exclude, or differentiate these facilities, from resource recovery facilities.

3. The proposed rules are inequitable because they regulate differently two facilities which treat waste in an identical manner. Where waste is rendered non-hazardous by being piped directly to a processing facility, the facility is not subject to control under Subtitle C. However, a facility which renders its waste non-hazardous with an identical process, but after the waste has passed through a surface impoundment, is subject to control under Subtitle C. In order to eliminate this inequity, the definition of "treatment facility" should exclude any facility where the waste flows, on a substantially continuous basis, directly from the point of generation, or through a storage facility or surface impoundment, to a processing facility.

4. Facilities which treat their waste on-site (e.g., universities or hospitals which treat waste before it leaves the premises) should be exempt from the requirements of Sections 3004 and 3005. Otherwise, in a chemistry lab, every chemical on the shelf that has been used once might be considered to be a waste, and every successive experiment might be considered to be a treatment facility.

C. Analysis of and Response to Comments:

1a. The regulations promulgated under the Clean Water Act (CWA) are designed to prevent the discharge of pollutants to surface waters. The regulations promulgated

under Subtitle C of RCRA, on the other hand, are designed to prevent the discharge of hazardous waste to ground water, as well as surface waters. In those cases where treatment facilities regulated under the CWA contain hazardous waste, this waste may seep through the bottom of the facility to the ground water, as well as flow over the rim of the facility to surface waters. For this reason, the Agency believes that these facilities must be subject to the regulations precribed under Subtitle C of RCRA, as well as the regulations prescribed under Section 402 of the Clean Water Act.

The final rules do not exclude the pretreatment of all wastewater discharged to POTWs from regulation under RCRA. The exclusion only applies to domestic sewage or mixtures of domestic sewage with other wastes that pass through a sewer system to a POTW. The rationale for this is contained in the Part 261 background document supporting the exclusions under §261.4(a).

1b. Processing operations which reduce the volume of a waste already generated cannot be excluded from the definition of "treatment" because RCRA expressly defines "treatment" of hazardous waste, to include any method, or process, ... designed ... to render such waste ... reduced in volume" (emphasis added). However, neither RCRA nor these regulations are intended to govern changes

to production processes made to reduce the volume or quantity of wastes generated.

1c. & 2. For this same reason, the Agency is also unable to modify the definition of "treatment" to exclude gravity oil/water separation processes. However, if the purpose of the separation process is to extract the waste oil for reuse, rather than for disposal, the waste oil separation process would be a resource recovery facility, and would be exempt from regulation under the final Phase I Section 3004 regulations. (See the Part 261 background document supporting the exclusions under §261.4(b)).

3. The final rules do not exclude all processing facilities in which hazardous waste is received directly from a production process. Only those which meet the definition of a "totally enclosed treatment facility" are exempted from these rules. The key characteristics of such a facility are that it:

- does not release any hazardous waste or constituent of hazardous waste into the environment during treatment, and
- it is directly connected to an industrial production process.

The Agency has exempted these facilities from regulation under Subtitle C because they do not release wastes or waste constituents into the environment, and therefore stringent controls are not "necessary to protect human

health and the environment". Such controls might also discourage the use of such facilities, which in many ways represent the optimum in good waste management practices. It may also be very difficult, as a practical matter, to permit or otherwise regulate these types of facilities -- many are indoors, are part of complicated plumbing systems which do not fall within RCRA's jurisdiction, and do not have clearly defined starting and end points.

After treatment in a totally enclosed treatment facility, the resulting discharge, treatment residue, etc., may be a hazardous waste and subject to regulation under Subtitle C. Owners and operators of such facilities should consult §261.3 of the Part 261 rules to determine whether that is the case.

Hazardous waste treatment facilities which receive wastes from a surface impoundment do not pose any of the practical problems mentioned above. They are not hard to distinguish from the production processes, and have discrete beginning and end points. They are thus more practical to examine in the permitting process. In addition, a generator with a totally enclosed treatment process would need no facility permit at all, and requiring him to obtain a facility permit would create a substantial burden for both the Agency and the owner or operator with little corresponding gain. On the other hand, a facility with a surface impoundment will require a facility

permit in any event, and it should be practical and relatively simple to obtain a treatment permit for an otherwise totally enclosed treatment process at the same time. These factors indicate a sensible regulatory distinction between a "totally enclosed treatment facility" at the end of a generator's production process and a similar facility which draws its wastes from a surface impoundment.

4. The Agency disagrees with the comment suggesting that the Section 3004 and 3005 standards should only apply to off-site treatment facilities. These regulations are designed to ensure that hazardous waste facilities do not pose a threat to human health and the environment. Potential hazards are certainly not posed uniquely by off-site treatment facilities. Because on-site treatment facilities pose a potential threat to human health and the environment equal to that posed by off-site treatment facilities, the final rules apply to both types of facilities.

However, the Agency does not expect that many university chemistry labs will be treatment facilities. The reason is that the chemicals used for the purpose of experimentation are not deemed to be wastes until the experiment is over and the resulting residue needs to be stored, treated, or disposed. That is, the experiments

performed in labs are not considered to be treatment processes because the substances used to run the experiments are hazardous chemicals, not hazardous waste.

D. Final Definitions:

"Treatment": (see page 4 above)

"Totally enclosed treatment facility": (see page 4 above)

The definition of "treatment" in the final Part 260 rules is substantively the same as that which was proposed. The Agency has rearranged the order of certain phrases in the proposed definition in order to make it easier to understand.

The proposed definition of "treatment facility" has been deleted from the final rules because its meaning was obvious and, therefore, defining the term was unnecessary.

III. Subject: Compatibility of the Waste with the Containment Device and/or its Liner

A. Summary of Proposed Standards 250.44(h), 250.45-4(b)(1), (d), and (e), and 250.45-6(a) and (b)(2):

The proposed standards required that the materials used to build containment devices (i.e., tanks, basins, and other types of treatment facilities), or the liners used to protect them, must be compatible both with the hazardous waste to be stored or treated, and with the treatment reagents that are expected to be used:

- under expected operating conditions (250.45-4(e) and 250.45-6(a));
- so that the ability of the containment device to contain the waste is not impaired (250.44(h)).

The proposed standards further required that the waste to be treated in containment devices must be tested to determine if the waste, or the reagents to be used to treat the waste, will have any detrimental effect on the containment device (250.45-4(d) and 250.45-6(b)(2)).

Wastes which would damage the construction materials of a basin were not allowed to be placed in the basin (250.45-4(b)(1)).

B. Rationale for the Proposed Standards:

The service life of a containment device can be prematurely shortened because of harmful interactions between its construction materials and the waste or reagents

it contains. This interation may include one or more of the following:

(1) Corrosion: Corrosion of containment devices may be accelerated by the properties of the hazardous waste itself, or by the chemical reagents used to treat the waste. For example, chromic acid (an oxidizing agent) generally corrodes all metals. Therefore, it would be inappropriate to treat hazardous waste with chromic acid in a steel tank unless the tank is lined with a material which is relatively inert to chromic acid (e.g., glass, polyethylene, or PVC).

(2) Salting and scaling: Salting and scaling is the formation of an insulating layer at heat transfer surfaces, which could contribute to the failure of evaporation tanks and the subsequent escape of hazardous waste to the environment. Salting and scaling may be reduced or prevented by the preliminary treatment of the influent waste stream or by other operational controls.

(3) Pressure: High pressure (caused, for example, by mixing wastes which collectively generate large amounts of gaseous emissions) may cause covered containment devices to explode, unless the device has been designed to withstand high pressure.

(4) Liquid flow rate and mechanical abrasion: Mechanical abrasion from materials contained in the waste or high liquid flow rates may damage the construction materials of a containment device. In order to prevent this, it is important to match the construction material of the device with the abrasion characteristics of the wastes expected to be treated, and the anticipated liquid flow rate of the treatment process.

The purpose of the proposed standards was to prevent these sorts of adverse interactions. This was necessary in order to prevent the premature deterioration of containment devices and the subsequent discharge of the waste they contain to ground water or surface water.

C. Summary of Comments Received:

1. It is unrealistic to try to protect basins from "any detrimental effect" which may result from containing a waste which is incompatible with the basin's construction materials because all construction materials have an intended useful life (i.e., a design corrosion rate). Owners or operators should be allowed to choose between a construction material with a relatively short intended life (e.g., carbon steel, with an intended life of five years), which requires frequent replacement of the basin, vs. a construction material with a relatively long intended life (e.g., stainless steel, with an intended life of ten to thirty years), which allows less frequent replacement of the basin. Therefore, the phrase "any detrimental effect" should be replaced by the phrase "any effect which would cause the basin to fail prior to closure, or prior to the end of the basin's intended life".

2. The restriction on placing waste in a basin, where the waste is detrimental to the basin's construction materials, will preclude the presently desirable waste management practice of mixing spent alkaline with spent acid for the purpose of neutralization -- because these wastes will cause corrosion when tested on the construction materials of the basin. The standard should be revised to allow

wastes, which by themselves would corrode a basin, to be placed in the basin for the purpose of chemical reaction under controlled conditions.

D. Analysis of and Response to Comments:

1 & 2. The Agency agrees with the commenter's general argument that containment devices need not be designed to last forever. Although the Agency would prefer that hazardous waste be treated or stored in devices which will not be detrimentally affected by these operations, the Agency recognizes that, inevitably, the construction materials of most containment devices will be somewhat impaired by the physical or chemical properties of the waste they contain.

The Agency's concern is not so much with the gradual deterioration of a containment device -- as long as this deterioration is monitored, and the device is repaired or replaced as needed (see the §265.15 inspection requirements) -- as with the rapid impairment of a device's containment capabilities due to adverse interactions between the device's construction materials and the wastes it contains.

In response to the comments, the final rules have been modified to prohibit placing wastes in containment devices if so doing would impair the ability of the device to contain the waste during its intended life. Unlike the proposed rules, the focus

of the final standard is solely on placing wastes into devices. The proposed approach, which regulated both the types of materials used to build devices and the kinds of wastes that could go in them, was redundant. As long as the waste that is placed into the devices is controlled, the purpose of the proposed standards (i.e., to prevent the rapid deterioration of these devices) will be achieved.

E. Final Regulation Language:

§265.192 General operating requirement*

(b) Hazardous wastes or treatment reagents must not be placed in a tank if they could cause the tank or its inner liner to rupture, leak, corrode, or otherwise fail before the end of its intended life.

§265.401 General operating requirement*

(b) Hazardous wastes or treatment reagents must not be placed in the treatment process or equipment if they could cause the treatment process or equipment to rupture, leak, corrode, or otherwise fail before the end of its intended life.

IV. Subject: Continuous Feed Operations

A. Summary of Proposed Standard 250.45-6(g):

The proposed standard required that facilities which continuously feed hazardous waste into containment devices used to treat hazardous waste must have a waste feed cutoff or a by-pass system which turns on automatically when the treatment process breaks down.

B. Rationale for the Proposed Standard:

The Agency believed that it makes little sense to add hazardous waste to a containment device in which the waste already contained therein is not being treated effectively. In addition, where the breakdown of the treatment process poses a threat to human health and the environment (e.g., when an unanticipated reaction between a reagent and a waste generates excessive heat), the inflow of additional waste into the device may exacerbate the problem and thereby increase the dangers associated with the malfunction of the treatment process.

Therefore, the Agency believed that facilities with continuous feed operations should be equipped with fail-safe mechanisms (i.e., waste feed cutoff or by-pass systems) capable of stopping the flow of waste into a containment device in which the treatment process is not working.

C. Summary of Comments Received:

1. It is unnecessary to require that automatic waste feed cutoff or by-pass systems be installed in all treatment facilities. Instead, the standard should:

- allow a facility to use other mechanisms (e.g., dikes or collection ponds) which will contain waste discharges if a malfunction occurs;
- require that a facility have adequate instrumentation and controls to ensure safe operating conditions.

2. The standard should be recast to acknowledge that not all malfunctions are severe enough to cause hazardous waste to be discharged to the environment. Automatic cutoffs or by-passes, if required at all, should only have to be triggered by malfunctions which might cause discharges.

3. EPA should clarify whether the the use of the word "by-pass" in the proposed standard is meant to be interpreted in the way the chemical industry uses the term, i.e., "shunt, to the downstream side of a process or piece of equipment".

D. Analysis of and Response to Comments:

1. The Agency still believes that the best way to minimize the potential dangers associated with a system failure (e.g., a malfunction in the treatment process, or a crack in the tank) is to prevent additional waste from flowing into a tank. The Agency disagrees that facilities should be allowed to contain the overflow from a tank -- with dikes or collection ponds -- instead of preventing the inflow

of a waste to a tank. The Agency believes that every reasonable effort should be made to confine waste to the interior of a tank, and only after these efforts have failed, should waste be allowed to flow into secondary containment devices (e.g., dikes or collection ponds).

However, the Agency agrees that mechanisms other than those specified in the proposed standard should be allowed to prevent the inflow of waste to tanks. For example, a manual waste feed cutoff system may be just as effective as an automatic waste feed cutoff system to prevent the inflow of waste to a tank. For this reason, the Agency has revised the standard in terms of a performance standard. The final standard requires that facilities at which hazardous waste is continuously fed into tanks be equipped with a means to prevent the inflow of waste to the tank, but it does not require that any particular method(s) be used to accomplish this objective.

2. The Agency recognizes that there may be situations where the malfunction of a treatment process does not pose a threat to human health and the environment (e.g., where an aerator is not aerating an industrial wastewater with 100% efficiency). In such situations, the addition of more waste to the treatment facility may not significantly exacerbate

the situation. The Agency agrees that under such circumstances, an owner or operator should not be required to prevent waste from flowing into a tank. Therefore, the final standard indicates that the equipment used to prevent inflow to a tank need only be activated in the event of a leak or overflow from the tank due to a system failure (e.g., a malfunction in the treatment process, a crack in the tank, etc.).

3. Because the Agency's use of the term "by-pass" is consistent with the way it is used in the chemical industry, and the way it is defined in the dictionary, the Agency believes that further clarification of the term in these regulations is unnecessary.

E. Final Regulation Language:

§265.192 General operating requirement*

(d) Where hazardous waste is continuously fed into a tank, the tank must be equipped with a means to stop this inflow (e.g., a waste feed cutoff system of by-pass system to a stand-by tank).

[Comment: These systems are intended to be used in the event of a leak or overflow from the tank due to a system failure (e.g., a malfunction in the treatment process, a crack in the tank, etc.)]

§265.401 General operating requirement*

(c) Where hazardous waste is continuously fed into a treatment process or equipment, the process or equipment must be equipped with a means to stop this inflow (e.g., a waste feed cut-off system or by-pass system to a standby containment device).

[Comment: These systems are intended to be used in the event of a malfunction in the treatment process or equipment.]

V. Subject: Freeboard

A. Summary of Proposed Standard 250.45-6(e):

The proposed standard required that at least two feet of freeboard be provided for each containment device used for treating hazardous waste.

B. Rationale for the Proposed Standard:

Hazardous waste may spill or splash over the rim of an open-topped containment device (i.e., uncovered tank or surface impoundment) for a number of reasons, which include:

- the acceleration of a treatment facility's liquid flow rate past that for which the facility is designed;
- careless pouring of additional waste into a partially full containment device;
- an unanticipated reaction between two incompatible wastes which causes them to boil-over;
- wave-action on a windy day in containment devices with large surface areas; and
- major precipitation.

The purpose of the required two feet of freeboard was to prevent such spilling or splashing and thus reduce the potential for spilled or splashed waste to contaminate ground water or surface water.

The Agency's choice of two feet as the required height of the freeboard was based on the State of Texas' guidelines for ponds, which specify that a minimum of

two feet of freeboard should be maintained for ponds containing hazardous waste.

Additional support for requiring owners or operators to maintain at least two feet of freeboard in large, uncovered containment devices is contained in several technical documents (e.g., in the proceedings from a symposium on upgrading wastewater stabilization ponds[19], an EPA design manual for upgrading wastewater treatment plants[20], and an environmental engineers' handbook on water pollution[21]).

C. Summary of Comments Received:

In many cases, a freeboard of less than two feet will be sufficient to prevent hazardous waste from splashing or spilling during treatment. Therefore, a "note" should be added to the standard which allows using less than two feet of freeboard where:

- there is a collection and drainage area surrounding the reaction vessel which has restricted access during operation (the commenter did not explain exactly what he meant by the phrase "which has restricted access during operation");
- an equivalent degree of protection is provided.

D. Analysis of and Response to Comments:

The Agency agrees that secondary containment systems -- dikes, trenches, drainage to another treatment system, diversion to a stand-by tank, etc. -- may provide

a degree of protection from splashing and spillage equal to that provided by two feet of freeboard. The interim status standards for tanks do not require secondary containment systems (see the Foreword of this document). However, the Agency believes that facilities with interim status should be allowed to use existing containment systems to prevent hazardous waste from spilling or splashing from tanks to the ground water or surface water. Therefore, the final interim status standard for tanks require that facilities have either (1) two feet of freeboard, or (2) a containment structure (e.g., dike or trench), drainage control system, or diversion structure (e.g., standby tank) which has a capacity that equals or exceeds the volume of the top two feet of the tank.

The Agency has not included a freeboard requirement in the final Subpart Q standards. Unlike tanks, which can be uncovered, to the Agency's knowledge the treatment processes regulated under Subpart Q are conducted in covered containment devices and maintaining freeboard in these devices is thus unnecessary.

E. Final Regulation Language:

§265.192 General operating requirement*

(c) Uncovered tanks must be operated to ensure at least 60 centimeters (2 feet) of freeboard, unless the tank is equipped with a containment structure (e.g., dike or trench), a drainage control system, or a diversion structure (e.g., standby tank) with a capacity that equals or exceeds the volume of the top 60 centimeters (2 feet) of the tank.

VI. Subject: Waste Analyses and Trial Treatment Tests

A. Summary of Proposed Standards 250.45-6(b) and (c)

The proposed standards required that waste analyses and trial tests be conducted in part in order to:

- identify the proper treatment technique for each type of hazardous waste treated at the facility;
- determine if the waste is contaminated with substances which might interfere with the treatment of the waste or damage the containment device; and
- ensure that each new or significantly different waste accepted at the facility can be treated effectively with the process used at the facility.

B. Rationale for the Proposed Standard

Carelessness and haphazard experimentation with different treatment techniques on large quantities of hazardous waste (e.g., the quantity which is contained in a tank) can adversely affect human health and the environment if the waste is incompatible with the treatment process or the chemical reagents used to treat the waste. For example, adding a strong oxidizing agent (e.g., chromic acid) to a steel tank full of an unknown waste may generate toxic fumes, excessive heat, fires, explosions, or may cause the tank to corrode rapidly.

The purpose of the proposed standard was to discourage the large scale "hit or miss" approach to hazardous waste treatment by requiring that an owner or operator conduct bench scale (or pilot scale) tests to determine the effectiveness and safety of the treatment technique intended to be used at the facility.

C. Summary of Comments Received:

1. Requiring that a hazardous waste be tested before placing it in a basin (§250.45-4(d)) is inappropriate when applied to the continuous flow of an industrial wastewater through a treatment process unit.

2. Requiring trial treatment tests for each new or significantly different waste accepted at a treatment facility may result in needless duplicative testing where the waste has already been shown to be compatible with the process in question at similar facilities.

3. A treatment facility should have to submit to the permit authority the type of information described in §250.45-6(b) and (c) before a significant new waste can be handled at the facility.

4. A list of analytical tests should be developed to help the owner or operator determine which processes are appropriate for the treatment of his waste. This list should include such tests as: total quantitative analysis, leach test, explosives testing, flammability

tests, corrosivity tests, oxidative tests, and toxicity determinations.

5. The word "proper" in §250.45-6(b)(1) should be replaced with the word "appropriate" because the word "proper" suggests that there is only one treatment technique, feed rate, operating condition, etc. for a particular hazardous waste.

D. Analysis of and Response to Comments:

1. It was the Agency's intent, in the proposed rules, to require the testing of industrial wastewater flowing through a treatment process unit only (a) when the process is initially started up, (b) when the influent waste stream changes significantly, or (c) when the process used to treat the wastewater is changed or is significantly modified. The final rules have been redrafted along these lines.

2. The Agency agrees that an owner or operator should not have to perform waste analyses or trial tests where the information needed to ensure that the regulations will be complied with has been obtained at, and is available from other facilities which have performed similar storage or treatment of similar waste under similar operating conditions. Therefore, the regulations have been revised to exempt owners or operators from the waste analyses

and trial test requirements where such information is available from other sources. However, reliance on information from other facilities does not relieve the owner or operator of primary responsibility should the information he has obtained from other sources prove to be incorrect, and damage to human health or the environment occurs.

3. It might be desirable for EPA to review the results of each waste analysis and trial test before a new or significantly different waste could be handled at a facility. This review would enable EPA to prevent the storage/treatment of waste where the Agency believes the owner or operator has misinterpreted the results of the tests with respect to a planned course of action. However, the number of reviews which EPA would have to conduct if it required owners or operators to obtain EPA review of their test results before a new or significantly different waste could be managed, makes such a requirement impractical because EPA lacks sufficient manpower to provide a timely turn-around of the test results. In addition, it is unclear whether the added increment of safety is enough to be worth the added burden to the Agency and to owners and operators. Furthermore, the results of these waste analyses and trial tests will be available to the Regional Administrator. Because these results

will be reviewed when the facility's application for a permit is evaluated, the Agency believes that this review process will encourage owners or operators to conduct thorough analyses/tests and to take the course of action which the test results indicate should be taken.

It should be noted that the final interim status standards do not include a revision of paragraph (iv) and (v) of proposed §250.45-6(b). These parts of the proposed standard dealt with issues (i.e., volatile and highly toxic substances) for which EPA is deferring action. Therefore, although prior review of test results is not required for the final interim status standards corresponding to proposed §250.45-6(b)(i),(ii and (iii), the Agency is deferring its decision as to whether Agency review of the test results will be required before the waste can be managed, where the tests indicate that highly toxic substances or toxic air emissions will be generated during the intended storage or treatment process.

4. The Agency agrees that owners or operators should be given guidance to help them select an appropriate process to treat their waste. The Agency is in the process of developing a guidance manual which will describe the types of analytical tests requested by the commenter.

5. The Agency agrees that there may be a number of treatment techniques, chemical reagents, operating conditions, etc. that are appropriate for the treatment of a particular waste. Any implication that there is only one "proper" treatment process for each type of waste has been eliminated from the final rules.

E. Final Regulation Language:

§265.193 Waste analysis and trial tests*

In addition to the waste analysis required by §265.13, whenever a tank is to be used to:

(1) Chemically treat or store a hazardous waste which is substantially different from waste previously treated or stored in that tank; or

(2) Chemically treat hazardous waste with a substantially different process than any previously used in that tank;

the owner or operator must, before treating or storing the different waste or using the different process:

(1) Conduct waste analyses and trial treatment or storage tests (e.g., bench scale or pilot plant scale tests); or

(2) Obtain written, documented information on similar storage or treatment of similar waste under similar operating conditions;

to show that this proposed treatment or storage will meet all applicable requirements of §265.192(a) and (b).

[Comment: As required by §265.13, the waste analysis plan must include analyses needed to comply with §§265.198 and 265.199. As required by §265.73, the owner or operator must place the results from each waste analysis and trial test, or the documented information, in the operating record of the facility.]

§265.402 Waste analysis and trial tests*

In addition to the waste analysis required by §265.13, whenever:

(1) A hazardous waste which is substantially different from waste previously treated in a treatment process or equipment at the facility is to be treated in that process or equipment, or

(2) A substantially different process than any previously used at the facility is to be used to chemically treat hazardous waste;

the owner or operator must, before treating the different waste or using the different process or equipment:

(1) Conduct waste analyses and trial treatment tests (e.g., bench scale or pilot plant scale tests); or

(2) Obtain written, documented information on similar treatment of similar waste under similar operating conditions;

to show that this proposed treatment will meet all applicable requirements of §265.401 (a) and (b).

[Comment: As required by §265.13, the waste analysis plan must include analyses needed to comply with §§265.405 and 265.406. As required by §265.73, the owner or operator must place the results from each waste analysis and trial test, or the documented information, in the operating record of the facility.]

VII. Subject: Inspections

A. Summary of Proposed Standard 250.45-4(h):

The proposed standard required that basins be visually inspected in accordance with §250.43-6, and that any damage detected during the inspection be repaired immediately.

§250.43-6 called for the daily visual inspection of several specific components of hazardous waste facilities, plus the recording of these inspections in the facility's daily operating log. The daily inspection requirement could be relaxed for certain aspects of the facility's operation if the owner or operator could demonstrate that lesser requirements would still adequately protect human health and the environment.

B. Rationale for the Proposed Standard:

The purpose of the proposed §250.43-6 standards is discussed in the background document entitled "Inspections".

The purpose of the requirement that any damage detected during the visual inspection be repaired immediately, was to assure not only that damage to basins is detected, but that corrective measures are speedily taken to repair the damage.

C. Summary of Comments Received:

1. The requirement that basins be repaired "immediately", should be revised to require that damage be repaired:

- as soon as practicable

- in time to prevent a substantial present or potential hazard to human health and the environment

because using the word "immediately" might subject owners/operators to penalties, even though they took prompt action in good faith. In addition, under certain circumstances (e.g., strikes, inclement weather, the need to remove the waste before repairing the basin), it may be impossible to carry out repairs immediately.

2. Daily inspection is unnecessary because dike failure is a long term event with early warning signs such as wet spots or dead or unusually lush vegetation in a limited area of the dike. Furthermore, the daily inspection aspect of the standard could be counterproductive because it could lead to superficial inspections.

3. The inspections required in items 1 through 7 of §250.43-6(a) are redundant for facilities regulated under OSHA's safe employment regulations, the Clean Water Act, the Clean Air Act, as well as state and local regulations.

D. Analysis of and Response to Comments:

1. The Agency agrees that it may not always be possible to "immediately" repair damage noted during the inspection of a facility. In some cases, immediate repair, although desirable, may not be necessary. For

example, the presence of rust in the wall of a tank should be remedied, but human health and the environment will not be placed in serious jeopardy, under most circumstances, if the tank is not repaired for a week or two. Therefore, the final inspection standards require that any damage or adverse condition detected during the inspection must be corrected before it can result in a pollution incident. Where an incident is imminent or has already occurred, the final standards require that repair be made as soon as possible.

2. The response to comments concerning the daily inspection aspect of the proposed §250.43-6 standards is contained in the background document entitled "Inspections". The final general inspection standards (§265.15) require owners or operators to develop their own inspection schedule. The inspection schedule is to be based on the owner's or operator's knowledge of the facility's critical processes, equipment, and structures, and on his perception of the potential for failure and the rate of any deterioration processes (corrosion, erosion, etc.) which may lead to failure.

In addition, owners or operators of tanks must comply with certain minimum inspection requirements specified in the final standards for tanks. The rationale for including minimum inspection require-

ments in each of the technical sections of the final regulations, is contained in the background document entitled "Inspections".

The minimum inspection requirements for tanks and chemical, physical, and biological treatment facilities are divided into two categories: those aspects of the facility which require inspection each operating day, and those which require inspection each week.

Damage incident #3 on page 6 of this document illustrates that the spill control equipment of storage/treatment facilities (e.g., a tank's valves) needs to be inspected each operating day because of the vital role (i.e., preventing the inflow to, or containing the overflow from containment devices) that such equipment plays at these facilities in preventing a malfunction which could quickly threaten human health or the environment. Similarly, the Agency believes that the data gathered from monitoring equipment (e.g., pressure and temperature gauges) must be checked each operating day because of the important role that this data plays in ensuring that the facility is running according to plan.

On the other hand, because deterioration resulting from corrosion or erosion normally occurs relatively slowly, the Agency believes that the construction materials of tanks and spill confinement

structures (e.g., dikes) should only have to be inspected once a week. Weekly inspection should be adequate to detect corrosion or erosion long before the tanks or spill confinement structures are likely to fail.* The final standards also require weekly inspection of the grounds surrounding the tanks and spill confinement structures for obvious signs of leakage. Damage incident #4 illustrates the type of obvious signs of trouble (e.g., dead vegetation, visible air emissions) which signal the failure of a containment device.

3. Response to comments concerning the alleged overlap of the proposed §250.43-6 standards with the inspection requirements of other Acts, is contained in the background document entitled "Inspections."

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* Support for a weekly inspection requirement for these aspects of facilities is contained in several of the comments received on the proposed §250.43-6 standards.

E. Final Regulation Language:

§265.194 Inspections

The owner or operator of a tank must inspect, where present:

(1) Discharge control equipment (e.g., waste feed cut-off systems, by-pass systems, and drainage systems), at least once each operating day, to ensure that it is in good working order;

(2) Data gathered from monitoring equipment (e.g., pressure and temperature gauges), at least once each operating day, to ensure that the tank is being operated according to its design;

(3) The level of waste in the tank, at least once each operating day, to ensure compliance with §265.192(c);

(4) The construction materials of the tank, at least weekly, to detect corrosion or leaking of fixtures or seams; and

(5) The construction materials of, and the area immediately surrounding, discharge confinement structures (e.g., dikes), at least weekly, to detect erosion or obvious signs of leakage (e.g., wet spots or dead vegetation).

[Comment: As required by §265.15(c), the owner or operator must remedy any deterioration or malfunction he finds.]

§265.403 Inspections

The owner or operator of a treatment facility must inspect, where present:

(1) Discharge control and safety equipment (e.g., waste feed cut-off systems, by-pass systems, drainage systems, and pressure relief systems) at least once each operating day, to ensure that it is in good working order;

(2) Data gathered from monitoring equipment (e.g., pressure and temperature gauges), at least once each operating day, to ensure that the treatment process or equipment is being operated according to its design;

(3) The construction materials of the treatment process or equipment, at least weekly, to detect corrosion or leaking of fixtures or seams; and

(4) The construction materials of, and the area immediately surrounding, discharge confinement structures (e.g., dikes), at least weekly, to detect erosion or obvious signs of leakage (e.g., wet spots or dead vegetation).

[Comment: As required by §265.15(c), the owner or operator must remedy any deterioration or malfunction he finds.]

VIII. Subject: Closure

A. Summary of Proposed Standards 250.45-4(h) and 250.45-6(h) and (i):

The proposed standards required that when a basin closes, all hazardous waste and hazardous waste residues contained in the facility must be removed from it and disposed of (250.45-4(h)), or treated or disposed of (250.45-6(h) and (i)), as a hazardous waste.

In addition, when removing residues from a treatment facility (either when the facility closes, or when simply cleaning the facility), the proposed standards required that the residues must be assumed to be hazardous unless they are analyzed and found not to be hazardous, within the meaning of the proposed Section 3001 regulations. However, testing to prove that a residue is non-hazardous was not required where the owner or operator could demonstrate that the residue is similar to a non-hazardous residue that was previously generated at the facility.

B. Rationale for the Proposed Standards:

Although it may be obvious that because basins and treatment facilities are temporary containment devices, the hazardous waste contained in them must be removed when the facility closes, it may not be as obvious that the hazardous waste residues that settle to the bottom of basins or treatment facilities must also be removed before closure. The Agency believed that hazardous waste residues must be removed from the facility because the structural

material of the facility is eventually going to fail* (i.e., crack or corrode), and the subsequent discharge of the residue from the damaged facility may contaminate ground water or surface water. Damage incidents #2 and #6 on pages 5-6 of this document illustrate the type of damage which may result when hazardous waste is left in containment devices after the facility has closed.

Although some of the residues generated in treatment facilities (e.g., sludges which settle to the bottom of the containment device, or by-products generated during the treatment process itself) may have been rendered non-hazardous during the process of treating the waste, the Agency believed that most of the residues generated in treatment facilities are hazardous. Therefore, to discourage owners or operators from making hasty and perhaps erroneous assumptions about the nature of the residues which they generate, the Agency wrote the proposed standard to require that residues be treated or disposed of as hazardous waste unless they are proven to be non-hazardous.

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* In fact, prolonged contact of the residue with the insides of the basin may even accelerate its deterioration if the residue is corrosive or incompatible with basin's structural materials.

C. Summary of Comments Received:

1. The requirement to remove all hazardous waste and hazardous waste residues from treatment facilities is inconsistent with §250.45-3(e)(1), which does not require removing the waste or residues of a surface impoundment which meets the landfill requirements of §250.45-2.

2. Residues should only have to be analyzed to determine whether they are hazardous if owners or operators have reason to believe that their residues are hazardous. This suggestion is consistent with page 58951 of the proposed Preamble, which states that such testing is only required when the generator has reason to believe that his waste is hazardous.

3. The requirement that the residue be analyzed to determine whether it is hazardous "within the meaning of Subpart A" is too broad, because Subpart A includes "the broad criteria of the statutory standard in §250.12 and the bases for listing in §250.14." The requirement for residue analysis should be consistent with the analysis required of generators of solid waste who know or who have reason to believe that their waste is hazardous. That is, the waste should be evaluated in accordance with the characteristics set forth in §250.13.

4. The 100 kg exemption for generators should apply to facility operators who generate residues through treatment.

D. Analysis of and Response to Comments:

1. The Agency did not intend that proposed §250.45-6(h) apply to surface impoundments closed in accordance with the landfill closure requirements. However, this intention was not reflected in the proposed standard. The final rules have been written to reflect the Agency's original intent.

2. The Agency believes that most residues resulting from treatment processes are hazardous wastes. For this reason, the final Part 261 rules specify that all such residues are hazardous unless the owner or operator can demonstrate otherwise. A more detailed explanation for this provision is contained in the Part 261 background document supporting the definition of hazardous waste in §261.3.

3. The Agency agrees that the proposed requirement to analyze the residue "within the meaning of Subpart A" was somewhat broad. The final rules specify that all residues generated from treatment processes are hazardous waste unless the owner or operator can demonstrate, in accordance with §261.3(f) of Part 261, that the residue is not a hazardous waste. As is further explained in the background document for Part 261, this means that the residue need not be tested against a particular characteristic if no incoming waste was found hazardous under that characteristic, and that the residue need not be measured against the criteria for delisting a listed waste unless some incoming waste

was a listed waste. The Agency does not agree that the residue should not be measured against the criteria for listing wastes so long as one of the incoming wastes was listed.

4. The final rules specify that, by removing a residue from a tank or treatment facility, the owner or operator becomes a generator of hazardous waste and must manage it in accordance with all applicable requirements of Parts 262, 263, and 265 of the final Subtitle C rules. Any special exemptions pertaining to generators in these rules also apply to owners and operators generating residues.

F. Final Regulation Language:

§265.197 Closure

At closure, all hazardous waste and hazardous waste residues must be removed from tanks, discharge control equipment, and discharge confinement structures.

[Comment: At closure, as throughout the operating period, unless the owner or operator can demonstrate, in accordance with §261.3(f) of this Chapter, that the residue removed from his tank is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and must manage it in accordance with all applicable requirements of Parts 262, 263, and 265 of this Chapter.]

§265.404 Closure

At closure, all hazardous waste and hazardous waste residues must be removed from treatment processes or equipment, discharge control equipment, and discharge confinement structures.

[Comment: At closure, as throughout the operating period, unless the owner or operator can demonstrate, in accordance with §261.3(f) of this Chapter, that the residue removed from his treatment process or equipment is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and must manage it in accordance with all applicable requirements of Parts 262, 263, and 265 of this Chapter.]

IX. Subject: Special Requirements for Ignitable and Reactive Waste

A. Summary of Proposed Standard 250.45-4(b)(2) and (3):

The proposed standard prohibited owners or operators from placing ignitable or reactive waste in basins unless he could demonstrate that doing so would not:

- produce more air contaminants than the permissible exposure levels promulgated by OSHA, or
- damage the structural integrity of the basin through fires, explosive reactions, or the generation of heat.

B. Rationale for the Proposed Standard:

The Agency was concerned about owners or operators placing ignitable and reactive waste in containment devices because the waste may come in contact with materials with which it will ignite or react and thereby cause a fire or explosion, or generate excessive heat. Damage incident #1 on page 5 of this document exemplifies the types of dangers which can result from placing ignitable waste in containment devices.

Generating excessive heat or causing a fire or explosion in a containment device in which hazardous waste is treated or stored, poses a serious threat to human health and the environment because:

- it could generate hazardous air emissions which may endanger the health and lives of the facility's personnel and neighbors;

- it could damage the structural integrity of the basin through heat, fires, or explosive reactions, and allow hazardous waste to be discharged from the device to ground water or surface water;
- it could ignite nearby flammable waste.

To prevent this type of damage, the proposed standard restricted but did not prohibit the placement of ignitable or reactive waste in basins, since the Agency wished to encourage facilities to treat rather than dispose of hazardous waste. Conditions for a variance from the proposed standard were included in the proposed rules, allowing owners or operators to place ignitable or reactive waste in basins if so doing would not (1) damage the structural integrity of the basin as a result of heat generation, fires, or explosive reactions; or (2) contribute air contaminants in excess of the permissible exposure levels promulgated by OSHA.

C. Summary of Comments Received:

1. The provision of the "Note" to the standard which required that owners or operators demonstrate that their treatment operations do not contribute air contaminants in excess of the permissible exposure levels promulgated by OSHA is objectionable because this would:

   - use RCRA to regulate air contaminants within the regulatory authority of the

Clean Air Act and OSHA and, thus, would conflict with RCRA's Section 1006 mandate regarding the application and integration of RCRA with other environmental laws.

- misuse the OSHA exposure limits which were derived from Threshhold Limit Values (TLVs) developed by the American Conference of Governmental Industrial Hygienists (ACGIH), because the ACGIH has placed the following restrictions on the use of the TLVs: the limits "are not intended for use, or for modification for use, (1) as a relative index of hazard or toxicity, (2) in the evaluation or control of community air pollution nuisances, (3) in estimating the toxic potential of continuous, uninterrupted exposures ...".

Furthermore, the proposed use of OSHA limits is technically more stringent than the compliance requirements under OSHA itself. OSHA applies these limits to human exposure, and allows administrative controls and protective equipment for compliance. Therefore, the restriction on placing ignitable and reactive waste in basins should be modified to allow placing such waste in basins for the purpose of treatment if such treatment will not:

- violate any applicable standard promulgated under the Clean Air Act; or
- damage the structural integrity of the basin through heat generation, fires, or explosive reactions.

2. The restriction on placing ignitable and reactive waste in basins should be deleted because basins comprise major elements of treatment systems and, therefore, must contain such wastes in order to treat them.

D. Analysis of and Response to Comments:

1. The Agency agrees that the OSHA air contaminant exposure figures are not generally appropriate for the circumstances of waste treatment, storage, and disposal facilities, and they have been deleted from the regulations. In addition, the Agency is deferring promulgation of regulations dealing with volatile wastes under Section 3004, as explained in the preamble discussion entitled "Volatile Waste." Other standards for the treatment of ignitable, reactive, and incompatible wastes are discussed in the preamble.

2. The Agency still believes that certain restrictions are needed on placing ignitable or reactive waste in tanks and in chemical, physical, and biological treatment facilities. The final rules permit alternative approaches. An owner or operator may treat ignitable or reactive waste so as to render the waste non-ignitable or nonreactive. This provision minimizes the potential for such waste

to come into contact with sources of ignition, or with substances with which it may react, during the time the waste is contained in these facilities.

Alternatively, some owners or operators treat ignitable or reactive waste for a purpose other than rendering the waste non-ignitable or non-reactive, respectively -- e.g., to reduce the water content of the waste before incinerating it. Because the Agency wishes to encourage the treatment of hazardous waste, the final rules allow owners or operators to treat or store ignitable or reactive waste without rendering the waste non-ignitable or non-reactive, respectively, if the waste is treated or stored in such a manner that it is protected from any sources of ignition or from any material or condition which may cause it to react.

Finally, the final rules permit placement of ignitable or reactive wastes in tanks which are used solely for emergencies. Petroleum refiners requested such an exemption for surface impoundments which collect petroleum and related materials in emergencies. The Agency has made such a provision in the surface impoundment regulations, and believes that a parallel exemption for tanks is warranted.

The Agency has included in §265.17(b) of Subpart B of the final rules, general requirements for ignitable,

reactive, and incompatible wastes. The final Subparts J and Q requirements specify that treatment or storage of ignitable and reactive waste in tanks and in chemica physical, and biological treatment facilities must be done in accordance with §265.17(b). The rationale for the §265.17(b) requirements is contained in the preamble discussion entitled "Ignitable, Reactive, and Incompatible Wastes".

The Agency believes that the potential for a violent explosion or fire from a tank containing ignitable or reactive waste is more likely to occur if the tank is covered because of the tendency for vapors to pressurize in enclosed devices. For this reason, the Agency believes that minimum setbacks from the facility's property line should be required for tanks which contain ignitable or reactive waste. This would minimize the potential for injury to the neighboring public from the flying debris or toxic air emissions which often result from explosions involving hazardous materials. For example, the explosion which occured in 1977 at the chemical disposal site in New Jersey (see damage incident #1 on page 5 of this document) resulted in the ejection of several large tanks and the death and injury of several people at the site.

Not a great deal of data is available on which the Agency can base minimum setback requirements

for these types of waste. The only data on this subject of which EPA is aware is that gathered by the National Fire Protection Association (NFPA). This data was codified in the NFPA's Flammable and Combustible Code of 1977.

The purpose of the standards in the NFPA code is "to reduce the hazard to a degree consistent with reasonable public safety, without undue interference with public convenience and necessity which requires the use of flammable and combustible liquids"[22] (emphasis added). Because protection of human health from fires or explosions resulting from the storage of ignitable and reactive waste is also a goal of the Section 3004 RCRA rules, it is appropriate to use the NFPA's minimum setback requirements as the basis for establishing EPA's regulations for ignitable and reactive waste. Although EPA's categories of ignitable and reactive waste are only roughly comparable to NFPA's category of flammable and combustible liquids, the setback requirements in the NFPA rules would appear to represent a minimum for all ignitable and reactive wastes, since the great majority of these wastes pose similar hazards from ignition or reaction. Therefore, the final rules require that the treatment or storage of ignitable or reactive waste must be in accordance with the NFPA's buffer zone requirements for tanks, contained in Tables 2-1 of the "Flammable

and Combustible Code of 1977". These tables are contained in Appendix I of this document.

These NFPA standards already apply to most covered tanks containing ignitable and reactive materials under the Occupational Safety and Health Administration's (OSHA) regulations. The Agency, therefore, does not expect these regulations to necessitate substantial capital expenditures for covered tanks.

The NFPA standards do not by their terms apply to uncovered tanks and, thus, requiring these existing tanks to comply with the NFPA standards might require substantial capital expenditures. Because such a requirement does not meet the general criteria for interim status standards (see the Foreword to this document), it has not been included in the Part 265 rules. For this same reason, the requirement to comply with the NFPA standards has also not been included in the Subpart Q standards for chemical, physical, and biological treatment facilities.

E. Final Regulation Language:

§265.192 General operating requirements*

(a) Treatment or storage of hazardous waste in tanks must comply with §265.17(b).*

§256.198 Special requirements for ignitable or reactive waste [Interim Final]

(a) Ignitable or reactive waste must not be placed in a tank, unless:

(1) The waste is treated, rendered, or mixed before or immediately after placement in the tank so that (i) the resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive waste under §§261.21 or 261.23 of this Chapter, and (ii) §265.17(b) is complied with; or

(2) The waste is stored or treated in such a way that it is protected from any material or conditions which may cause the waste to ignite or react; or

(3) The tank is used solely for emergencies.

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* §265.17 General requirements for ignitable, reactive, or incompatible wastes [Interim Final]

(b) Where specifically required by other Sections of this Part, the treatment, storage, or disposal of ignitable or reactive waste, and the mixture or commingling of incompatible wastes, or incompatible wastes and materials, must be conducted so that it does not:

(1) Generate extreme heat or pressure, fire or explosion, or violent reaction;

(2) Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health;

(3) Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions;

(4) Damage the structural integrity of the device or facility containing the waste; or

(5) Through other like means threaten human health or the environment.

(b) The owner or operator of a facility which treats or stores ignitable or reactive waste in covered tanks must comply with the National Fire Protection Association's (NFPA's) buffer zone requirements for tanks, contained in Tables 2-1 through 2-6 of the "Flammable and Combustible Code - 1977".

[Comment: See §265.17(a) for additional requirements.]

§265.401 General operating requirements*

(a) Chemical, physical or biological treatment of hazardous waste must comply with §265.17(b).

§265.405 Special requirements for ignitable or reactive waste [Interim Final]

(a) Ignitable or reactive waste must not be placed in a treatment process or equipment unless:

(1) The waste is treated, rendered, or mixed before or immediately after placement in the treatment process or equipment so that (i) the resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive waste under §§261.21 or 261.23 of this Chapter, and (ii) §265.17(b) is complied with; or

(2) The waste is treated in such a way that it is protected from any material or conditions which may cause the waste to ignite or react.

X. Subject: Special Requirements for Incompatible Waste

A. Summary of Proposed Standards 250.45-4(c) and 250.44(a):

The proposed standards prohibited placing hazardous wastes which are incompatible with each other in basins.

The standards also prohibited placing hazardous waste in an unwashed storage tank that previously held an incompatible material.

B. Rationale for the Proposed Standards:

The Agency was concerned about owners or operators placing wastes which are incompatible in the same containment device because the commingling of incompatible waste may:

(1) generate hazardous air emissions which may endanger the health and lives of the facility's personnel and neighbors. For example, mixing cyanide and sulfide-containing alkaline wastes may release toxic HCN and H_2S vapors into the environment.

(2) generate excessive heat, fire, or explosions, which may damage the structural integrity of the containment device and, thus, possibly cause hazardous waste to be discharged from the basin to ground water or surface water. For example, mixing hazardous waste containing highly reactive components (e.g., oxidation-reduction agents and organics) may generate excessive heat which could adversely affect the impermeability of some construction materials or liners.

C. Summary of Comments Received:

1. The prohibition on mixing incompatible waste precludes the presently desirable waste management practice of controlled neutralization of spent acids and caustics. The standard should be revised to allow wastes which are incompatible to be mixed, if such mixing is:

- for the purpose of treatment
- in accordance with the provisions of the note to §250.45(c)

2. The requirement that hazardous waste must not be placed in a storage tank or container which previously held an incompatible waste is unnecessary, particularly when:

- the tank is empty, or
- the tank is suitable for both caustic and acidic substances.

D. Analysis of and Response to Comments:

1. The Agency agrees that incompatible wastes should be allowed to be mixed together in containment devices for the purpose of treatment if the §265.17(b) regulations are complied with (see previous Section of this document).

As mentioned earlier, the Agency is deferring regulation of volatile wastes, which may cause air emissions to be generated from treatment facilities. The only restriction included in the final interim

status standards on the treatment of incompatible wastes in facilities subject to control under Subparts J and Q, is that this treatment comply with §265.17(b).

2. The Agency believes that placing hazardous waste in containment devices which previously held an incompatible waste should be restricted even when the device is "empty", because the residues that are left in the device may react adversely with the "new" waste to be stored or treated in the device. Damage incident #5 on page 6 of this document exemplifies the type of potential hazards associated with placing waste in an unwashed containment device which previously held an incompatible waste. This hazard exists even if the tank itself is compatible with both the previous waste and the "new" waste.

The Agency believes that, unless devices are cleaned (washed), they are seldom empty because the pumps and drain valves used for this purpose are seldom capable of removing the last drops of waste which settle to the bottom, or adhere to the sides of the tank. Therefore, the requirement to wash a tank before emplacing a "new" waste in it, -- if the "new" waste is incompatible with the "original" waste -- has been retained in the final standards. However, the standard has been reworded to allow waste to be placed in an unwashed device which previously held an incompatible waste, if it is done in accordance with §265.17(b).

E. Final Regulation Language:

§265.199 Special requirements for incompatible waste

(a) Incompatible wastes or incompatible wastes and materials, (see Appendix V for examples) must not be placed in the same tank unless §265.17(b) is complied with.

(b) Hazardous waste must not be placed in an unwashed tank which previously held an incompatible waste or material, unless §265.17(b) is complied with.

§265.406 Special requirements for incompatible wastes

(a) Incompatible wastes, or incompatible wastes and materials, (see Appendix V for examples) must not be placed in the same treatment process or equipment, unless §265.17(b) is complied with.

(b) Hazardous waste must not be placed in unwashed treatment equipment which previously held an incompatible waste or material, unless §265.17(b) is complied with.

XI. Subject: NPDES Facilities

A. Summary of Comments:

NPDES-permitted treatment facilities should be exempt from the §250.45-6 standards, because:

1. these facilities are regulated under Section 402 of the Clean Water Act, and Section 1006 of RCRA specifically excludes activities or substances subject to the Clean Water Act from regulation under RCRA.

2. the terms of the NPDES permit overlap and are inconsistent with the provisions of §250.45-6. For example, §250.45-6(g), which requires by-passing, is incompatible with certain industry NPDES requirements which prohibit by-passing.

3. the standards dictate design and operating procedures which are outside of the RCRA mandate for such facilities.

B. Analysis of and Response to Comments:

1-2. Section 1006 of RCRA excludes activities or substances subject to the Clean Water Act (CWA) "except to the extent that such application (or regulation) is not inconsistent with the requirements" of the CWA. As stated earlier, the Agency believes it has authority under RCRA to regulate NPDES facilities. The Agency is also unaware of any regulations promulgated under the CWA which are inconsistent with the proposed §250.45-6 standards. With regard to the example cited by the commenters concerning by-pass systems, proposed §250.45-6(g)

gave, and present §265.192(d) gives, owners or operators the option of either equipping their treatment systems with an automatic waste feed cut-off or a by-pass system. Thus, in those instances where the provisions of a facility's NPDES permit prohibit by-passing, owners or operators are able to comply with the proposed standard by installing an automatic waste feed cut-off system at their facilities.

3. As explained on pages 17-18 of this document, the Agency believes that the standards it has proposed for treatment facilities are in accordance with the authority given to the Agency in Section 3004 of RCRA. Thus, where NPDES-permitted facilities contain hazardous waste, the Agency believes that these facilities should comply with the standards promulgated under Section 3004 of RCRA, as well as those promulgated under the CWA. Response to this comment is also contained in the preamble to the Section 3001 standards. In addition, the proposed and present interim status standards contain few of the design standards proposed for the general status standards. Comments directed toward the general standard design requirements will be discussed when general design standards are promulgated.

XII. Subject: Miscellaneous Comments

Comment: It is unreasonable to require facilities which change the pH of their wastes, so as to render them less hazardous before disposal, to comply with the requirements for treatment facilities. This points out the need for separate standards for on-site treatment and storage facilities.

Response: The definition of "treatment", in Section 1004 of RCRA, specifically includes neutralization processes. Because the regulation of pH is a "neutralization process", the Agency's regulations which pertain to treatment facilities must apply to all facilities which change the pH of their waste.

Because facilities which neutralize their waste on-site pose an equal potential threat to human health and the environment as do off-site neutralization processes,* the Agency disagrees with the commenter's suggestion that separate sets of standards should be written for on-site facilities at which hazardous waste is neutralized.

Comment: The standards for treatment facilities (§250.45-6) are too detailed because they impose requirements on semi-hazardous materials which will have little or no effect upon water quality or public health. The standards for treatment facilities should be related to the degree of hazard of the waste being treated.

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* Except for totally enclosed treatment facilities, which have been exempted from the Subtitle C rules (see page 19 of this document).

Response: The Agency disagrees with the commenter's suggestion that the proposed standards for treatment facilities are too detailed. On the contrary, the Agency recognized that it is difficult to write specific design and operating standards which would be appropriate for all treatment systems and, therefore, wrote performance-oriented standards in the proposed §250.45-6 rules for chemical, physical, and biological treatment facilities. The Agency believes that all of these proposed standards are appropriate for all hazardous waste treatment facilities, regardless of the hazard of the waste being treated. (See the background document entitled "Degree of Hazard" for the Agency's rationale for not establishing regulations based on the degree of hazard of the waste.)

FINAL INTERIM STATUS REGULATION LANGUAGE

Subpart J - Tanks

§265.190 Applicability

The regulations in this Subpart apply to owners and operators of facilities that use tanks to treat or store hazardous waste, except as §265.1 provides otherwise.

[§265.191 Reserved]

§265.192 General operating requirements*

(a) Treatment or storage of hazardous waste in tanks must comply with §265.17(b).

(b) Hazardous wastes or treatment reagents must not be placed in a tank if they could cause the tank or its inner liner to rupture, leak, corrode, or otherwise fail before the end of its intended life.

(c) Uncovered tanks must be operated to ensure at least 60 centimeters (2 feet) of freeboard, unless the tank is equipped with a containment structure (e.g., dike or trench), a drainage control system, or a diversion structure (e.g., standby tank) with a capacity that equals or exceeds the volume of the top 60 centimeters (2 feet) of the tank.

(d) Where hazardous waste is continuously fed into a tank, the tank must be equipped with a means to stop this inflow (e.g., a waste feed cutoff system or by-pass system to a stand-by tank).

[Comment: These systems are intended to be used in the event of a leak or overflow from the tank due to a system failure (e.g., a malfunction in the treatment process, a crack in the tank, etc.).]

§265.193 Waste analysis and trial tests*

In addition to the waste analysis required by §265.13, whenever a tank is to be used to:

(1) Chemically treat or store a hazardous waste which is substantially different from waste previously treated or stored in that tank; or

(2) Chemically treat hazardous waste with a substantially different process than any previously used in that tank;

the owner or operator must, before treating or storing the different waste or using the different process:

(1) Conduct waste analyses and trial treatment or storage tests (e.g., bench scale or pilot plant scale tests); or

(2) Obtain written, documented information on similar storage or treatment of similar waste under similar operating conditions;

to show that this proposed treatment or storage will meet all applicable requirements of §265.192(a) and (b).

[Comment: As required by §265.13, the waste analysis plan must include analyses needed to comply with §§265.198 and 265.199. As required by §265.73, the owner or operator must place the results from each waste analysis and trial test, or the documented information, in the operating record of the facility.]

§265.194 Inspections

The owner or operator of a tank must inspect, where present:

(1) Discharge control equipment (e.g., waste feed cut-off systems, by-pass systems, and drainage systems), at least

once each operating day, to ensure that it is in good working order;

(2) Data gathered from monitoring equipment (e.g., pressure and temperature gauges), at least once each operating day, to ensure that the tank is being operated according to its design;

(3) The level of waste in the tank, at least once each operating day, to ensure compliance with §265.192(c);

(4) The construction materials of the tank, at least weekly, to detect corrosion or leaking of fixtures or seams; and

(5) The construction materials of, and the area immediately surrounding, discharge confinement structures (e.g., dikes), at least weekly, to detect erosion or obvious signs of leakage (e.g., wet spots or dead vegetation).

[Comment: As required by §265.15(c), the owner or operator must remedy any deterioration or malfunction he finds.]

[§§265.195 - 265.196 Reserved]

§265.197 Closure

At closure, all hazardous waste and hazardous waste residues must be removed from tanks, discharge control equipment, and discharge confinement structures.

[Comment: At closure, as throughout the operating period, unless the owner or operator can demonstrate, in accordance with §261.3(f) of this Chapter, that the residue removed from his tank is not a hazardous waste, the owner or operator becomes a generator of

hazardous waste and must manage it in accordance with all applicable requirements of Parts 262, 263, and 265 of this Chapter.]

§265.198 Special requirements for ignitable or reactive waste

[Interim Final]

(a) Ignitable or reactive waste must not be placed in a tank, unless:

(1) The waste is treated, rendered, or mixed before or immediately after placement in the tank so that (i) the resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive waste under §§261.21 or 261.23 of this Chapter, and (ii) §265.17(b) is complied with; or

(2) The waste is stored or treated in such a way that it is protected from any material or conditions which may cause the waste to ignite or react; or

(3) The tank is used solely for emergencies.

(b) The owner or operator of a facility which treats or stores ignitable or reactive waste in covered tanks must comply with the National Fire Protection Association's (NFPA's) buffer zone requirements for tanks, contained in Tables 2-1 through 2-6 of the "Flammable and Combustible Code - 1977".

[Comment: See §265.17(a) for additional requirements.]

§265.199 Special requirements for incompatible wastes

(a) Incompatible wastes, or incompatible wastes and materials, (see Appendix V for examples) must not be placed in the same tank, unless §265.17(b) is complied with.

(b) Hazardous waste must not be placed in an unwashed tank which previously held an incompatible waste or material, unless §265.17(b) is complied with.

[§§265.200 - 265.219 Reserved]

Subpart Q - Chemical, Physical, and Biological Treatment

§265.400 Applicability

The regulations in this Subpart apply to owners and operators of facilities which treat hazardous wastes by chemical, physical, or biological methods in other than tanks, surface impoundments, and land treatment facilities, except as §265.1 provides otherwise. Chemical, physical, and biological treatment of hazardous waste in tanks, surface impoundments, and land treatment facilities must be conducted in accordance with Subparts J, K, and M, respectively.

§265.401 General operating requirements*

(a) Chemical, physical, or biological treatment of hazardous waste must comply with §265.17(b).

(b) Hazardous wastes or treatment reagents must not be placed in the treatment process or equipment if they could cause the treatment process or equipment to rupture, leak, corrode, or otherwise fail before the end of its intended life.

(c) Where hazardous waste is continuously fed into a treatment process or equipment, the process or equipment must be equipped with a means to stop this inflow (e.g., a waste feed cut-off system or by-pass system to a standby containment device). [Comment: These systems are intended to be used in the event of a malfunction in the treatment process or equipment.]

§265.402 Waste analysis and trial tests*

In addition to the waste analysis required by §265.13, whenever:

(1) A hazardous waste which is substantially different from waste previously treated in a treatment process or equipment at the facility is to be treated in that process or equipment, or

(2) A substantially different process than any previously used at the facility is to be used to chemically treat hazardous waste;

the owner or operator must, before treating the different waste or using the different process or equipment:

(1) Conduct waste analyses and trial treatment tests (e.g., bench scale or pilot plant scale tests); or

(2) Obtain written, documented information on similar treatment of similar waste under similar operating conditions;

to show that this proposed treatment will meet all applicable requirements of §265.401 (a) and (b).

[Comment: As required by §265.13, the waste analysis plan must include analyses needed to comply with §§265.405 and 265.406. As required by §265.73, the owner or operator must place the results from each waste analysis and trial test, or the documented information, in the operating record of the facility.]

§265.403 Inspections

The owner or operator of a treatment facility must inspect, where present:

(1) Discharge control and safety equipment (e.g., waste feed cut-off systems, by-pass systems, draingage systems, and pressure relief systems) at least once each operating day, to ensure that it is in good working order;

(2) Data gathered from monitoring equipment (e.g., pressure and temperature gauges), at least once each operating day, to ensure that the treatment process or equipment is being operated according to its design;

(3) The construction materials of the treatment process or equipment, at least weekly, to detect corrosion or leaking of fixtures or seams; and

(4) The construction materials of, and the area immediately surrounding, discharge confinement structures (e.g., dikes), at least weekly, to detect erosion or obvious signs of leakage (e.g., wet spots or dead vegetation).

[Comment: As required by §265.15(c), the owner or operator must remedy any deterioration or malfunction he finds.]

§265.404 Closure

At closure, all hazardous waste and hazardous waste residues must be removed from treatment processes or equipment, discharge control equipment, and discharge confinement structures.

[Comment: At closure, as throughout the operating period, unless the owner or operator can demonstrate, in accordance with §261.3(f) of this Chapter, that the residue removed from his treatment process or equipment is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and must manage

it in accordance with all applicable requirements of Parts 262, 263, and 265 of this Chapter.]

§265.405 Special requirements for ignitable or reactive waste [Interim Final]

(a) Ignitable or reactive waste must not be placed in a treatment process or equipment unless:

(1) The waste is treated, rendered, or mixed before or immediately after placement in the treatment process or equipment so that (i) the resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive waste under §§261.21 or 261.23 of this Chapter, and (ii) §265.17(b) is complied with; or

(2) The waste is treated in such a way that it is protected from any material or conditions which may cause the waste to ignite or react.

§265.406 Special requirements for incompatible wastes

(a) Incompatible wastes, or incompatible wastes and materials, (see Appendix V for examples) must not be placed in the same treatment process or equipment, unless §265.17(b) is complied with.

(b) Hazardous waste must not be placed in unwashed treatment equipment which previously held an incompatible waste or material, unless §265.17(b) is complied with.

[§§265.407 - 265.429 Reserved]

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APPENDIX I

NFPA Buffer Zone Requirements for Tanks

Table 2-1

Stable Liquids (Operating Pressure 2.5 psig or Less)

Type of Tank	Protection	Minimum Distance in Feet from Property Line Which Is or Can Be Built Upon, Including the Opposite Side of a Public Way and Shall Be Not Less Than 5 Feet	Minimum Distance in Feet from Nearest Side of Any Public Way or from Nearest Important Building on the Same Property and Shall Be Not Less Than 5 Feet
Floating Roof [See 2-2.1.1(a)]	Protection for Exposures*	½ times diameter of tank	⅙ times diameter of tank
	None	Diameter of tank but need not exceed 175 feet	⅙ times diameter of tank
Vertical with Weak Roof to Shell Seam (See 2-2.1.1)	Approved foam or inerting system on tanks not exceeding 150 feet in diameter**	½ times diameter of tank	⅙ times diameter of tank
	Protection for Exposures*	Diameter of tank	⅓ times diameter of tank
	None	2 times diameter of tank but need not exceed 350 feet	⅓ times diameter of tank
Horizontal and Vertical with Emergency Relief Venting To Limit Pressures to 2.5 psig	Approved inerting system on the tank or approved foam system on vertical tanks	½ times Table 2-6	½ times Table 2-6
	Protection for Exposures*	Table 2-6	Table 2-6
	None	2 times Table 2-6	Table 2-6

*See definition for "Protection for Exposures."

**For tanks over 150 ft. in diameter use "Protection for Exposures" or "None" as applicable.

Table 2-2

Stable Liquids (Operating Pressure Greater Than 2.5 psig)

Type of Tank	Protection	Minimum Distance in Feet from Property Line Which Is or Can Be Built Upon, Including the Opposite Side of a Public Way	Minimum Distance in Feet from Nearest Side of Any Public Way or from Nearest Important Building on the Same Property
Any Type	Protection for Exposures*	1½ times Table 2-6 but shall not be less than 25 feet	1½ times Table 2-6 but shall not be less than 25 feet
	None	3 times Table 2-6 but shall not be less than 50 feet	1½ times Table 2-6 but shall not be less than 25 feet

*See Definition for "Protection for Exposures."

Table 2-3

Boil-over Liquids

Type of Tank	Protection	Minimum Distance in Feet from Property Line Which Is or Can Be Built Upon, Including the Opposite Side of a Public Way and Shall Be Not Less Than 5 Feet	Minimum Distance in Feet from Nearest Side of Any Public Way or from Nearest Important Building on the Same Property and Shall Be Not Less Than 5 Feet
Floating Roof [See 2-2.1.1(a)]	Protection for Exposures*	½ times diameter of tank	⅙ times diameter of tank
	None	Diameter of tank	⅙ times diameter of tank
Fixed Roof [See 2-2.1.4(a)]	Approved foam or inerting system	Diameter of tank	⅓ times diameter of tank
	Protection for Exposures*	2 times diameter of tank	⅔ times diameter of tank
	None	4 times diameter of tank but need not exceed 350 feet	⅔ times diameter of tank

*See definition for "Protection for Exposures."

Table 2-4 Unstable Liquids

Type of Tank	Protection	Minimum Distance in Feet from Property Line Which Is or Can Be Built Upon, Including the Opposite Side of a Public Way	Minimum Distance in Feet from Nearest Side of Any Public Way or from Nearest Important Building on the Same Property
Horizontal and Vertical Tanks with Emergency Relief Venting to Permit Pressure Not in Excess of 2.5 psig	Tank protected with any one of the following: Approved water spray, Approved inerting, Approved insulation and refrigeration, Approved barricade	Table 2-6 but not less than 25 feet	Not less than 25 feet
	Protection for Exposures*	2½ times Table 2-6 but not less than 50 feet	Not less than 50 feet
	None	5 times Table 2-6 but not less than 100 feet	Not less than 100 feet
Horizontal and Vertical Tanks with Emergency Relief Venting to Permit Pressure Over 2.5 psig	Tank protected with any one of the following: Approved water spray, Approved inerting, Approved insulation and refrigeration, Approved barricade	2 times Table 2-6 but not less than 50 feet	Not less than 50 feet
	Protection for Exposures*	4 times Table 2-6 but not less than 100 feet	Not less than 100 feet
	None	8 times Table 2-6 but not less than 150 feet	Not less than 150 feet

*See definition for "Protection for Exposures."

Table 2-5 Class IIIB Liquids

Capacity Gallons	Minimum Distance in Feet from Property Line Which Is or Can Be Built Upon, Including the Opposite Side of a Public Way	Minimum Distance in Feet from Nearest Side of Any Public Way or from Nearest Important Building on the Same Property
12,000 or less	5	5
12,001 to 30,000	10	5
30,001 to 50,000	10	10
50,001 to 100,000	15	10
100,001 or more	15	15

Table 2-6

Reference Table for Use in Tables 2-1 to 2-4

Capacity Tank Gallons	Minimum Distance in Feet from Property Line Which Is or Can Be Built Upon, Including the Opposite Side of a Public Way	Minimum Distance in Feet from Nearest Side of Any Public Way or from Nearest Important Building on the Same Property
275 or less	5	5
276 to 750	10	5
751 to 12,000	15	5
12,001 to 30,000	20	5
30,001 to 50,000	30	10
50,001 to 100,000	50	15
100,001 to 500,000	80	25
500,001 to 1,000,000	100	35
1,000,001 to 2,000,000	135	45
2,000,001 to 3,000,000	165	55
3,000,001 or more	175	60

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