JACOBS

TES IV

SUMMARY OF OPTIONS AND CRITERIA USED TO DETERMINE THE APPLICABILITY OF BURNING ALLIED-CHEMICAL'S WASTE IN AN ENERGY RECOVERY SYSTEM

ALLIED CHEMICAL/IRONTON COKE
IRONTON, OHIO

U.S. EPA REGION V

JACOBS ENGINEERING GROUP INC.
ENVIRONMENTAL SYSTEMS DIVISION

IN ASSOCIATION WITH:
TETRA TECH
METCALF & EDDY
ICAIR LIFE SYSTEMS
KELLOGG CORPORATION
GEO/RESOURCE CONSULTANTS
BATTelle PACIFIC NORTHWEST LABORATORIES
DEVELOPMENT PLANNING AND RESEARCH ASSOCIATES
SUMMARY OF OPTIONS AND CRITERIA USED TO DETERMINE THE APPLICABILITY OF BURNING ALLIED-CHEMICAL'S WASTE IN AN ENERGY RECOVERY SYSTEM

ALLIED CHEMICAL/IRONTON COKE
IRONTON, OHIO

JACOBS ENGINEERING GROUP INC.
PROJECT NO. 05-B734-00

AUGUST 1989
Ms. Therese Gioia  
TES IV Primary Contact  
U.S. EPA Region V  
230 South Dearborn Street  
Chicago, IL 60604  

RE: Contract No. 68-01-7351  
Work Assignment No. 734  
Project No. 05-B734-00  
Allied-Chemical/Ironton Coke Site  
Ironton, Ohio  
RI/FS Oversight  
CERCLA, Region V  

Dear Ms. Gioia:

Please find submitted herewith one (1) copy of a Summary of Options and Criteria Used to Determine the Applicability of Burning Allied-Chemical's Waste in an Energy Recovery System. Metcalf & Eddy, Inc. (M&E) has reviewed the federal regulations that would apply to the burning of materials from lagoon 5 in an energy recovery system. Based on regulations codified in 40 CFR Part 266, Subpart D, M&E has concluded that the waste materials from lagoon 5 can be burned in industrial boilers or industrial furnaces used to recover thermal energy.

Attached are a flow chart (Figure 1) and a related summary description that list options and criteria used to determine the applicability of an energy recovery system to the Allied-Chemical site. The flow chart and summary explain that waste from lagoon 5 can be classified as a hazardous waste fuel, and, in accordance with the regulations, can be burned for legitimate energy recovery (assuming that the waste can be shown to have adequate Btu content).

If an industrial boiler is chosen for burning the hazardous waste fuel, the boiler must have an energy recovery efficiency of at least 60 percent and also export at least 75 percent of the recovered energy.

At this time, M&E personnel are reviewing specific site options concerning potential industrial boiler or furnace locations, specific combustion parameters, the size of boiler needed, and the length of time needed to destroy the waste materials located at the site.
If you have any questions or require additional information concerning these conclusions, please feel free to contact either Mr. Todd Struttman with Metcalf & Eddy at (614) 436-5550 or myself at (312) 648-0002.

Sincerely,

[Signature]

Michael J. Strimbu
Action Regional Manager

Enclosure

cc: E. Howard, EPA RPO
SUMMARY OF OPTIONS AND CRITERIA USED TO DETERMINE THE APPLICABILITY
OF BURNING ALLIED-SIGNAL’S WASTE IN AN ENERGY RECOVERY SYSTEM.

Metcalf & Eddy, Inc., (M&E) has reviewed the federal regulations that apply to
the burning of materials from lagoon 5 in an energy recovery system. Based on
regulations codified in 40 CFR Part 266, Subpart D, M&E has concluded that the
waste materials from lagoon 5 can be burned in industrial boilers or
industrial furnaces used to recover thermal energy. The Federal EPA generally
classifies as fuels those materials that contain at least a minimum of 5,000
Btu/lb.

Figure 1 is a flow chart that describes the available options and criteria for
burning hazardous waste in an energy recovery system. Listed below is a
narrative describing the flow chart.

1) **Hazardous Waste:** Some of the material (Tar decanter sludge, tar, and
residual coke and coal) present at the Allied-Signal site is a listed
hazardous waste (K087) according to 40 CFR 261.32 (see Appendix,
Attachment 2). The Allied-Signal site is a Comprehensive Environmental
Response, Compensation, and Liability Act (CERCLA) site subject to
CERCLA guidance. However, RCRA rules governing these types of materials
may be Applicable or Relevant and Appropriate Requirements (ARARs) for
the Allied-Signal site. RCRA rules (40 CFR 261.3(2)(iv); see Appendix,
Attachment 3) state that even though this material is a mixture of solid
waste and a hazardous waste that is listed in Subpart D, all of the
mixture should be considered a hazardous waste.

2) **Hazardous Waste Fuel:** This hazardous waste material can properly be
classified as a hazardous waste fuel if it will be burned for energy
recovery in an industrial boiler or industrial furnace according to
40 CFR 266.30 (see Appendix, Attachment 4). If the material cannot be
classified as hazardous waste fuel, then the only possible thermal
treatment option would be hazardous waste incineration
(40 CFR Subpart O 264.340 and 265.340; Appendix, Attachment 5).

3) **Btu Content:** The recommended Btu value of a material to be considered
a hazardous waste fuel that can then be burned in a boiler or furnace
for energy recovery is > 5,000 Btu/lb. These values are guidelines, not
regulations (Mr. Dwight Hlustick, Chemical Engineer, Hazardous Waste
Combustion Division, U.S. EPA). M&E expects that the material present
in Lagoon 5 can be shown to have a high enough Btu value to be
considered as a legitimate fuel.

4) **Industrial Furnace:** Hazardous waste fuel may be burned in an
industrial furnace in accordance with the regulations as long as that
furnace meets the definition in 40 CFR 250.10 (see Appendix, Attachment
1) that the furnace must be an integral component of a manufacturing
process and must use a flame controlled device to accomplish recovery of
materials or energy.
Examples of industrial furnace include:

1. **Cement Kiln**: To qualify as an industrial furnace, a cement kiln may burn hazardous waste only if it is located outside the boundaries of a municipality of a population greater than 500,000 (40 CFR 266.31).

2. **Lime Kiln**
3. **Phosphate Kiln**
4. **Aggregate Kiln**
5. **Blast Furnace**
6. **Coke Oven**
7. **Smelting Furnace**

5) **Industrial Boiler**: Hazardous waste fuel may be burned in an industrial boiler if the boiler is a combustion unit designed to recover and export thermal energy in the form of steam, heated fluids, or heated gases. The combustion chamber and primary energy recovery section must be of integral design (40 CFR 260.10; see Appendix, Attachment 1).

6) **Industrial Boiler Efficiency**: Hazardous waste fuel may be burned in an industrial boiler as long as the boiler maintains a thermal efficiency of 60 percent, calculated in terms of the recovered energy compared with the thermal value of the fuel (40 CFR 260.10; see Appendix, Attachment 1).

7) **Industrial Boiler Energy Recovery**: Hazardous waste fuel may be burned in an industrial boiler as long as the boiler exports 75 percent of the recovered energy (40 CFR 260.10; see Appendix, Attachment 1).

8) **Burn Material in Boiler**: The material at the Allied-Signal site may be legitimately burned in an industrial boiler for energy recovery if Items 2 through 7 are applicable (40 CFR 266(D)).

9) **Hazardous Waste Incinerator**: If the criteria for the industrial boiler (2 through 7) and industrial furnace (2 and 3) are not met at the Allied-Signal site, the only remaining option for thermal treatment of the material would be to burn it in a hazardous waste incinerator (40 CFR 260.10; see Appendix, Attachment 1). The burning of the Allied-Signal material in a hazardous waste incinerator can be expected to limit the number of thermal treatment options/sites, cost much more than burning in an industrial furnace or boiler, and would certainly negate many of the advantages of thermal treatment.

Metcalf & Eddy, Inc., asserts that the materials present in Lagoon 5 at the Allied-Signal site can be properly burned in an industrial furnace or boiler and still comply with all ARARs for the site for the reasons listed above. M&E recommends that a detailed evaluation of possible options for thermal treatment be conducted to identify potential industrial furnace boiler locations that might be able and willing to accept the hazardous waste fuel from Lagoon 5. Concomitantly, representative samples of the Lagoon 5 material should be analyzed to determine fuel and processing characteristics to assure that the material can properly be considered a hazardous waste fuel.
Figure 1

Flow Chart That Describes Available Options and Criteria for Burning Hazardous Waste in an Energy Recovery System

1) Hazardous Waste?

2) Hazardous Waste Fuel?

3) Btu Content of > 5,000 Btu/lb?

4) Industrial Furnace
   - Lime Kiln
   - Phosphate Kiln
   - Blast Furnace
   - Coke Oven

5) Industrial Boiler
   - Aggregate Kiln
   - Cement Kiln
   - Smelting Furnace

6) Efficiency of > 60%?

7) Energy Recovery > 75%?

8) Burn Material in Boiler

9) Hazardous Waste Incinerator
Appendix

Subparts of 40 CFR Pertaining to Burning Hazardous Waste for Energy Recovery
Attachment 1

40 CFR 260.10, Subpart B

Definitions
§ 260.3 Use of number and gender.

As used in Parts 260 through 265 and 268 of this chapter:
(a) Words in the masculine gender also include the feminine and neuter genders; and
(b) Words in the singular include the plural; and
(c) Words in the plural include the singular.

Subpart B—Definitions

§ 260.10 Definitions.

When used in Parts 260 through 265 and 268 of this chapter, the following terms have the meanings given below:

"Above ground tank" means a device meeting the definition of "tank" in § 260.10 and that is situated in such a way that the entire surface area of the tank is completely above the plane of the adjacent surrounding surface and the entire surface area of the tank (including the tank bottom) is able to be visually inspected.


"Active life" of a facility means the period from the initial receipt of hazardous waste at the facility until the Regional Administrator receives certification of final closure.

"Active portion" means that portion of a facility where treatment, storage, or disposal operations are being or have been conducted after the effective date of Part 261 of this chapter and which is not a closed portion. (See also "closed portion" and "inactive portion").

"Administrator" means the Administrator of the Environmental Protection Agency, or his designee.

"Ancillary equipment" means any device including, but not limited to, such devices as piping, fittings, flanges, valves, and pumps, that is used to distribute, meter, or control the flow of hazardous waste from its point of generation to a storage or treatment tank(s), between hazardous waste storage and treatment tanks to a point of disposal onsite, or to a point of shipment for disposal off-site.

"Aquifer" means a geologic formation, group of formations, or part of a formation capable of yielding a significant amount of ground water to wells or springs.

"Authorized representative" means the person responsible for the overall operation of a facility or an operational unit (i.e., part of a facility), e.g., the plant manager, superintendent or person of equivalent responsibility.

"Boiler" means an enclosed device using controlled flame combustion and having the following characteristics:

(i) The unit must have physical provisions for recovering and exporting thermal energy in the form of steam, heated fluids, or heated gases; and

(ii) The unit's combustion chamber and primary energy recovery section(s) must be of integral design. To be of integral design, the combustion chamber and the primary energy recovery section(s) (such as waterwalls and superheaters) must be physically formed into one manufactured or assembled unit. A unit in which the combustion chamber and the primary energy recovery section(s) are joined only by ducts or connections carrying flue gas is not integrally designed; however, secondary energy recovery equipment (such as economizers or air preheaters) need not be physically formed into the same unit as the combustion chamber and the primary energy recovery section. The following units are not precluded from being boilers solely because they are not of integral design: process heaters (units that transfer energy directly to a process stream), and fluidized bed combustion units; and

(iii) While in operation, the unit must maintain a thermal energy recovery efficiency of at least 60 percent, calculated in terms of the recovered energy compared with the thermal value of the fuel; and

(iv) The unit must export and utilize at least 75 percent of the recovered energy, calculated on an annual basis. In this calculation, no credit shall be
given for recovered heat used internally in the same unit. (Examples of internal use are the preheating of fuel or combustion air, and the driving of induced or forced draft fans or feedwater pumps; or
(2) The unit is one which the Regional Administrator has determined, on a case-by-case basis, to be a boiler, after considering the standards in §260.32.

"Certification" means a statement of professional opinion based upon knowledge and belief.

"Closed portion" means that portion of a facility which an owner or operator has closed in accordance with the approved facility closure plan and all applicable closure requirements. (See also "active portion" and "inactive portion").

"Component" means either the tank or ancillary equipment of a tank system.

"Confined aquifer" means an aquifer bounded above and below by impermeable beds or by beds of distinctly lower permeability than that of the aquifer itself; an aquifer containing confined ground water.

"Container" means any portable device in which a material is stored, transported, treated, disposed of, or otherwise handled.

"Contingency plan" means a document setting out an organized, planned, and coordinated course of action to be followed in case of a fire, explosion, or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment.

"Corrosion expert" means a person who, by reason of his knowledge of the physical sciences and the principles of engineering and mathematics, acquired by a professional education and related practical experience, is qualified to engage in the practice of corrosion control on buried or submerged metal piping systems and metal tanks. Such a person must be certified as being qualified by the National Association of Corrosion Engineers (NACE) or be a registered professional engineer who has certification or licensing that includes education and experience in corrosion control on buried or submerged metal piping systems and metal tanks.

"Designated facility" means a hazardous waste treatment, storage, or disposal facility which has received an EPA permit (or a facility with interim status) in accordance with the requirements of Parts 270 and 124 of this chapter, a permit from a State authorized in accordance with Part 271 of this chapter, or that is regulated under §261.6(c)(2) or Subpart F of Part 266 of this chapter, and that has been designated on the manifest by the generator pursuant to §262.20.

"Dike" means an embankment or ridge of either natural or man-made materials used to prevent the movement of liquids, sludges, solids, or other materials.

"Discharge" or "hazardous waste discharge" means the accidental or intentional spilling, leaking, pumping, pouring, emitting, emptying, or dumping of hazardous waste into or on any land or water.

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

"Disposal facility" means a facility or part of a facility at which hazardous waste is intentionally placed into or on any land or water, and at which waste will remain after closure.

"Elementary neutralization unit" means a device which:
(1) Is used for neutralizing wastes which are hazardous wastes only because they exhibit the corrosivity characteristic defined in §261.22 of this chapter, or are listed in Subpart D of Part 261 of this chapter only for this reason; and,
(2) Meets the definition of tank, container, transport vehicle, or vessel in §260.10 of this chapter.

"EPA hazardous waste number" means the number assigned by EPA to each hazardous waste listed in Part 261, Subpart D, of this chapter and to each characteristic identified in Part 261, Subpart C, of this chapter.
whose products are consumed by humans.

"Free liquids" means liquids which readily separate from the solid portion of a waste under ambient temperature and pressure.

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

"Generator" means any person, by site, whose act or process produces hazardous waste identified or listed in Part 261 of this chapter or whose act first causes a hazardous waste to become subject to regulation.

"Ground water" means water below the land surface in a zone of saturation.

"Hazardous waste" means a hazardous waste as defined in § 261.3 of this chapter.

"Hazardous waste constituent" means a constituent that caused the Administrator to list the hazardous waste in Part 261, Subpart D, of this chapter, or a constituent listed in Table 1 of § 261.24 of this chapter.

"Hazardous waste management unit" is a contiguous area of land on or in which hazardous waste is placed, or the largest area in which there is significant likelihood of mixing hazardous waste constituents in the same area. Examples of hazardous waste management units include a surface impoundment, a waste pile, a landfill cell, an incinerator, a tank and its associated piping and underlying containment system and a container storage area. A container alone does not constitute a unit; the unit includes containers and the land or pad upon which they are placed.

"In operation" refers to a facility which is treating, storing, or disposing of hazardous waste.

"Inactive portion" means that portion of a facility which is not operated after the effective date of Part 261 of this chapter. (See also "active portion" and "closed portion".)

"Incinerator" means any enclosed device using controlled flame combustion that neither meets the criteria for classification as a boiler nor is listed as an industrial furnace.

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

1. 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
2. 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.)

"Individual generation site" means the contiguous site at or on which one or more hazardous wastes are generated. An individual generation site, such as a large manufacturing plant, may have one or more sources of hazardous waste but is considered a single or individual generation site if the site or property is contiguous.

"Industrial furnace" means any of the following enclosed devices that are integral components of manufacturing processes and that use controlled flame devices to accomplish recovery of materials or energy:

1. Cement kilns
2. Lime kilns
3. Aggregate kilns
4. Phosphate kilns
5. Coke ovens
6. Blast furnaces
7. Smelting, melting and refining furnaces (including pyrometallurgical devices such as cupolas, reverberatory furnaces, sintering machine, roasters, and foundry furnaces)
8. Titanium dioxide chloride process oxidation reactors
9. Methane reforming furnaces
10. Pulping liquor recovery furnaces
11. Combustion devices used in the recovery of sulfur values from spent sulfuric acid
12. Such other devices as the Administrator may, after notice and comment, add to this list on the basis of one or more of the following factors:
   1. The design and use of the device primarily to accomplish recovery of material products:
(ii) The use of the device to burn or reduce raw materials to make a material product;

(iii) The use of the device to burn or reduce secondary materials as effective substitutes for raw materials, in processes using raw materials as principal feedstocks;

(iv) The use of the device to burn or reduce secondary materials as ingredients in an industrial process to make a material product;

(v) The use of the device in common industrial practice to produce a material product; and

(vi) Other factors, as appropriate.

"Inground tank" means a device meeting the definition of "tank" in § 260.10 whereby a portion of the tank wall is situated to any degree within the ground, thereby preventing visual inspection of that external surface area of the tank that is in the ground.

"Injection well" means a well into which fluids are injected. (See also "underground injection").

"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 reagents used to treat the waste.

"Installation inspector" means a person who, by reason of his knowledge of the physical sciences and the principles of engineering, acquired by a professional education and related practical experience, is qualified to supervise the installation of tank systems.

"International shipment" means the transportation of hazardous waste into or out of the jurisdiction of the United States.

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

"Landfill cell" means a discrete volume of a hazardous waste landfill which uses a liner to provide isolation of wastes from adjacent cells or wastes. Examples of landfill cells are trenches and pits.
Attachment 2

40 CFR 261.32

Hazardous Waste from Specific Sources
Discarded commercial chemical products, off-specification species, container residues, and spill residues thereof.

The following materials or items are hazardous wastes if and when they are discarded or intended to be discarded as described in §261.2(a)(2)(i), when they are mixed with waste oil or used oil or other material and applied to the land for dust suppression or road treatment, when they are otherwise applied to the land in lieu of their original intended use or when they are contained in products that are applied to the land in lieu of their original intended use, or when, in lieu of their original intended use, they are produced for use as (or as a component of) a fuel, distributed for use as a fuel, or burned as a fuel.

(a) Any commercial chemical product, or manufacturing chemical intermediate having the generic name listed in paragraph (e) or (f) of this section.
Attachment 3
40 CFR 261.3
Definition of Hazardous Waste
(iii) Returned to the original process from which they are generated, without first being reclaimed. The material must be returned as a substitute for raw material feedstock, and the process must use raw materials as principal feedstocks.

(2) The following materials are solid wastes, even if the recycling involves use, reuse, or return to the original process (described in paragraphs (e)(1)(i) through (iii) of this section):

(i) Materials used in a manner constituting disposal, or used to produce products that are applied to the land;

(ii) Materials burned for energy recovery, used to produce a fuel, or contained in fuels;

(iii) Materials accumulated speculatively;

(iv) Materials listed in paragraph (d)(1) of this section.

(f) Documentation of claims that materials are not solid wastes or are conditionally exempt from regulation. Respondents in actions to enforce regulations implementing Subtitle C of RCRA who raise a claim that a certain material is not a solid waste, or is conditionally exempt from regulation, must demonstrate that there is a known market or disposition for the material, and that they meet the terms of the exclusion or exemption. In doing so, they must provide appropriate documentation (such as contracts showing that a second person uses the material as an ingredient in a production process) to demonstrate that the material is not a solid waste, or is conditionally exempt from regulation. Respondents in actions must also demonstrate that there is a known market or disposition for the material, and that they meet the terms of the exclusion or exemption.

In addition, owners or operators of facilities claiming that they actually are recycling materials must show that they have the necessary equipment to do so.

(50 FR 684, Jan. 4, 1985, as amended at 50 FR 33542, Aug. 20, 1985)

§ 261.3 Definition of hazardous waste.

(a) A solid waste, as defined in §261.2, is a hazardous waste if:

(1) It is not excluded from regulation as a hazardous waste under §261.4(b); and

(2) It meets any of the following criteria:

(i) It exhibits any of the characteristics of hazardous waste identified in Subpart C.

(ii) It is listed in Subpart D and has not been excluded from the lists in Subpart D under §§260.20 and 260.22 of this chapter.

(iii) It is a mixture of a solid waste and a hazardous waste that is listed in Subpart D solely because it exhibits one or more of the characteristics of hazardous waste identified in Subpart C, unless the resultant mixture no longer exhibits any characteristic of hazardous waste identified in Subpart C.

(iv) It is a mixture of solid waste and one or more hazardous wastes listed in Subpart D and has not been excluded from this paragraph under §§260.20 and 260.22 of this chapter; however, the following mixtures of solid wastes and hazardous wastes listed in Subpart D are not hazardous wastes (except by application of paragraph (a)(2)(i) of this section) if the generator can demonstrate that the mixture consists of wastewater the discharge of which is subject to regulation under either section 402 or section 307(b) of the Clean Water Act (including wastewater at facilities which have eliminated the discharge of wastewater) and:

(A) One or more of the following spent solvents listed in §261.31—carbon tetrachloride, tetrachloroethylene, trichloroethylene—Provided, That the maximum total weekly usage of these solvents (other than the amounts that can be demonstrated not to be discharged to wastewater) divided by the average weekly flow of wastewater into the headworks of the facility's wastewater treatment or pretreatment system does not exceed 1 part per million; or

(B) One or more of the following spent solvents listed in §261.31—methylene chloride, 1,1,1-trichloroethane, chlorobenzene, o-dichlorobenzene, cresols, cresylic acid, nitrobenzene, toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, spent chlorofluorocarbon solvents—provided that the maximum total weekly usage of these solvents (other than the amounts that can be demonstrated not to be discharged to wastewater) divid-
Attachment 4

40 CFR 266.30

Applicability
§266.21 Standards applicable to generators and transporters of materials used in a manner that constitutes disposal.

Generators and transporters of materials that are used in a manner that constitutes disposal are subject to the applicable requirements of Parts 262 and 263 of this chapter, and the notification requirement under Section 3010 of RCRA.

§266.22 Standards applicable to storers of materials that are to be used in a manner that constitutes disposal who are not the ultimate users.

Owners or operators of facilities that store recyclable materials that are to be used in a manner that constitutes disposal, but who are not the ultimate users of the materials, are regulated under all applicable provisions of Subparts A through L of Parts 264 and 265 and Parts 270 and 124 of this chapter and the notification requirement under Section 3010 of RCRA.

§266.23 Standards applicable to users of materials that are used in a manner that constitutes disposal.

(a) Owners or operators of facilities that use recyclable materials in a manner that constitutes disposal are regulated under all applicable provisions of Subparts A through N of Parts 264 and 265 and Parts 270 and 124 of this chapter and the notification requirement under Section 3010 of RCRA. (These requirements do not apply to products which contain these recyclable materials under the provisions of §266.20(b) of this chapter.)

[266.23(a) designated by 50 FR 28742, July 15, 1985]

(b) The use of waste or used oil or other material, which is contaminated with dioxin or any other hazardous waste (other than a waste identified solely on the basis of ignitability), for dust suppression or road treatment is prohibited.

[266.23(b) added by 50 FR 28742, July 15, 1985]

Subpart D — Hazardous Waste Burned for Energy Recovery

[Subpart D revised by 50 FR 49202, November 29, 1985]

§266.30 Applicability.

(a) The regulations of this subpart apply to hazardous wastes that are burned for energy recovery in any boiler or industrial furnace that is not regulated under Subpart O of Part 264 or 265 of this chapter, except as provided by paragraph (b) of this section. Such hazardous wastes burned for energy recovery are termed "hazardous waste fuel". Fuel produced from hazardous waste by processing, blending, or other treatment is also hazardous waste fuel. (These regulations do not apply, however, to gas recovered from hazardous waste management activities when such gas is burned for energy recovery.)

(b) The following hazardous wastes are not subject to regulation under this subpart:

(1) Used oil burned for energy recovery that is also a hazardous waste solely because it exhibits a characteristic of hazardous waste identified in Subpart C of Part 261 of this chapter. Such used oil is subject to regulation under Subpart E of Part 266 rather than this subpart, and

(2) Hazardous wastes that are exempt from regulation under §§261.4 and 261.6(a)(3)(v) through (l)(x) of this chapter, and hazardous wastes that are subject to the special requirements for small quantity generators under §261.5 of this chapter.

§266.31 Prohibitions.

(a) A person may market hazardous waste fuel only:

(1) To persons who have notified EPA of their hazardous waste fuel activities and have a U.S. EPA Identification Number; and

[266.31(a)(1) amended by 52 FR 11821, April 13, 1987]

(2) If the fuel is burned, to persons who burn the fuel in boilers or industrial furnaces identified in paragraph (b) of this section.

(b) Hazardous waste fuel may be burned for energy recovery in only the following devices:

(1) Industrial furnaces identified in §260.10 of this chapter;

(2) Boilers, as defined in §260.10 of this chapter, that are identified as follows:

(i) Industrial boilers located on the site of a facility engaged in a manufacturing process where substances are transformed into new products, including the component parts of products, by mechanical or chemical processes; or

(ii) Utility boilers used to produce electric power, steam, or heat or cooled air or other gases or fluids for sale.

(c) No fuel which contains any hazardous waste may be burned in any cement kiln which is located within the boundaries of any incorporated municipality with a population greater than 500,000 (based on the most recent census statistics) unless such kiln fully complies with regulations under this chapter that are applicable to incinerators.

§266.32 Standards applicable to generators of hazardous waste fuel.

(a) Generators of hazardous waste that is used as a fuel or used to produce a fuel are subject to Part 262 of this chapter.

(b) Generators who market hazardous waste fuel to a burner also are subject to §266.34.

(c) Generators who are burners also are subject to §266.35.

§266.33 Standards applicable to transporters of hazardous waste fuel.

Transporters of hazardous waste fuel (and hazardous waste that is used to produce a fuel) are subject to Part 268 of this chapter.

§266.34 Standards applicable to marketers of hazardous waste fuel.

Persons who market hazardous waste fuel are termed "marketers", and are subject to the following requirements. Marketers include generators who market hazardous waste fuel directly to a burner, persons who receive hazardous waste from generators and produce, process, or blend hazardous waste fuel from these hazardous wastes, and persons who distribute but do not process or blend hazardous waste fuel.

(a) Prohibitions. The prohibitions under §266.31(a)(1):

(b) Notification. Notification requirements under section 3010 of RCRA for hazardous waste fuel activities. Even if a marketer has previously notified EPA of his hazardous waste fuel management activities and obtained a U.S. EPA Identification Number, he must renotify to identify his hazardous waste fuel activities.

(c) Storage. The applicable provisions of §266.34, and Subparts A through L of Part 264, Subparts A through L of Part 265, and Part 270 of this chapter;

(d) Off-site shipment. The standards for generators in Part 262 of this chapter when a marketer initiates a shipment of hazardous waste fuel;
SPECIFIC WASTES/FACILITIES STANDARDS

(e) Required notices. (1) Before a marketer initiates the first shipment of hazardous waste fuel to a burner or another marketer, he must obtain a one-time written and signed certification from the burner or marketer certifying that:

[266.34(e)(i) and (ii) amended by 52 FR 11821, April 13, 1987]

(i) The burner or marketer has notified EPA and identified his waste-as-fuel activities; and

(ii) If the shipment is a burner, the burner will burn the hazardous waste fuel only in an industrial furnace or boiler identified in § 266.31(b).

(2) Before a marketer accepts the first shipment of hazardous waste fuel from another marketer, he must provide the other marketer with a one-time written and signed certification that he has notified EPA under section 3010 of RCRA and identified his hazardous waste fuel activities; and

(f) Recordkeeping. In addition to the applicable recordkeeping requirements of Parts 262, 264, and 265 of this chapter, a marketer must keep a copy of each certification notice he receives or sends for three years from the date he last engages in a hazardous waste fuel marketing transaction with the person who sends or receives the certification notice.

The notification requirements contained in paragraph (e) of this section were approved by OMB under control number 2050-0028. The storage requirements contained in paragraph (c) of this section were approved by OMB under control numbers 2050-0047 and 2050-0039, respectively. The applicable provisions of § 262.34 of this chapter.

§ 266.35 Standards applicable to burners of hazardous waste fuel.

Owners and operators of industrial furnaces and boilers identified in § 266.31(b) that burn hazardous waste fuel are “burners” and are subject to the following requirements:

[266.35 introductory paragraph amended by 52 FR 11821, April 13, 1987]

(a) Prohibitions. The prohibitions under § 266.31(b):

(b) Notification. Notification of hazardous waste fuel activities. Even if a burner has previously notified EPA of his hazardous waste management activities and obtained a U.S. EPA Identification Number, he must renotify to identify his hazardous waste fuel activities.

[266.35(b) amended by 52 FR 11821, April 13, 1987]

(c) Storage. (1) For short term accumulation by generator who burn their hazardous waste fuel on site, the applicable provisions of § 262.34 of this chapter:

(2) For existing storage facilities, the applicable provisions of Subparts A through L of Part 265, and Parts 270 and 124 of this chapter; and

(3) For new storage facilities, the applicable provisions of Subparts A through L of Part 265, and Parts 270 and 124 of this chapter:

[266.35(c)(3) amended by 52 FR 11821, April 13, 1987]

(d) Required notices. Before a burner accepts the first shipment of hazardous waste fuel from a marketer, he must provide the marketer with a one-time written and signed notice certifying that:

(1) He has notified EPA and identified his waste-as-fuel activities; and

[266.35(d)(1) amended by 52 FR 11821, April 13, 1987]

(2) He will burn the fuel only in a boiler or furnace identified in § 266.31(b).

(e) Recordkeeping. In addition to the applicable recordkeeping requirements of Parts 262, 264, and 265 of this chapter, a burner must keep a copy of each certification notice he sends to a marketer for three years from the date he last receives hazardous waste fuel from that marketer.

[Sec. 266.40(e)]

Subpart E—Used Oil Burned for Energy Recovery

[Subpart E added by 50 FR 49202, November 29, 1985]

§ 266.10 Applicability.

(a) The regulations of this subpart apply to used oil that is burned for energy recovery in any boiler or industrial furnace that is not regulated under Subpart D of Part 266 or 265 of this chapter, except as provided by paragraphs (c) and (e) of this section. Such used oil is termed “used oil fuel”.

(b) “Used oil” means any oil that has been refined from crude oil, used, and, as a result of such use, is contaminated by physical or chemical impurities.

(c) Except as provided by paragraph (d) of this section, used oil that is mixed with hazardous waste and burned for energy recovery is subject to regulation as hazardous waste fuel under Subpart D of Part 266. Used oil containing more than 1000 ppm of total halogens is presumed to be a hazardous waste because it has been mixed with hazardous waste as listed in Subpart D of Part 261 of this chapter. Persons may rebut this presumption by demonstrating that the used oil does not contain hazardous waste (for example, by showing that the used oil does not contain significant concentrations of halogenated hazardous constituents listed in Appendix VIII of Part 261 of this chapter).

(d) Used oil burned for energy recovery is subject to regulation under this subpart rather than as hazardous waste fuel under Subpart D of this part if it is a hazardous waste solely because it:

(1) Exhibits a characteristic of hazardous waste identified in Subpart C of Part 261 of this chapter, provided that it is not mixed with a hazardous waste; or

(2) Contains hazardous waste generated only by a person subject to the special requirements for small quantity generators under § 261.5 of this chapter.

(e) Except as provided by paragraph (c) of this section, used oil burned for energy recovery, and any fuel produced from used oil by processing, blending, or other treatment, is sub-
(A) The heater burns only used oil that the owner or operator generates or used oil received from do-it-yourself oil changers who generate used oil as household waste.

(B) The heater is designed to have a maximum capacity of not more than 0.5 million Btu per hour; and

(C) The combustion gases from the heater are vented to the ambient air.

§ 266.42 Standards applicable to generators of used oil burned for energy recovery.

(a) Except as provided in paragraphs (b) and (c) of this section, generators of used oil are not subject to this subpart.

(b) Generators who market used oil directly to a burner are subject to § 266.43.

(c) Generators who burn used oil are subject to § 266.44.

§ 266.43 Standards applicable to marketers of used oil burned for energy recovery.

(a) Persons who market used oil fuel are termed “marketers”. Except as provided below, marketers include generators who market used oil fuel directly to a burner, persons who receive used oil from generators and produce, process, or blend used oil fuel from these used oils (including persons sending blended or processed used oil to brokers or other intermediaries), and persons who distribute but do not process or blend used oil fuel. The following persons are not marketers subject to this subpart:

§ 266.44 Prohibitions.

(a) A person may market off-specification used oil for energy recovery only:

(1) To burners or other marketers who have notified EPA of their used oil management activities stating the location and general description of such activities, and who have an EPA identification number; and

(2) To burners who burn the used oil in an industrial furnace or boiler identified in paragraph (b) of this section.

(b) Off-specification used oil may be burned for energy recovery in only the following devices:

(1) Industrial furnaces identified in § 260.10 of this chapter; or

(2) Boilers, as defined in § 260.10 of this chapter, that are identified as follows:

(i) Industrial boilers located on the site of a facility engaged in a manufacturing process where substances are transformed into new products, including the component parts of products, by mechanical or chemical processes;

(ii) Utility boilers used to produce electric power, steam, or heated or cooled air or other gases or fluids for sale; or

(iii) Used oil-fired space heaters provided that:

(1) The heater burns only used oil that the owner or operator generates or used oil received from do-it-yourself oil changers who generate used oil as household waste.

(2) The heater is designed to have a maximum capacity of not more than 0.5 million Btu per hour; and

(3) The combustion gases from the heater are vented to the ambient air.

§ 266.45 Analysis of used oil fuel.

(a) Used oil generators, and collectors who transport used oil received only from generators, unless the generator or collector markets the used oil directly to a person who burns it for energy recovery. However, persons who burn some used oil fuel for purposes of processing or other treatment to produce used oil fuel for marketing are considered to be burning incidentally to processing. Thus, generators and collectors who market to such incidental burners are not marketers subject to this subpart

(b) Persons who market only used oil fuel that meets the specification under § 266.40(e) and who are not the first person to claim the oil meets the specification (i.e., marketers who do not receive used oil from generators or incidental transporters and marketers who neither receive nor market off-specification used oil fuel).

(c) Marketers are subject to the following requirements:

(1) Analysis of used oil fuel. Used oil fuel is subject to regulation under this subpart unless the marketer obtains analyses or other information documenting that the used oil fuel meets the specification provided under § 266.40(e).

(2) Prohibitions. The prohibitions under § 266.41(a).

(3) Notification. Notification to EPA stating the location and general description of used oil management activities. Even if a marketer has previously notified EPA of his hazardous waste management activities under section 3010 of RCRA and obtained a U.S. EPA Identification Number, he must renotify to identify his used oil management activities.

(4) Invoice system. When a marketer initiates a shipment of off-specification used oil, he must prepare and send the receiving facility an invoice containing the following information:

(i) An invoice number;

(ii) The names and addresses of the shipping and receiving facilities;

(iii) The quantity of off-specification used oil to be delivered;

(iv) The dates of shipment or delivery; and

(vi) The following statement: “This used oil is subject to EPA regulation under 40 CFR Part 266”.

Note: Used oil that meets the definition of combustible liquid (flash point below 200 °F) but at or greater than 100 °F) or flammable liquid (flash point below 100 °F) is subject to Department of Transportation Hazardous Materials Regulations at 49 CFR Parts 100 through 177.

(5) Required notices. (1) Before a marketer initiates the first shipment of off-specification used oil to a burner or other marketer, he must obtain a one-time written and signed notice from the burner or marketer certifying that:

(A) The burner or marketer has notified EPA that he is an incident burner and the facility is engaged in a manufacturing process where substances are transformed into new products; and

(B) Neither receive nor market off-specification used oil fuel only in an industrial furnace or boiler identified in § 266.41(b); and

(ii) Before a marketer accepts the first shipment of off-specification used oil fuel from another marketer subject to

<table>
<thead>
<tr>
<th>Constituent/property</th>
<th>Allowable level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>5 ppm maximum</td>
</tr>
<tr>
<td>Cadmium</td>
<td>5 ppm maximum</td>
</tr>
<tr>
<td>Chromium</td>
<td>10 ppm maximum</td>
</tr>
<tr>
<td>Lead</td>
<td>100 ppm maximum</td>
</tr>
<tr>
<td>Flash Point</td>
<td>100 °F minimum</td>
</tr>
<tr>
<td>Total Halogens</td>
<td>4.000 ppm maximum²</td>
</tr>
</tbody>
</table>

² The specification does not apply to used oil fuel mixed with fuel that has a hazardous waste number other than small quantity generator hazardous waste.
Attachment 5

40 CFR 264, Subpart 0
40 CFR 265, Subpart 0

Incinerators
§264.302 Double-lined landfills: Exemption from Subpart F ground-water protection requirements. [Removed]

[264.302 removed by 50 FR 28742, July 15, 1985]

§264.303 Monitoring and inspection. (a) During construction or installation, liners (except in the case of existing portions of landfills exempt from §264.301(a) and cover systems (e.g., membranes, sheets, or coatings) must be inspected for uniformity, damage, and imperfections (e.g., holes, cracks, thin spots, or foreign materials). Immediately after construction or installation:

(1) Synthetic liners and covers must be inspected to ensure tight seams and joints and the absence of tears, punctures, or blisters; and

(2) Soil-based and admixed liners and covers must be inspected for imperfections including lenses, cracks, channels, root holes, or other structural non-uniformities that may cause an increase in the permeability of the liner or cover.

(b) While a landfill is in operation, it must be inspected weekly and after storms to detect evidence of any of the following:

(1) Deterioration, malfunctions, or improper operation of run-on and run-off control systems;

(Former 264.303(b)(2) removed and (3) and (4) redesignated as (2) and (3) by 50 FR 28742, July 15, 1985] [264.310(b)(2) removed and former (3)—(6) redesignated as (2)—(5) respectively by 50 FR 28742, July 15, 1985]

(2) Proper functioning of wind dispersal control systems, where present; and

(3) The presence of leachate in and proper functioning of leachate collection and removal systems, where present.

§264.304-264.303 [Reserved]

§264.309 Surveying and recordkeeping. The owner or operator of a landfill must maintain the following items in the operating record required under §264.73:

(a) On a map, the exact location and dimensions, including depth, of each cell with respect to permanently surveyed benchmarks; and

(b) The contents of each cell and the approximate location of each hazardous waste type within each cell.

(Approved by the Office of Management and Budget under control number 2050-0007)

[264.309 amended by 50 FR 4513, January 31, 1985]

§264.310 Closure and post-closure care. (a) At final closure of the landfill or upon closure of any cell, the owner or operator must cover the landfill or cell with a final cover designed and constructed to:

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

(2) Function with minimum maintenance;

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

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

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

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

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

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

(3) Maintain and monitor the groundwater monitoring systems and comply with all other applicable requirements of Subpart F of this Part;

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

(5) Protect and maintain surveyed benchmarks used in complying with §264.309.

(c) During the post-closure care period, if liquid leaks into a leak detection system installed under §264.302, the owner or operator must notify the Regional Administrator of the leak in writing within seven days after detecting the leak. The Regional Administrator will modify the permit to require compliance with the requirements of Subpart F of this Part.

§264.311 [Reserved]

§264.312 Special requirements for ignitable or reactive waste. (a) Except as provided in paragraph (b) of this section, and in §264.316, ignitable or reactive waste must not be placed in a landfill, unless the waste is treated, rendered, or mixed before or immediately after placement in a landfill so that:

(1) The resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive waste under §§261.21 or 261.23 of this Chapter; and

(2) Section 264.17(b) is complied with.

(b) Ignitable wastes in containers may be landfilled without meeting the requirements of paragraph (a) of this section, provided that the wastes are disposed of in such a way that they are protected from any material or conditions which may cause them to ignite. At a minimum, ignitable wastes must be disposed of in non-leaking containers which are carefully handled and placed so as to avoid heat, sparks, rupture, or any other condition that might cause ignition of the wastes; must be covered daily with soil or other noncombustible material to minimize the potential for ignition of the wastes; and must not be disposed of in cells that contain or will contain other wastes which may generate heat sufficient to cause ignition of the waste.

§264.313 Special requirements for incompatible wastes. Incompatible wastes, or incompatible wastes and materials, (see Appendix V
§264.314 Special requirements for bulk and containerized liquids.

[264.314 title amended by 50 FR 18374, April 30, 1985]

(a) Bulk or non-containerized liquid waste or waste containing free liquids may be placed in a landfill prior to May 8, 1985 only if:

[264.314(a) introductory text amended by 50 FR 28742, July 15, 1985]

(1) The landfill has a liner and leachate collection and removal system that meet the requirements of §264.301(a); or

(2) Before disposal, the liquid waste or waste containing free liquids is treated or stabilized, chemically or physically (e.g., by mixing with an absorbent solid), so that free liquids are no longer present.

(b) Effective May 8, 1985, the placement of bulk or non-containerized liquid hazardous waste or hazardous waste containing free liquids (whether or not absorbents have been added) in any landfill is prohibited.

[New §264.314(b) added and former (b) redesignated as (d) by 50 FR 28742, July 15, 1985]

(c) To demonstrate the absence or presence of free liquids in either a containerized or a bulk waste, the following test must be used: Method 9095 (Paint Filter Liquids Test) as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods." [EPA Publication No. SW-846].

[264.314(c) added by 50 FR 18374, April 30, 1985]

(d) Containers holding free liquids must not be placed in a landfill unless:

(1) All free-standing liquid: (i) has been removed by decanting, or other methods; (ii) has been mixed with absorbent or solidified so that free-standing liquid is no longer observed; or (iii) has been otherwise eliminated; or

(2) The container is very small, such as an ampule; or

(3) The container is designed to hold free liquids for use other than storage, such as a battery or capacitor; or

(4) The container is a lab pack as defined in §264.316 and is disposed of in accordance with §264.316.

(e) Effective November 8, 1985, the placement of any liquid which is not a hazardous waste in a landfill is prohibited unless the owner or operator of such landfill demonstrates to the Regional Administrator, or the Regional Administrator determines that:

(1) The only reasonably available alternative to the placement of such landfill is placement in a landfill or unlined surface impoundment, whether or not permitted or operating under interim status, which contains, or may reasonably be anticipated to contain, hazardous waste; and

(2) Placement in such owner or operator's landfill will not present a risk of contamination of any underground source of drinking water (as that term is defined in §144.3 of this chapter).

(The reporting and recordkeeping requirements contained in this section were approved by OMB under control number 2050-0037.)

[264.314(e) and OMB No. added by 50 FR 28742, July 15, 1985]

§264.315 Special requirements for containers.

Unless they are very small, such as an ampule, containers must be either:

(a) At least 90 percent full when placed in the landfill; or

(b) Crushed, shredded, or similarly reduced in volume to the maximum practical extent before burial in the landfill.

§264.316 Disposal of small containers of hazardous waste in overpacked drums (lab packs).

Small containers of hazardous waste in overpacked drums (lab packs) may be placed in a landfill if the following requirements are met:

(a) Hazardous waste must be packaged in non-leaking inside containers. The inside containers must be of a design and constructed of a material that will not react dangerously with, be decomposed by, or be ignited by the contained waste. Inside containers must be tightly and securely sealed. The inside containers must be of the size and type specified in the Department of Transportation (DOT) hazardous materials regulations (49 CFR Parts 173, 178, and 179), if those regulations specify a particular inside container for the waste.

(b) The inside containers must be overpacked in an open head DOT-specification metal shipping container (49 CFR Parts 178 and 179) of no more than 416-liter (110 gallon) capacity and surrounded by, at a minimum, a sufficient quantity of absorbent material to completely absorb all of the liquid contents of the inside containers. The metal outer container must be full after packing with inside containers and absorbent material.

(c) The absorbent material used must not be capable of reacting dangerously with, being decomposed by, or being ignited by the contents of the inside containers in accordance with §264.17(b).

(d) Incompatible wastes, as defined in §260.10 of this chapter, must not be placed in the same outside container.

(e) Reactive wastes, other than cyanide- or sulfide-bearing waste as defined in §261.23(a)(5) of this chapter, must be treated or rendered non-reactive prior to packaging in accordance with paragraphs (a) through (d) of this section. Cyanide- and sulfide-bearing reactive waste may be packed in accordance with paragraphs (a) through (d) of this section without first being treated or rendered non-reactive.

§264.317 Special requirements for hazardous wastes FO20, FO21, FO22, FO23, FO26, and FO27.

[264.317 added by 50 FR 1999, January 14, 1985]

[a] Hazardous Wastes FO20, FO21, FO22, FO23, FO26, and FO27 must not be placed in a landfill unless the owner or operator operates the landfill in accord with a management plan for these wastes that is approved by the Regional Administrator pursuant to the standards set out in this paragraph, and in accord with all other applicable requirements of this Part. The factors to be considered are:

(1) The volume, physical, and chemical characteristics of the waste, including their potential to migrate through the soil or to volatilize or escape into the atmosphere;

(2) The attenuative properties of underlying and surrounding soils or other materials;

(3) The mobility of the contamination of any underground source of drinking water; and

(4) The effectiveness of additional treatment, design, or monitoring requirements.

(b) The Regional Administrator may determine that additional design, operating, and monitoring requirements are necessary for landfills managing hazardous wastes FO20, FO21, FO22, FO23, FO26, and FO27 in order to reduce the possibility of migration of these wastes to ground water, surface water, or air so as to protect human health and the environment.

§§264.318-264.339 [Reserved]

Subpart O—Incinerators

§264.340 Applicability.

[264.340(a) revised by 50 FR 661, January 4, 1985]

(a) The regulations in this Subpart apply to owners or operators of facilities that incinerate hazardous waste, except as §264.1 provides otherwise. The following facility owners or operators are considered to incinerate hazardous waste:

(1) Owners or operators of hazardous waste incinerators (as defined in §260.10 of this Chapter); and

(2) Owners or operators who burn hazardous waste in boilers or in industrial furnaces in order to destroy them, or who burn hazardous waste in boilers or in industrial furnaces for any recycling purpose and elect to be regulated under this subpart. [264.340(a)(2) revised by 50 FR 49202, November 29, 1985]
solely because it is reactive (Hazard Code B) for characteristics other than those listed in §261.23(a) (4) and (5), and will not be burned when other hazardous wastes are present in the combustion zone; or

(iii) A hazardous waste solely because it possesses the characteristic of ignitability, corrosivity, or both, as determined by the test for characteristics of hazardous wastes under Part 261, Subpart C, of this chapter; or

(iv) A hazardous waste solely because it possesses any of the reactivity characteristics described by §261.23(a) (1), (2), (3), (6), (7), and (8) of this chapter, and will not be burned when other hazardous wastes are present in the combustion zone; and

(2) If the waste analysis shows that the waste contains none of the hazardous constituents listed in Part 261, Appendix VIII, of this chapter, which would reasonably be expected to be in the waste.

(c) If the waste to be burned is one which is described by paragraphs (b)(1)(i), (ii), (iii), or (iv) of this section and contains insignificant concentrations of the hazardous constituents listed in Part 261, Appendix VIII, of this chapter, then the Regional Administrator may, in establishing permit conditions, exempt the applicant from all requirements of this subpart, except §264.341 (Waste analysis) and §264.351 (Closure), after consideration of the waste analysis included with Part B of the permit application, unless the Regional Administrator finds that the waste will pose a threat to human health and the environment when burned in an incinerator.

(d) The owner or operator of an incinerator may conduct trial burns subject only to the requirements of §270.62 of this chapter (Short term incinerator permits).

§264.341 Waste analysis.

(a) As a portion of the trial burn plan required by §270.62 of this chapter, or with Part B of the permit application, the owner or operator must have included an analysis of the waste feed sufficient to provide all information required by §270.62(b) or §270.19 of this chapter. Owners or operators of new hazardous waste incinerators must provide the information required by §270.62(c) or §270.19 of this chapter to the greatest extent possible.

(b) Throughout normal operation the owner or operator must conduct sufficient waste analysis to verify that waste feed to the incinerator is within the physical and chemical composition limits specified in his permit (under §264.345(b)).

(Approved by the Office of Management and Budget under control number 2050-0002)


§264.342 Principal organic hazardous constituents (POHCs).

(a) Principal Organic Hazardous Constituents (POHCs) in the waste feed must be treated to the extent required by the performance standard of §264.343.

(b)(1) One or more POHCs will be specified in the facility's permit, from among those constituents listed in Part 261, Appendix VIII of this chapter, for each waste feed to be burned. This specification will be based on the degree of difficulty of incineration of the organic constituents in the waste and on their concentration or mass in the waste feed, considering the results of waste analyses and trial burns or alternative data submitted with Part B of the facility's permit application. Organic constituents which represent the greatest degree of difficulty of incineration will be those most likely to be designated as POHCs. Constituents are more likely to be designated as POHCs if they are present in large quantities or concentrations in the waste.

(2) Trial POHCs will be designated for performance of trial burns in accordance with the procedure specified in §270.62 of this chapter for obtaining trial burn permits.

§ 264.343 Performance standards.

An incinerator burning hazardous waste must be designed, constructed, and maintained so that, when operated in accordance with operating requirements specified under § 264.345, it will meet the following performance standards:

(a)(1) Except as provided in paragraph (a)(2) of this section, an incinerator burning hazardous waste must achieve a destruction and removal efficiency (DRE) of 99.99% for each principal organic hazardous constituent (POHC) designated (under § 264.342) in its permit for each waste feed. DRE is determined for each POHC from the following equation:

\[
\text{DRE} = \left(\frac{W_m - W_{em}}{W_m}\right) \times 100\%
\]

where:
- \(W_m\) = mass feed rate of one principal organic hazardous constituent (POHC) in the waste stream feeding the incinerator
- \(W_{em}\) = mass emission rate of the same POHC present in exhaust emissions prior to release to the atmosphere.

(2) An incinerator burning hazardous wastes FO20, FO21, FO22, FO23, FO26, or FO27 must achieve a destruction and removal efficiency (DRE) of 99.9999% for each principal organic hazardous constituent (POHC) designated (under § 264.342) in its permit. This performance must be demonstrated on POHCs that are more difficult to incinerate than tetra-, penta-, and hexachlorodibenzo-p-dioxins and dibenzofurans. DRE is determined for each POHC from the equation in § 264.343(a)(1). In addition, the owner or operator of the incinerator must notify the Regional Administrator of his intent to incinerate hazardous wastes FO20, FO21, FO22, FO23, FO26, or FO27.

(b) An incinerator burning hazardous waste and producing stack emissions of more than 1.8 kilograms per hour (4 pounds per hour) of hydrogen chloride (HCl) must control HCl emissions such that the rate of emission is no greater than the larger of either 1.8 kilograms per hour or 1% of the HCl in the stack gas prior to entering any pollution control equipment.

(c) An incinerator burning hazardous waste must not emit particulate matter in excess of 180 milligrams per dry standard cubic meter (0.08 grams per dry standard cubic foot) when corrected for the amount of oxygen in the stack gas according to the formula:

\[
P_e = P_m \times \frac{14}{21 - Y}
\]

Where \(P_e\) is the corrected concentration of particulate matter, \(P_m\) is the measured concentration of particulate matter, and \(Y\) is the measured concentration of oxygen in the stack gas, using the Orsat method for oxygen analysis of dry flue gas, presented in Part 60, Appendix A (Method 3), of this chapter. This correction procedure is to be used by all hazardous waste incinerators except those operating under conditions of oxygen enrichment. For these facilities, the Regional Administrator will select an appropriate correction procedure, to be specified in the facility permit.

(d) For purposes of permit enforcement, compliance with the operating requirements specified in the permit (under § 264.345) will be regarded as compliance with this section. However, evidence that compliance with those permit conditions is insufficient to ensure compliance with the performance requirements of this section may be "information" justifying modification, revocation, or reissuance of a permit under § 270.41 of this chapter.


§ 264.344 Hazardous waste incinerator permits.

(a) The owner or operator of a hazardous waste incinerator may burn only wastes specified in his permit and only under operating conditions specified for those wastes under § 264.345, except:

(1) In approved trial burns under § 270.62 of this chapter; or
(2) Under exemptions created by § 264.340.

(b) Other hazardous wastes may be burned only after operating conditions have been specified in a new permit or a permit modification as applicable. Operating requirements for new wastes may be based on either trial burn results or alternative data included with Part B of a permit application under § 270.19 of this chapter.

(c) The permit for a new hazardous waste incinerator must establish appropriate conditions for each of the applicable requirements of this subpart, including but not limited to allowable waste feeds and operating conditions necessary to meet the requirements of § 264.345, sufficient to comply with the following standards:

(1) For the period beginning with initial introduction of hazardous waste to the incinerator and ending with initiation of the trial burn, and only for the minimum time required to establish operating conditions required in paragraph (c)(2) of this section, not to exceed a duration of 720 hours operating time for treatment of hazardous waste, the operating requirements must be those most likely to ensure compliance with the performance standards of § 264.343, based on the Regional Administrator's engineering judgment. The Regional Administrator may extend the duration of this period once for up to 720 additional hours when good cause for the extension is demonstrated by the applicant.

(2) For the duration of the trial burn, the operating requirements must be sufficient to demonstrate compliance with the performance standards of § 264.343 and must be in accordance with the approved trial burn plan;

(3) For the period immediately following completion of the trial burn, and only for the minimum period sufficient to allow sample analysis, data computation, and submission of the trial burn results by the applicant, and review of the trial burn results and modification of the facility permit by the Regional Administrator, the operating requirements must be those most likely to ensure compliance with the performance standards of § 264.343, based on the Regional Administrator's engineering judgement.

(4) For the remaining duration of the permit, the operating requirements must be those demonstrated, in a trial burn or by alternative data specified in § 270.19(c) of this chapter, as sufficient to ensure compliance with the performance standards of § 264.343.

(Approved by the Office of Management and Budget under control number 2050-0002)


§ 264.345 Operating requirements.

(a) An incinerator must be operated in accordance with operating requirements specified in the permit. These will be specified on a case-by-case basis as those demonstrated (in a trial burn or in alternative data, as specified in § 264.344(b) and included with Part B of a facility's permit application) to be sufficient to comply with the performance standards of § 264.343.

(b) Each set of operating requirements will specify the composition of the waste feed (including acceptable variations in the physical or chemical properties of the waste feed which will not affect compliance with the performance requirement of § 264.343) to which the operating requirements apply. For each such waste feed, the permit will specify acceptable operating limits including the following conditions:

(1) Carbon monoxide (CO) level in the stack exhaust gas;
(2) Waste feed rate;
(3) Combustion temperature;
(4) An appropriate indicator of combustion gas velocity;
(5) Allowable variations in incinerator system design or operating procedures; and
(6) Such other operating requirements as are necessary to ensure that the performance standards of § 264.343 are met.

(c) During start-up and shut-down of an incinerator, hazardous waste (except wastes exempted in accordance with § 264.340) must not be fed into the incinerator unless the inciner-
(a) Hazardous waste must be packaged in non-leaking inside containers. The inside containers must be of a design and constructed of a material that will not react dangerously with, be decomposed by, or be ignited by the waste held therein. Inside containers must be tightly and securely sealed. The inside containers must be of the size and type specified in the Department of Transportation (DOT) hazardous materials regulations (49 CFR Parts 173, 178 and 179), if those regulations specify a particular inside container for the waste.

(b) The inside containers must be overpacked in an open head DOT specification metal shipping container (49 CFR Parts 178 and 179) of no more than 416-liter (110 gallon) capacity and surrounded by at a minimum, sufficient quantity of absorbent material to completely absorb all of the liquid contents of the inside containers. The metal outer container must be full after packing with inside containers and absorbent material.

(c) The absorbent material used must not be capable of reacting dangerously with, being decomposed by, or being ignited by the contents of the inside containers, in accordance with §265.17(b).

(d) Incompatible wastes, as defined in §260.10(a) of this chapter, must not be placed in the same outside container.

(e) Reactive waste, other than cyanide- or sulfide-bearing waste as described in §261.23(a)(5) of this chapter, must be treated or rendered non-reactive prior to packaging in accordance with paragraphs (a) through (d) of this section without first being treated or rendered non-reactive.

§265.317-265.339 [Reserved]

Subpart O—Incinerators

Subpart O revised by 46 FR 7678, January 23, 1981]

§265.340 Applicability.

§265.340(a) revised by 50 FR 661, January 4, 1985

(a) The regulations in this Subpart apply to owners or operators of facilities that incinerate hazardous waste, except as §264.1 provides otherwise. The following facility owner or operator is considered to incinerate hazardous waste:

(1) Owners or operators of hazardous waste incinerators (as defined in §260.10 of this chapter); and

(2) Owners or operators who burn hazardous waste in boilers or in industrial furnaces in order to destroy them, or who burn hazardous waste in boilers or in industrial furnaces for any recycling purpose and elect to be regulated under this subpart.

[265.340(a)(2) revised by 50 FR 49202, November 29, 1985]

(b) Owners and operators of incinerators burning hazardous waste are exempt from all of the requirements of this subpart, except §265.351 (Closure), provided that the owner or operator has documented, in writing, that the waste would not reasonably be expected to contain any of the hazardous constituents listed in Part 261, Appendix VIII, of this chapter, and such documentation is retained at the facility, if the waste to be burned is:

(1) Listed as a hazardous waste in Part 261, Subpart D, of this chapter, solely because it is ignitable (Hazard Code I), corrosive (Hazard Code C), or both; or

(2) Listed as a hazardous waste in Part 261, Subpart D, of this chapter, solely because it is reactive (Hazard Code R) for characteristics other than those listed in §261.23(a) (4) and (5), and will not be burned when other hazardous wastes are present in the combustion zone; or

(3) A hazardous waste solely because it possesses the characteristic of ignitability, corrosivity, or both, as determined by the tests for characteristics of hazardous wastes under Part 261, Subpart C, of this chapter; or

(4) A hazardous waste solely because it possesses the reactivity characteristics described by §261.23(a) (1), (2), (3), (6), (7), or (8) of this chapter, and will not be burned when other hazardous wastes are present in the combustion zone.

[265.340(b) revised by 47 FR 27533, June 24, 1982]

§265.341 Waste analysis.

In addition to the waste analyses required by §265.13, the owner or operator must sufficiently analyze any waste which he has not previously burned in his incinerator to enable him to establish steady state (normal) operating conditions (including waste and auxiliary fuel feed and air flow) and to determine the type of pollutants which might be emitted. At a minimum, the analysis must determine:

(a) Heating value of the waste;

(b) Halogen content and sulfur content in the waste; and

(c) Concentrations in the waste of lead and mercury, unless the owner or operator has written, documented data that show that the element is not present.

(Comment: As required by §265.13, the owner or operator must place the results from each waste analysis, or the documented information, in the operating record of the facility.)

§265.342—265.344 [Reserved]

§265.345 General operating requirements.

During start-up and shut-down of an incinerator, the owner or operator must not feed hazardous waste unless the incinerator is at steady state (normal) conditions of operation, including steady state operating temperature and air flow.

§265.346 [Reserved]

§265.347 Monitoring and inspections.

The owner or operator must conduct, as a minimum, the following monitoring and inspections when incinerating hazardous waste:

(a) Existing instruments which relate to combustion and emission control must be monitored at least every 15 minutes. Appropriate corrections to maintain steady state combustion conditions must be made immediately either automatically or by the operator.

(b) Instruments which relate to combustion and emission control would normally include those measuring waste feed, auxiliary fuel feed, air flow, incinerator temperature, scrubber flow, scrubber pH, and relevant flow controls.

(Former 265.347(b) deleted and (c) redesignated as (b) by 47 FR 27533, June 24, 1982)

(c) The complete incinerator and associated equipment (pumps, valves, conveyors, pipes, etc.) must be inspected at least daily for leaks, spills, and fugitive emissions, and all emergency shutdown controls and system alarms must be checked to assure proper operation.

§265.348—265.350 [Reserved]

§265.351 Closure.

At closure, the owner or operator must remove all hazardous waste and hazardous waste residues (including but not limited to ash, scrubber waters, and scrubber sludges) from the incinerator.

(Comment: At closure, as throughout the operating period, unless the owner or operator can demonstrate, in accordance with §261.3(d) of this chapter, that the residue removed from his incinerator 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 through 266 of this chapter.)

[Sec. 265.351]
§ 265.352 Interim Status Incinerators

(b) Owners or operators of incinerators subject to this Subpart may burn EPA Hazardous Wastes FO20, FO21, FO22, FO23, FO26, or FO27 if they receive a certification from the Assistant Administrator for Solid Waste and Emergency Response that they can meet the performance standards of Subpart O of Part 264 when they burn these wastes.

265.352 [Reserved]

Subpart P—Thermal Treatment

§ 265.370 Other thermal treatment.

The regulations in this Subpart apply to owners or operators of facilities that thermally treat hazardous waste in devices other than enclosed devices using controlled flame combustion, except as § 265.1 provides otherwise. Thermal treatment in enclosed devices using controlled flame combustion is subject to the requirements of Subpart O if the unit is an incinerator.


§ 265.371-265.372 [Reserved]

§ 265.373 General operating requirements.

[Interim final]

Before adding hazardous waste, the owner or operator must bring his thermal treatment process to steady state conditions of operation— including steady state operating temperature—using auxiliary fuel or other means, unless the process is a non-continuous (batch) thermal treatment process which requires a complete thermal cycle to treat a discrete quantity of hazardous waste.

§ 265.374 [Reserved]

§ 265.375 Waste analysis.

[Interim final]

In addition to the waste analyses required by § 265.13, the owner or operator must sufficiently analyze any waste which he has not previously treated in his thermal process to enable him to establish steady state or other appropriate (for a non-continuous process) operating conditions (including waste and auxiliary fuel feed) and to determine the type of pollutants which might be emitted. At a minimum, the analysis must determine:

(a) Heating value of the waste;
(b) Halogen content and sulfur content in the waste; and
(c) Concentrations in the waste of lead and mercury, unless the owner or operator has written, documented data that show that the element is not present.


§ 265.376 [Reserved]

§ 265.377 Monitoring and inspections.

[Interim final]

(a) The owner or operator must conduct, as a minimum, the following monitoring and inspections when thermally treating hazardous waste:

(1) Existing instruments which relate to temperature and emission control (if an emission control device is present) must be monitored at least every 15 minutes. Appropriate corrections to maintain steady state or other appropriate thermal treatment conditions must be made immediately either automatically or by the operator. Instruments which relate to temperature and emission control would normally include those measuring waste feed, auxiliary fuel feed, treatment process temperature, and relevant process flow and level controls.

(2) The stack plume (emissions), where present, must be observed visually at least hourly for normal appearance (color and opacity). The operator must immediately make any indicated operating corrections necessary to return any visible emissions to their normal appearance.

(3) The complete thermal treatment process and associated equipment (pumps, valves, conveyors, pipes, etc.) must be inspected at least daily for leaks, spills, and fugitive emissions, and all emergency shutdown controls and system alarms must be checked to assure proper operation.

§ 265.378-265.380 [Reserved]

§ 265.381 Closure.

[Interim final]

At closure, the owner or operator must remove all hazardous waste and hazardous waste residues (including, but not limited to, ash) from the thermal treatment process or equipment.

[Comment: At closure, as throughout the operating period, unless the owner or operator can demonstrate, in accordance with § 261.202(c) or (d) of this Chapter, that any solid waste removed from his thermal 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 266 of this Chapter.]

§ 265.382 Open burning; waste explosives.

[Interim final]

Open burning of hazardous waste is prohibited except for the open burning...