ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 122, 264, and 265

[SWH-FRL 1730-5]

Incinerator Standards for Owners and Operators of Hazardous Waste Management Facilities; Consolidated Permit Regulations

AGENCY: Environmental Protection Agency.

ACTION: Interim Final Rule (Parts 264 and 122) and Final rule (Part 265).

SUMMARY: The Environmental Protection Agency is amending its regulations for the management of hazardous waste by (1) promulgating, on an interim final basis, incinerator standards that will be the basis for permit issuance to owners and operators of hazardous waste management facilities (Part 264, Subpart O); (2) finalizing the interim status incinerator standards issued on May 19, 1980 (Part 265, Subpart O); and, (3) amending the permit regulations (Part 122) to correspond to the facility regulations being published today.

Under the Resource Conservation and Recovery Act (RCRA), the Agency is required to establish a Federal hazardous waste management system. Early last year EPA began issuing the first phase of regulations designed to implement that system. In January of this year EPA promulgated major portions of the Phase II technical standards for facilities that treat and store hazardous wastes. Today's publication adds another part to the Phase II technical standards by setting forth requirements for owners or operators of incinerator facilities that treat hazardous waste. These regulations provide the necessary standards by which permits may be granted. The substantive requirements for hazardous waste incinerator permits are included in Part 264, Subpart O. Information required for Part B of a permit application is specified in Part 122.25(b)(5). In many cases trial burns will be necessary to gather data needed for Part B of an incinerator facility's permit application. Criteria for trial burn permits are detailed in Part 122.27(b). Interim Status Standards must be observed by existing facilities until final action on their permit applications. EPA is today finalizing the Interim Status Standards for Incinerators which were promulgated, on an interim final basis, on May 19, 1980. These are in Part 265, Subpart O.

DATES: *Effective Date:* These regulations become effective on July 22, 1981, which is six months after the date of publication in the Federal Register, as RCRA Section 3010(b) requires.

Comment Date: These regulations are issued on an interim final basis. EPA will accept public comments on the Part 264 and Part 122 regulations and comments in response to requests in the preamble until March 24, 1981. In regard to the final regulation (Part 265), EPA will accept comments only on technical errors (e.g., typographical errors, inaccurate cross references, etc.).

ADDRESSES: Comments should be sent to Docket Clerk [Docket No. 30041], Office of Solid Waste (WH-562), U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460.

Public Docket: The public docket for these regulations is located in Room 2711, U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, D.C., and is available for viewing from 9:00 a.m. to 4:00 p.m. Monday through Friday, excluding holidays. Among other things, the docket contains background documents which explain, in more detail than the preamble to this regulation, the basis for many of the provisions in this regulation.

Copies of Regulations: Single copies of these regulations will be available approximately 30 days after publication from Ed Cox, Solid Waste Information, U.S. Environmental Protection Agency, 26 West St. Clair Street, Cincinnati, Ohio 45268, telephone (513) 684-5362. Multiple copies will be available from the Superintendent of Documents, Washington, D.C. 20402.

FOR FURTHER INFORMATION CONTACT: For general information contact the RCRA hazardous waste hotline, Office of Solid Waste (WH-565), U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460 (phone 800-424-9346, or in Washington, D.C. 554-1404).

For information on implementation of these regulations, contact the EPA regional offices below:

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SUPPLEMENTARY INFORMATION: This preamble outlines the basis and purpose of the standards for incineration of hazardous waste that the Agency is publishing in today's Federal Register. It also summarizes and explains changes from the standards originally proposed. More complete explanation of, and support for, these standards can be found in "*Background Document,* 40 CFR Part 264 Subpart O, and 40 CFR Part 265 Subpart O: Incineration," and in the guidance materials which the Agency has developed to assist in the understanding and implementation of these regulations. The latest drafts of these manuals—"Engineering Handbook on Hazardous Waste Incineration," and "Permit Writers' Guidance Document for Hazardous Waste Incineration"—are available in the RCRA docket room, as is the Background Document.

EPA is also proposing today a procedure to allow a variance in acceptable incinerator emissions, based on case-by-case assessments of the risk to human health and the environment from such emissions. This procedure

could be used to set emission limits for hazardous inorganic constituents and combustion by-products, as well as for the organic constituents controlled by today's promulgation. This proposal appears elsewhere in today's Federal Register and is discussed in a separate preamble section.

Preamble Outline

I. Authority

These regulations are issued under the authority of Section 1006, 2002(a), 3004, 3005, and 3007 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended, 42 U.S.C. §§ 6905, 6912(a), 6924, 6925, and 6927.

II. Background

On December 18, 1978, EPA issued proposed standards for owners and operators of hazardous waste management facilities, including standards for incinerators (43 FR 58946). The Agency received more than 250 comments on the proposed incinerator regulations and held five public hearings on the December 18 proposal. On May 19, 1980, EPA promulgated the first of two major phases of the final regulations for hazardous waste management facilities. Phase I included administrative standards for hazardous waste facilities with RCRA permits (40 CFR Part 264) and administrative and technical standards for hazardous waste facilities in interim status (40 CFR Part 265). As part of those May 19, 1980 regulations, EPA issued interim status standards for incineration under 40 CFR Part 265, Subpart O. Those Subpart O regulations are being promulgated today as final standards with few minor changes to reflect additional public comment.

EPA also announced on May 19, 1980, its intent to promulgate the technical standards for hazardous waste facilities with permits (40 CFR Part 264) as Phase II of the regulations in the fall of 1980. (For a discussion of the phased approach to the regulations see the background and overview discussion accompanying the Parts 264 and 265 regulations published on May 19, 1980, at 45 FR 33154. For a discussion of the Phase II regulations overall, see the introductory material accompanying the January 12, 1981 regulations at 46 FR 2802.)

Early in January of this year, EPA promulgated the first portion of Phase II of the technical standards for facilities with permits. These included standards addressing financial requirements, closure and post-closure, location, and storage in containers, tanks, piles, and surface impoundments.

The regulations for incinerators that EPA is issuing today represent an additional part of the Phase II standards. Another part of Phase II, standards for land disposal, is being promulgated elsewhere in today's Federal Register.

The Agency has also made additions in today's promulgation to the permitting regulations in Part 122 to correspond with the new technical requirements of Part 264, Subpart O. These include information required for Part B of a permit application (§ 122.25(b)(5)) and criteria for trial burn permits (§ 122.27). Elsewhere in today's Federal Register, the Agency is proposing additions to the Part 264, Subpart O standards being promulgated today. These additions will necessitate future additions to the Part 122 permitting standards.

Many of the terms used in today's regulation are defined in the Part 260 regulations which were issued on May 19, 1980, at 45 FR 33066. For example one key point underlying the regulations promulgated today is that incineration of hazardous waste is a form of "treatment" as treatment is defined under § 260.10(73).

The definintion of incinerator in § 260.10(30) notes that the primary purpose is to "thermally break down hazardous waste." This should be differentiated from the combustion of wastes primarily for the recovery of their thermal value, which is not "incineration" and, in accordance with the exclusion of reused or recycled wastes under § 261.6, is exempt from these incinerator regulations.

Today's regulations should also be distinguished from "thermal treatment" standards for which the Agency has published interim status standards (Part 265, Subpart P) which it intends to finalize sometime soon. The Agency has not yet issued technical permit standards for thermal treatment under Part 264. When promulgated, these standards will address thermal treatment processes which do not come under the definition of incineration.

As a result of adding Subpart O to Part 264, the Agency has also made a number of technical conforming changes to other sections, including §§ 264.10, 264.13, 264.15, 264.73, 264.112, and 264.142.

III. Synopsis of the 1978 Proposal for Incinerators

A. The Regulations as Proposed

Proposed regulations for incineration of hazardous waste were published as 40 CFR § 250.45–1 on December 18, 1978 (45 FR 59008). They required owners and operators to meet a number of performance standards coupled with various operating requirements, most of which were intended to help ensure that the performance criteria were continuously met.

The performance criteria required that all incinerators burning hazardous wastes achieve a destruction efficiency (DE) of 99.99%, and a combustion efficiency of at least 99.9%; that particulate emissions be less than 270 mg./scm^3 (0.12 gr/scf) at zero excess air; that fugitive emissions be controlled; and that emission controls remove more than 99% of the halogens when hazardous wastes containing more than 0.5% halogens were burned.

Proposed operating regulations required that owners or operators monitor and record significant variables at 15 minute intervals; that trial burns be conducted, analyzed and reported to the Regional Administrator before each new and "significantly different" hazardous waste was incinerated; and that the wastes be retained for 2 seconds at 1000° C. combustion temperature (1200° C. for halogen containing wastes). A "note" or variance provided that incinerators need not comply with the detailed combustion criteria if an equivalent combustion efficiency could be achieved by other means. A device to automatically cut off waste feed whenever combustion or scrubber conditions changed significantly was a final requirement.

B. Comments on the Proposed Regulations

The Agency received more than 250 comments on the proposed incinerator regulations. The most significant of these are discussed in Section V of this

preamble. All of them are considered in the accompanying "Background Document."

Many comments dealt with broad and general issues such as the propriety of applying any design and operating requirements, rather than relying solely on performance standards. Some comments questioned the Agency's statutory authority to regulate hazardous waste incineration under RCRA at all, rather than under the Clean Air Act.

On the other hand, many comments were essentially technical. One comment suggested that turbulence criteria be added to the time and temperature requirements. Others suggested that the measurement methodology was unclear or difficult to apply and that the measurement locations and frequencies for emission and effluent temperature measurements need to be specified. Three comments pointed to dangers inherent in automatic cut-off devices, and suggested that gradual shut-downs were preferable.

A middle range of comments accepted the general framework of the proposed regulations but stated that specific criteria were unnecessary or infeasible. In particular it was claimed that the halogen removal levels appropriate for chlorine were more stringent than those necessary or possible for other halogens, such as bromides or iodides. Similar comments suggested that the general 99.99% Destruction Efficiency requirement was impractical and very costly and would divert wastes from the relatively "safe" incineration option into "dangerous" longterm disposal in landfills. Some comments suggested varying Destruction Efficiency in accord with each waste's degree of hazard.

The high cost of trial burns and of trial burn analyses was frequently mentioned. There was considerable concern about the requirement that a new trial burn be performed before each "significantly different" new waste was incinerated. Several commenters pointed out that the almost infinite variety of chemical mixtures making up waste feeds made this requirement both expensive and impossible to apply with certainty, depending on the definition of "significantly different." A few comments suggested that the requirement that fugitive emissions be controlled should be more specific.

A final category of comments suggested specific exemptions or additional inclusions for the regulations when finally promulgated. The most important of these dealt with exempting wastes which were hazardous solely because of ignitability. Others recommended clarifying the status of incinerator ash residue and scrubber effluents as hazardous wastes, and of cement kiln incinerators and utility boilers burning hazardous wastes for their thermal value.

IV. The Incinerator Regulations Promulgated Today

A. Part 264—General Standards for Hazardous Waste Incineration

1. Applicability (§ 264.340)

This regulation and § 122.27(b) provide the substantive basis for all incinerator permits to be issued under Section 3005 of RCRA. In accord with §§ 261.2(c)(2) and 261.6, Part 260 defines "incinerator" so that combustion of wastes *primarily* for the recovery of their thermal value is not "incineration" and thus, is exempt from these standards. EPA plans to reconsider, and perhaps narrow, the § 261.6 exclusions in the future. The Agency specifically solicits comments on appropriate regulation of emissions from combustion of hazardous waste for purposes of thermal recovery.

The Agency may soon move to integrate these regulations with those promulgated under the Toxic Substance Control Act (TSCA) to control incineration of polychlorinated biphenyls (PCBs). EPA welcomes comments on the form and substance of that integration. Until that time the incineration of wastes which are subject to EPA's TSCA disposal criteria (40 CFR Part 761) will continue to be subject to control under TSCA rather than RCRA. Those requirements are more stringent than, but not inconsistent with, the requirements of this Subpart.

Thermal treatment of hazardous waste in systems other than incinerators is seldom utilized now, but EPA expects that practice to grow in importance. Interim Status Standards for such treatment were published, on an interim final basis, as Subpart P of Part 265. The Agency expects to finalize those standards soon and to promulgate permitting standards for non-incinerator thermal treatment at some time in the future. These are expected to be Subpart P of 40 CFR Part 264.

Finally, the regulation provides that wastes which are hazardous solely because of ignitability (and which contain no constitutents listed as toxic in Part 261, Appendix VIII) must be burned in accordance with a permit, but are exempted from most of the substantive requirements of the Subpart O regulations.

2. Waste Analysis (§ 264.341)

Required waste analysis takes two forms.

First, on an on-going basis, the operator must ensure that waste feed to the incinerator does not deviate from that defined in his permit. Such a deviation would be a violation of the permit. The permit, under § 264.345(b), will be written to specify wastes which the facility has demonstrated its ability to treat adequately. Thus, for waste feeds not specified in the permit, there is no assurance that the required performance standards can be met, especially in the absence of defined operation conditions. As a result, the Agency will require facilities to analyze waste feeds adequately to ensure that they remain within the terms of their permits, and to indicate in their waste analysis plans (required by § 264.13) how they will do this.

A second, and more intensive, form of waste analysis is required as part of each permit application and whenever a permit modification or a trial burn permit is sought. In these cases the applicant must describe certain physical properties of his waste feed and must analyze his waste sufficiently to identify the presence of any hazardous organic constituents listed in Part 261, Appendix VIII, except that the applicant need not analyze for Appendix VIII constituents which would not reasonably be expected to be in the waste. This analysis must be performed using the techniques specified in EPA's publication SW–846, or techniques of at least equivalent sensitivity and reliability.

A comprehensive analysis of the hazardous organic constituents of a waste as it is to be incinerated is necessary to identify the waste components to which the performance standard (especially the destruction and removal requirement) will apply. Analytical techniques such as capillary column gas chromatography and a "reverse search" of mass spectra are well within the capability of widely available laboratory services, so long as the constituents to be searched for are specified in some way. In order to identify hazardous components of waste feeds and, at the same time, limit the scope of the waste analysis to practical limits, the scope of the search is initially specified as those constituents listed in Part 261, Appendix VIII. In almost all cases the scope of the mass spectral analysis will be further limited by deleting analysis for those Appendix VIII constituents which would not reasonably be expected to be present in the waste.

Incinerators commonly receive wastes from a wide variety of generating processes and mix them for combustion

on the basis of BTU value and physical characteristics. Thus analysis of waste feed that will actually be burned is more important than analysis of wastes as they are received or as they are stored prior to blending as a waste feed. Further, reliance on information provided on the manifest or data considered as part of EPA's listing process will seldom be adequate. Therefore, the analysis required by § 264.341 is necessary to allow EPA to define operating conditions necessary to incinerate the waste feed in compliance with appropriate performance standards.

3. Principal Organic Hazardous Constituents (POHCs) (§ 264.342)

Waste feed mixtures will be specified in each facility's permit. For each waste feed mixture, identified in a facility permit, the permit will specify Principial Organic Hazardous Constituents (POHC's) which must be destroyed or removed as required by the applicable performance standard. Identification of those waste feed constitutents to which the performance standard will be applied is central to application of the standard. The Agency has chosen to designate specific POHC's rather than require that *all* hazardous constituents of the waste feed meet the performance standard. This reduces the analytical burden and associated cost of verifying compliance with the performance standard. Selecting limited POHCs avoids the necessity for measuring compliance against perhaps dozens of constituents that may be present in a given waste in insignificant quantities. Finally, designating as POHCs those waste constituents which are most difficult to destroy will generally ensure that less stable hazardous organic constituents are also destroyed.

For those reasons POHC selection will be made by the permit writer primarily on the basis of difficulty of incineration, but the permit writer may then consider concentration or quantity of constituents and need not designate as POHCs those present only in insignificant quantities. Thus the regulation says that difficult-to-burn constituents are those "most likely" to be selected as POHCs, while larger quantity constituents are "more likely" to be selected than those present in lesser quantities.

4. Performance Standards (§ 264.343)

Three performance standards are the heart of this regulation. The most important of these is the requirement that incinerators burning hazardous waste must achieve a destruction and removal efficiency (DRE) of 99.99% for each POHC designated for each waste feed. This requirement (which includes particulate removal) is based on extensive data indicating that such a destruction efficiency is attainable in industrial incinerators burning a wide range of organic hazardous wastes. EPA has now defined the required performance standard to include credit for removal efficiencies as well as destruction efficiencies. This approach makes the performance standard more easily attainable since it allows credit for removal by air pollution control equipment as well as for destruction in a combustion zone, and it avoids the technical difficulties associated with precise measurements within the extreme conditions of a combustion zone. Yet the reliance on destruction and removal efficiency, rather than mere destruction efficiency, poses no environmental hazards since the standard still covers all emissions *before* their release to the environment, and since waste residues trapped by emission control equipment must still be treated as hazardous wastes and managed properly within the RCRA system.

There are limits to the destruction and removal efficiency approach. It does not control the actual mass of POHCs emitted since, for any given destruction and removal efficiency, mass emissions vary directly in proportion to variations in mass feed rate. Perhaps most importantly, the approach fails to account for emissions of hazardous combustion by-products which may be equally or more hazardous than POHCs themselves. Finally, metals, since they are not combustible, are not now controlled using this approach.

EPA has considered, and is still considering, the feasibility of additional approaches to the control of emissions from hazardous waste incinerators. The Agency is today proposing, elsewhere in today's Federal Register, a set of procedures for varying the performance standard to address the problems just mentioned. However, until it is clear that the proposed variance procedure is practicable, the Agency is relying upon the approach promulgated today. The effect of these combined approaches is that in the absence of data showing that lesser emission levels are safe or that greaters levels are necessary, the Agency will require that hazardous wastes not be incinerated under standards less stringent than those known to be currently attainable by the existing technology of high quality commercial hazardous waste incineration. Initial analysis of data available to the Agency indicates that, for typical waste feed rates, most organic wastes will present no significant health hazards when treated to a 99.99% destruction and removal efficiency.

An additional performance standard is a requirement that incinerators burning hazardous waste containing more than 0.5% chlorine must remove 99% of the hydrogen chloride from their exhaust gas. The level of 0.5% chlorine content was chosen as the threshold level for the 99% hydrogen chloride removal requirement since the chlorine content of American coal ranges up to almost that concentration. Current Clean Air Act regulations do not specify hydrogen chloride or chlorine limits for emissions for the combustion of such coal. The small additional emissions from incineration of low-chlorine hazardous wastes are not likely to be a serious problem. Some potential candidates for incineration (for example hexochlorobenzene) do include high chlorine levels and will produce significant emissions. Thus the hydrogen chloride removal requirement is necessary.

The final performance standard is that incinerators not emit particulate matter exceeding 180 milligrams per dry standard cubic meter. Particulates from hazardous waste combustion can absorb hazardous constituents onto their surface, or may themselves be hazardous, making their control important. Control is addressed through the DRE standard because particulates are included in the analysis of the stack emissions for POHC's. However, neither combustion by-products nor metals are controlled through the performance standards promulgated today. Thus, some control of these substances can be achieved by controlling the emissions of particulates. The emission limits required are the same as those required by the Clean Air Act's New Source Performance Standards for municipal incinerators. Data indicate that they are achievable by all hazardous waste incinerators except, perhaps, for cement kilns. Cement kilns are exempt from this Subpart when burning waste for re-use or for recovery of thermal value.

It is very important to note that, while these three performance standards are the goal of this regulation, it is not technically practicable to directly monitor compliance with the performance standards on a continuous basis. Enforcement instead will be based on compliance with operating conditions demonstrated (by trial burns or alternative data) to be adequate to achieve these performance standards, and then specified in the permit. However, EPA may require verification

tests of compliance with the performance standard either periodically, as specified in the permit, or when there is an indication that the performance standards are not being met. If the test, or other data, indicate non-compliance with the performance standard, then the Agency will have grounds to modify, revoke, or re-issue a permit so as to ensure that the performance standards will be met. In most cases the Agency does not expect verification tests to be necessary more frequently than annually.

5. New Wastes: trial burns or permit modifications (§ 264.344)

Each permit will specify the waste feeds which it allows and the operating conditions required for each waste feed. When an owner or operator wishes to burn waste feeds for which operating conditions have not been set in a permit he must either secure a permit modification, or, if the burn is to be of short duration and for the specific purposes listed in § 122.27(b), he must secure a temporary trial burn permit.

The criteria for granting trial burn permits are specified in § 122.27(b) which is summarized later in this preamble. The criteria for granting new permits and permit modifications are those outlined in Part 264, Subpart 0. These criteria require demonstration, for a defined waste feed, of operating conditions adequate to achieve the performance standards of § 264.343. This demonstration may be based either on the results of an approved trial burn, or on alternative data adequate to demonstrate that the performance standard can be met and adequate to define operating conditions necessary to meet the standard. Obviously, if an owner or operator wishes to avoid repeated applications for permit modifications, it is in his interests to demonstrate, in each permit application, the widest possible variety of waste feeds that can be adequately incinerated under each set of operating conditions. Furthermore, for economic reasons, applicants may wish to define their waste feeds in varying groups, seeking less stringent operating requirements for easily combusted waste feeds, while narrowing the class of waste feeds that are subject to more demanding and expensive operating requirements. To the extent that the applicant can demonstrate in his permit application that the required performance standards can be met for each of these classes of waste feed, he is, of course, free to make these separations.

6. Operating Requirements (§ 264.345)

Each permit will specify, on a case-by-case basis, operating conditions which have been demonstrated (in the trial burn) to be adequate to meet the performance standard and with which compliance is required. The regulation specifies several operating parameters which will almost always be significant variables for attainment of the performance standards. Limits will be set for these operating parameters in every permit. However, if any specific incinerator's design or waste feed makes it necessary, the permit writer may also specify other operating requirements necessary to ensure that the applicable performance standards are met.

Three further operating requirements will be applied uniformly. During start-up and shut-down of an incinerator, hazardous waste must not be fed unless the incinerator is at a steady state of operation. This requirement is aimed at the problem of inconsistent performance and incomplete combustion when wastes are burned in a zone where combustion conditions have not stabilized within limits defined in the permit.

The regulation also requires that fugitive emissions must be controlled. Where feasible this should be through total sealing of the combustion zone. Where that is impossible (as with rotary kilns) incinerators should maintain "negative pressure", i.e. a combustion zone pressure lower than atmospheric pressure. Alternative means of control may be allowed where they are demonstrated to provide effectiveness equivalent to maintenance of "negative pressure." These requirements are necessitated by the danger of escape of fugitive emissions—including hazardous waste constituents—that could threaten human health or the environment. They are already generally practiced in commercial hazardous waste incineration.

Finally, incinerators must be operated with a functioning system to shut off waste feed when operating requirements are violated. This requirement will protect against deviation from the performance standard; in fact, it is implicit in the requirements that hazardous wastes can be incinerated only in compliance with a permit and that the operating requirements are conditions of the permit. After shutting off hazardous waste feed, the facility may take appropriate steps to either shut-down the incinerator or to return to operating conditions defined in its permit.

7. Monitoring and Inspections (§ 264.347)

EPA has made every effort to reduce monitoring and inspection to the minimum level necessary to ensure that operation of the incinerator does not deviate from the required performance standards. In fact, the recognition that it is technically not practical to continuously monitor for compliance with the performance standard is a major factor underlying the monitoring which is required. The regulation requires, as a minimum, continuous monitoring of combustion temperature, waste feed rate, and air feed rate.

These are the variables which most significantly affect destruction and removal efficiency; they are also continuously controllable by incinerator operators. Continuous monitoring of carbon monoxide emissions is also required. This monitoring is the simplest procedure for approximate verification that adequate combustion actually is taking place. Finally, the regulation requires daily inspection of the incinerator and associated equipment, including alarm systems and emergency shut-down controls. Since the incinerator is a complex system, subject to high stress conditions, this inspection is necessary to control against leaks, spills, or fugitive emissions, and to ensure that stand-by systems will actually operate when needed.

8. Closure (§ 264.351)

At closure the owner must remove all hazardous waste and hazardous waste residues from the incinerator site. Wastes which are hazardous solely because of ignitability are *not* exempt from this provision, since the risk they pose to human health and the environment is very real when they are not being burned in the controlled combustion zone of a permitted hazardous waste incinerator.

B. Part 122—Incinerator Facility Permits

Part 122 includes regulations covering the permitting process. Two portions of Part 122 are particularly related to hazardous waste incinerator operation. Section 122.25 describes information required in Part B of an owner or operator's permit application; § 122.25(b)(5) describes the particular information required in applications for permits to incinerate hazardous waste. Section 122.27 describes short-term permits; § 122.27(b) sets out the procedures and standards for obtaining a permit to conduct a trial burn of hazardous waste.

1. Permit Application Information (§ 122.25(b)(5))

Permit writer's will have to make significant judgments, based on information contained in facility permit applications. EPA has limited the information required in Part B of a permit application for an incinerator to that necessary to make those judgments properly. As § 122.25(b)(5) specifies, applicants must meet one or more of three sets of information requirements.

If the facility is seeking to incinerate hazardous waste under the exemption available for waste which is hazardous solely because it is ignitable, the permit application must provide analytical results adequate to determine that hazardous constituents listed in Part 261, Appendix VIII, are not present in the waste. The reasons for this are explained above, in the substantive discussion of the ignitability exemption.

Initially, information will be submitted for most facilities under § 122.25(b)(5)(ii). This requires that an applicant submit the results of a trial burn of the relevant waste feed, conducted under § 122.27(b). This submission must include all the waste analyses, engineering data, analytical results, and calculations related to the trial burn and its results. This information must be adequate to allow the permit writer to determine operating conditions that will ensure that the facility will meet the performance standards for the relevant waste feeds.

Finally, applicants may seek to avoid the trial burn requirement by submission of alternative data. This information, specified in § 122.25(b)(5)(iii), is essentially a re-statement of the information required to obtain a trial burn permit under § 122.27(b). It is supplemented by such further information as the permit writer may require to determine that the alternative data in adequate to ensure that the performance standards will be met, and to set adequate operating parameters.

2. Trial Burn Permits (§ 122.27(b))

Destruction and removal efficiencies for any given waste feed can vary greatly, and are dependent both on operating conditions and on specific aspects of any incinerator's design. Thus, compliance with applicable performance standards will often have to be demonstrated by empirical measurement, rather than by prediction. Trial burns are the mechanisms for these measurements.

Each trial burn can be conducted only with the specific approval of a permitting official. However, the full procedural requirements for general permits need not be followed. This is because short term permits will be of limited duration (generally less than a dozen hours of combustion, spread over operating periods of up to two weeks), and for the limited purposes of determining feasability of compliance, and the operating conditions necessary to comply, with applicable performance standards. In addition, trial burns will not be allowed if they pose an imminent hazard to human health or the environment.

Applications for a trial burn permit must include a trial burn plan which, if approved, will become a condition of the trial burn permit. This plan will include a waste analysis (indentical to that required for general permits) which describes certain physical properties of the proposed waste feed and which includes an analysis sufficient to identify the presence of any hazardous organic constituents listed in Part 261, Appendix VIII, which may be present in the waste.

In addition, the applicant must provide a detailed description of his incinerator and of the sampling and monitoring procedures to be followed, along with descriptions of safety equipment and full information about the time, waste quantity, and operating conditions of the proposed trial burn.

The permitting official may ask to have this information supplemented if he needs further data to determine whether the trial burn is likely to demonstrate compliance with the performance standards, identify associated operating conditions, and will not itself present an imminent hazard to human health and the environment. When the permitting official determines that the data meet these objectives, he will approve the trial burn plan, will specify the trial Principal Organic Hazardous Constituents (trial POHCs) for which the facility must calculate destruction and removal efficiencies during the trial burn, and will issue a trial burn permit incorporating the conditions in the trial burn plan.

When trial burns are carried out, EPA may wish to have an observor present and, if necessary, can insist upon doing so under the authority of Section 3007 of RCRA, and 40 CFR 122.(7)(i). In any case the trial burn must be conducted in accordance with the trial burn permit and waste feed must cease when specified operating conditions are violated.

Determinations specified in the trial burn permit must be made during the trial burn, or as soon after it as is practical. In all cases, these will include a quantitative analysis of the trial POHCs in the waste feed to the incinerator and a quantitative analysis of the trial POHCs in the exhaust gas emitted from the incinerator. These analyses are necessary to make the required computation of destruction and removal efficiency (DRE) in accordance with the formula specified in § 264.343(a). This DRE computation must be supported and verified by a total mass balance of the trial POHCs in the waste feed, and must be compared with required quantitative analyses of scrubber water and other residues for trial POHCs. Measurement of hazardous combustion by-products will be used to verify attainment of the DRE performance standard, through comparison with the mass balance of POHCs. It may also help meet public concern about the presence of by-products in incinerator emissions. Data accumulated from these trial burn analyses may lead to reductions in the number and complexity of subsequent trial burns, either by reducing the need for those burns, or by aiding the selection of surrogates to simplify such analyses.

Compliance with the other performance standards must be demonstrated by direct measurement of particulate emissions and hydrogen chloride removal efficiencies. Sources of fugitive emissions and their means of control must also be identified.

Measurements of average, maximum, and minimum temperatures in the combustion zone and of air feed rates are always necessary to help establish operating conditions which will assure continued compliance with the performance standard. In addition, the trial burn permit may specify other data collection, if necessary to determine compliance with applicable performance standards, or to establish operating requirements.

Since § 122.27 Short-Term Permits are somewhat separate from the normal permitting procedures, and since they will not always include public participation, for purposes of clarity the Agency has specified that all submissions required by this subsection shall be certified by signature. Since repeated submissions may be required to establish acceptable waste analyses, trial burn plans, and trial burn analyses, the Agency has decided to require only that the certification be made by a person authorized to make reports, rather than requiring that each submission be signed by a person of vice-presidential or equivalent corporate rank.

C. Part 265—Interim Status Standards for Hazardous Waste Incineration

Facilities which qualify for interim status may continue to operate until final Agency action on their permit applications. Throughout that time owners or operators must comply with all relevant interim status standards. If the owner or operator of a facility which has interim status wishes to burn a waste which he has not listed in Part A of his permit application, he must supplement his Part A application as required by § 122.23(c)(1).

EPA is today finalizing the Interim Status Standards which were issued, on an interim final basis, on May 19, 1980 (45 FR 33250). With small exceptions the regulations follow the text of the interim final promulgation. They are discussed in the preamble accompanying that promulgation. The Agency has, however, modified those regulations in two significant ways. First, the regulation now prevents hazardous waste feed during shut-down situations, in addition to forbidding it during start-up conditions. On the other hand, the Agency has recognized that wastes which are hazardous solely because of ignitability can be burned safely even when operating conditions are unstable. Thus the final regulations allow exemptions for ignitable wastes, conditional upon the owner or operator performing and maintaining analyses that show that the waste feed would not reasonably be expected to contain hazardous constituents listed in Part 261, Appendix VIII.

V. Issues Raised by Comments, and Changes in the Regulation

A. General Concepts Underlying the Regulation

1. *Authority*

Several commenters argued that RCRA granted EPA no authority to regulate hazardous waste incineration since legislative history did not label incineration a form of "disposal" and since the Clean Air Act adequately controlled incinerator emissions.

Whether hazardous waste incineration falls within the Section 1004(3) definition of "disposal" is not a controlling issue. The Agency is regulating incineration as "treatment" of hazardous wastes. Section 1004(34) defines treatment:

> (34) The term "treatment", when used in connection with hazardous waste, means any method, technique, or process, including neutralization, designed to change the biological character or composition of any hazardous waste so as to neutralize waste and render it non-hazardous, safe for transport, amenable for recovery, amenable for storage, or reduced in volume. Such term includes any activity or processing designed to change the physical form or chemical composition of hazardous waste so as to render it non-hazardous.

As a process designed to render hazardous waste non-hazardous and reduced in volume, incineration certainly falls within this definition. The Agency's statutory mandate to regulate such treatment pocesses is then found in Section 3004, which requires that the Administrator promulgate performance standards for the treatment of hazardous wastes.

This also fits the broad structure of RCRA, which requires that hazardous wastes be sent only to facilities which have RCRA permits to treat them. The Administrator's authority in this matter is make even more clear in Section 3004 which says that the standards set by the Agency "shall include, but need not be limited to, requirements respecting—

> (3) Treatment . . . of all such wastes . . . pursuant to such operating methods, techniques, and practices as may be satisfactory to the Administrator.

This mandate also serves the objectives of the statute, defined by Congress in Section 1003(4) as, among other things, "regulating the treatment . . . of hazardous wastes which have adverse affects on health and the environment". Furthermore, incineration of hazardous wastes was discussed extensively in EPA's 1974 *Report to Congress: Disposal of Hazardous Wastes,* a document that strongly influenced Congressional development of RCRA. Additionally, EPA has consistently indicated in both Federal Register proposals and Congressional testimony that it will control incinerators under RCRA. Congress gave no signs of disapproval of this in the 1980 RCRA amendments.

The Agency cannot agree with those commenters who suggested that the proposed regulations should be replaced by, or were in conflict with, the Clean Air Act. Current Clean Air Act regulations address only a portion of the potential emissions from a hazardous waste incinerator. The Clean Air Act is oriented toward control of emissions on a pollutant-by-pollutant basis, and current regulations are focused largely on wide-spread, large-volume, pollutants (particulates, NO_x, SO_x, etc) and on specified hazardous emissions from specific sources. In contrast, the pollutants which could be emitted from hazardous waste incinerators are far more numerous and diverse. Many are acutely toxic or carcinogenic. A case-by-case, chemical by chemical, regulatory approach under the Clean Air Act is not practical in this situation.

RCRA provides authority to control emissions broadly through destruction and combustion performance standards and direct operating and design standards. Such a regulatory approach is necessary in order to adequately protect human health and the environment as required by RCRA. To the exent that standards can be developed in the future under the Clean Air Act to deal with specific hazardous air emissions, this may aid in the task of regulating hazardous waste incineration. Moreover, since hazardous waste incinerators will often store and generate hazardous waste, they will already be within the RCRA system for manifests and permitting. Thus regulating hazardous waste incineration under RCRA (rather than the Clean Air Act) may be the simplest way to minimize the regulatory burden on applicants.

2. Performance Standards and Engineering Judgment

Several comments on the proposed regulations criticized as too inflexible two facets of the proposed regulations: (1) universally applicable specific design and operating requirements, and (2) performance requirements that did not allow waste-specific variances.

Both of these concerns were seriously considered. As discussed in the next paragraph, the Agency has revised the regulations so that they now rely heavily on performance standards, with few operating requirements specified. Facility-specific and waste-specific variances proved, however, to be technically and procedurally complex. They required techniques and procedures which were not proposed and which relied on much scientific knowledge not included in the 1978 proposal. EPA, therefore, is proposing today a waste-specific and facility-specific variance and a procedure for applying it. The Agency specifically solicits comments and data relevant to the proposed variance and procedure; but, until the variance is shown to be feasible and is finalized, permits will be issued under the performance standards promulgated today.

The other general comment was easier to address. The proposed regulations included specific, universally applicable operating requirements for temperature, dwell-time, combustion efficiency, and quantity of excess air. Commenters persuasively argued that these standards did not provide enough flexibility to account for the many differences in wastes and incinerator

designs, and that they were often not necessary, even to meet the performance standards EPA required. On more abstract grounds they also argued that performance standards were inherently better than operating standards since they adequately protected human health and the environment, while not stifling innovative approaches which might be more economical, more efficient, or more effective.

The Agency concluded that these comments had merit. Different wastes and different incinerator designs have been shown in EPA tests to attain the required destruction and removal efficiencies under a variety of operating conditions. Thus some flexibility to tailor operating standards on a case-by-case basis can more effectively assure protection of human health, while, at the same time, avoiding needless requirements. The regulations now include few nationally applicable design and operating standards, but rely instead on selected performance standards. However, as many industry comments pointed out, it is technically impractical to continuously monitor the most important of these performance requirements (destruction and removal efficiency) especially when quick response times may be important. Thus pure reliance on performance standards is not feasible and specific operating criteria will have to be observed for proper facility operation and to demonstrate compliance with the required DRE. These specific operating standards will now, however, be specified on a case-by-case basis during the permit drafting process based primarily on the results of trial burns (or alternative data) which demonstrate the operating conditions necessary to achieve compliance with the performance standards. The permit writer will need to exercise some measure of scientific and engineering judgment in interpreting the trial burn data and defining acceptable limits on operating conditions and waste feed variations. The procedural mechanisms for making these case-by-case determinations (including data compilations from trial burns) are necessarily complex, but they appear the best alternative to uniform national standards.

This approach—tailoring of regulatory requirements to specific wastes and facilities, based on the trial burn (or alternative data)—is consistent with the approach EPA has adopted for other regulations for management of hazardous waste. It recognizes that case-by-case judgments, based on site-specific circumstances can be applied in establishing the operating requirements applicable to an incinerator. In making such scientific and engineering judgments, the permit writers will be able to apply the latest state-of-the-art information on incinerator technology and the thermal destruction characteristics of waste to the facility-specific information obtained from trial burns and contained in permit applications. To aid this process, EPA is publishing a "Permit Writer's Guidance Document for Hazardous Waste Incineration" and an "Engineering Handbook on Hazardous Waste Incineration." The Agency expects to make these manuals available to the public in the near future. The latest drafts of these manuals are now available for inspection in the RCRA docket room, but the Agency expects to update them periodically.

B. Significant Comments; and Changes to Part 264

The Agency has considered each comment relevant to hazardous waste incineration. Significant ones are summarized here; others are included in the detailed discussions in the companion "Background Document."

Commenters suggested that incineration of wastes which are hazardous solely because of ignitability should not be subject to incineration regulations. EPA agrees in principle and, as mentioned above, has exempted such wastes from most of the substantive requirements of Part 264, Subpart O. However, applicants must show in a permit application that an ignitable waste does not contain toxic organic constituents listed in Part 261, Appendix VIII. This showing must be based on an analysis of the waste for any organic constituents listed in Appendix VIII, except those that can be demonstrated not to be reasonably likely to be in the waste. This showing is necessary because wastes which fail the ignitability characteristic described in Part 261 may also contain toxic organic constituents. Even wastes listed solely for ignitability may contain such constituents if the Agency did not have exhaustive composition data at the time of listing. Since toxic organic constituents must be destroyed in an incinerator in accordance with the performance standard, any ignitable waste containing such constituents is subject to all of the Subpart O standards.

Incineration of ignitable wastes which are exempted from most of Subpart O will, however, still be covered by RCRA permits. This allows generators and transporters of ignitable hazardous wastes to ship them to the facilities. It also ensures that they will be safely stored and otherwise handled until and through the facility's closure period.

Commenters challenged the waste analysis requirement both on the general grounds that it was ambiguous and unnecessary (since manifest data should suffice) and on the specific ground that determination of "principal hazardous components" was ambiguous and, perhaps, ruinously expensive. The waste analysis requirements are now far more detailed and linked more closely to the determination of the "principal hazardous components"—now called "principal organic hazardous constituents (POCHs)." The requirements clearly require more information than is shown on the manifest, as indeed they must since further information is requred to determine DRE and set operating conditions. EPA has also improved the clarity of the regulation by specifying that it is the waste *feed* to the incinerator that must be analyzed for burn-related information (thus assuring that affects of combination and blending are given credit and consideration), and by specifying which detailed waste analyses requirements are required only on permit application and which simplified analyses must be performed on an on-going basis.

Finally, EPA has responded to concern about determination of "principal hazardous components" by establishing a procedure for identification of POHCs during each permit writing process. The applicant may suggest certain POHCs for designation, but the determination will be made by the permit writer, using all available data (including trial burns) to determine those organic hazardous constituents most difficult to burn and present in significant quantities. This POHC selection analysis, while costly, will not be prohibitive since, even where necessary, GC/MS analysis against an identified list of constituents (those organics listed in Part 261, Appendix VIII) will give adequate qualitative and quantitative results at a reasonable cost. Even this analysis can be reduced if the applicant demonstrates that listed constituents would not reasonably be expected to be present in the waste feed.

Commenters often favored performance standards in theory but criticized the proposed Destruction Efficiency requirement of 99.99% for several reasons. Some criticized its general attainability, others argued that measurement near combustion zones was dangerous and inherently

unreliable; others pointed out that *inorganic* materials such metallic as elements, could not be "destroyed" by any combustion process short of nuclear transformation.

The regulations now call for a "Destruction and Removal Efficiency (DRE)" of 99.99% rather than 99.99% Destruction Efficiency (DE). This very significant change avoids the risks and unreliability of combustion zone gas measurement, and it gives facilities credit for pollutant removals made by their air pollution control equipment. It also means that measurements will be made at the point of release to the atmosphere—the real point of concern for protection of human health and the environment. Yet adequate protection is assured because air pollution control residues must be safely managed; in fact protection may be enhanced by the greater reliability of measurement.

EPA also now applies the DRE only to hazardous *organic* constituents, thus recognizing that inorganics are not "destroyed" by combustion. Inorganics can, of course, be "removed" from incinerator emissions, however the Agency has not yet analyzed data on what removal efficiencies represent the state of the art for inorganics removal controls. EPA is today proposing a procedure for case-by-case determinations of acceptable inorganic emissions. The Agency specifically solicits comments on that procedure and data on attainable inorganic removal standards.

Finally, on the most important point (attainability), EPA surveyed U.S. and international technical literature to obtain all available data on performance of incinerators destroying hazardous waste. EPA has now identified 54 waste/incinerator combinations for which an efficiency determination has been reported. This survey included all of the applicable full scale test work performed by EPA's Office of Solid Waste in 1975 and 1976, as well as all known and relevant test burns reported by industry, including a test-burn report submitted by the American Society of Mechanical Engineers.

In reviewing the 54 incinerator tests, all but nine achieved at least a 99.99% destruction efficiency. The remaining nine achieved efficiencies very close to 99.99%, and, upon close examination of the test reports, all of those nine tests had explainable and correctable problems which prevented attaining a 99.99% destruction efficiency. Since the final regulation is based on destruction and *removal* efficiency, the 99.99% performance level is more readily attainable than that monitored in test burns. Data clearly indicate that commercial hazardous waste incinerators can attain a 99.99% DRE for a wide-range of organic hazardous wastes, including those most difficult to burn.

Commenters objected to the proposed 99% removal requirement for all halogens, noting the difficulty of achieving 99% removal of halogens other than hydrogen chloride and claiming that other halogens were less dangerous than hydrogen chloride. Some argued for case-by-case determinations of necessary halogen removals.

EPA has retained the 99% removal requirement for hydrogen chloride from wastes containing significant amounts of chlorine. The comments received, and surveys of the technology in place, indicate that 99% removal for hydrogen chloride is attainable. EPA's Office of Solid Waste determined hydrogen chloride removals for four of its test burns in 1975 and 1976. All exceeded the required removals. Industry reports confirm this. The Agency, however, does not yet have data to support the attainability of, or need for, similar removals for other hydrogen halides. EPA is today proposing a procedure for case-by-case determination of acceptable hydrogen halide emissions, based on assessment of impacts on human health and the environment. The Agency specifically solicits comments on that procedure and on attainable hydrogen halide control levels.

Commenters criticized the proposed regulatory standard for particulate emissions. Some felt that it was too stringent, and others saw it as more permissive than existing Clean Air Act standards. Both groups criticized the complex formula for correcting for carbon dioxide in the exhaust stream.

EPA has clarified the formula to make it clear that the formula, calculations, and final standard are equivalent to the New Stationary Source Performance Standard for municipal incinerators promulgated under the Clean Air Act. Industry information and EPA's own full-scale tests indicate that this standard is attainable for facilities regulated under this Subpart.

Commenters objected to EPA's reliance on a combination of continuous monitoring of carbon monoxide emissions and a requirement of 99.9% combustion efficiency as an indicator of destruction efficiency. Determination of the combustion efficiency involves monitoring of both CO and CO_2 from the combustion process on a continuous basis. Commenters argued that a 99.9% combustion efficiency, as defined in the proposed regulation, is not achievable. Commenters also argued that measurement is a problem because absorption of CO_2 in wet scrubber systems can produce errors in the measurement of combustion efficiency.

The Agency has decided to drop the specification of combustion efficiency, as a result of these and related comments, and because the objectives of the proposed combustion efficiency standard can be obtained more simply. Thus, carbon dioxide no longer needs to be monitored. The final standard states that the carbon monoxide in the exhaust stack will be monitored on a continuous basis, but the maximum concentration limit in the emissions will be specified as an operating condition on a case-by-case basis in each permit. The permit limit will be determined based on a trial burn test or on other data submitted in lieu of a trial burn.

Carbon Monoxide monitoring is important because it provides a continuous indicator of the completeness of combustion which has taken place in an incinerator. When CO monitoring is combined with continuous monitoring of temperature, waste feed rate, and air feed rate, it is possible to determine on a continuous basis whether the incinerator is operating within limits defined in the trial burn as necessary to achieve 99.99% DRE.

As discussed above, commenters critized reliance on uniform operating requirements. The Agency agrees and these requirements will now be set on a case-by-case basis. The final regulations specify several incinerator operating parameters which are to become part of the permit issued by the Agency. These are combustion temperature, waste feed rate, air feed rate, and CO level in the exhaust gas. Also specified will be allowable variations in waste composition of the incinerator feed, and allowable changes in incinerator design and operating procedures. Standards regarding changes in design, operation, and feed composition are now specified.

The first reason for this is the shift from uniform requirements to those set on a case-by-case basis. It is now necessary to ensure that incinerator practices do not change (from those specified in permit applications) in ways that could make the specified conditions inadequate. A related reason is that DRE is now not monitored directly or continuously and the proposed combustion efficiency requirement has been dropped. Modifications to incinerators after trial burns could affect DRE without detection. Permit writers, therefore, will specify acceptable changes in incineration design, configuration, operating methods, and waste feed character.

Commenters criticized the proposed standard for control of fugitive

emissions of unburned hazardous waste and combustion products. Most stated that the level of control required was vague, or that EPA should state it as the level of best practical technology. Others argued that limited fugitive emissions are inevitable in some types of incinerators, particularly rotary kilns.

The Agency has now made the standard more precise. It now specifies two control techniques in current usage—sealing the combustion zone, and operating so that pressures in the combustion zone are less than in ambient air. Data indicate that the first technique can be used in all incinerators except rotary kilns, while "negative pressure" is the norm for all incinerators except fluidized bed incinerators. In any case, each facility may rely on either or both practices, or on any new method demonstrated to meet a performance standard equivalent to that achieved by "negative pressure" systems.

Commenters criticized the proposal for requiring that incinerators be shut-down and that waste feed be cut off whenever permit deviations occurred. Some argued that automatic shut-downs would in fact be harmful since rapid cooling would damage refractory liners.

The Agency has modified the regulation to make clear that, while hazardous waste *feed* must be cut-off, a total facility shutdown is not required. Human health and the environment will be protected if waste feed ceases. Non-hazardous auxiliary fuel feed may continue. Having ceased waste feed, the facility is free to correct deviations through whatever control modifications the situation requires.

Commmenters critized the proposed monitoring and facility inspection requirements. They questioned the expense and reliability of the required gaseous monitoring equipment, the frequency of inspections, and the specification of monitoring points. In these final rules, the Agency has specified a minimum schedule for monitoring and inspecting the operation of incinerators. Combustion and CO monitoring equipment must be monitored continuously, and operating corrections made to ensure that critical conditions are not allowed to vary outside permit limits. In addition, the regulation requires that equipment be inspected in accordance with both the minimum frequencies specified in the Subpart O standard and in the facility inspection schedule.

The permit writer may require measurements and calculations (similar to those used in a trial burn) to verify compliance with the DRE. The Agency expects that generally this will not be required more frequently than annually, and in most cases even less frequently.

C. Significant Comments: and Changes to Part 122

Comments suggested that trial burns should not be subject to the incinerator performance standard since the purpose of the trial burn is to determine the feasibility of, and the conditions necessary for, compliance with that standard. They also argued that failures to meet the performance standard might be inevitable, instructive, in good faith, and of minor environmental consequence. EPA agrees with much of this argument and, as discussed above, has created a special, simplified, permit process for trial burns. This procedure, codified as § 122.27(b), effectively exempts trial burns from Subpart O and subjects them only to conditions directly relevant to trial burns. In substance, these parallel §§ 264.341 (waste analysis) and 264.342 (POHC selection). These are combined with required compliance with approved operating conditions set forth in an approved trial burn plan. They provide an alternative basis for protection of human health and the environment, adequate for the limited mass and duration of trial burn emissions.

Trial burns are essential to the application of this regulation. The evaluation of trial burn data, and the setting of permit conditions which result from those data, represent the major focus of scientific and engineering judgment by the permitting official. It is in that process that the permit writer:

(1) applies scientific and engineering judgment to identify the principal organic hazardous constituents to which the performance standard applies, and

(2) establishes the operating conditions that will be placed in the permit.

The Agency intends that new trial burns should be minimized to the extent possible and conduct of those burns should proceed quickly so that they do not become an administrative barrier to the utilization of hazardous waste incineration. This is a particular concern with off-site facilities that burn a wide variety of hazardous wastes from many different generators. The regulations deal with this concern in several ways.

First, the simplified permit process described in § 122.27(b) has been set up. Second, as § 122.25 and Subpart O make clear, a trial burn may be waived, if the facility owner or operator can provide data equivalent to that which would be developed in a trial burn. This may be data from previous operational burns in a similar incinerator on similar waste, burns in pilot facilities, etc. Finally, trial burns can be minimized by prudent planning and structuring of trial burns by the facility owner or operator.

Although the DRE performance standard applies to each waste feed burned, this does not mean that a separate trial burn for each waste or each different mixture of wastes is required. To the extent practicable, the Agency intends to establish a ranking of wastes based on difficulty of thermal destruction. If an owner or operator established (through a trial burn) operating conditions for those wastes which are most difficult to destroy, this could provide the alternative documentation for the permitting official to allow certain other wastes to be burned at the same conditions. To avoid overly stringent burn conditions for easily combusted wastes, the facility owner might want to carry out, at different operating conditions, trial burns on two or more basic group of wastes, or waste mixtures, so that permit conditions could be established for each.

As an aid to this approach, EPA is working to construct a hierarchy of waste incinerability. Currently, data are available to develop comparative and predictive assessments, but not to define a complete hierarchy. It is now possible, based on current knowledge, to make some judgments of relative incinerability of different wastes. Data indicate that each of several predictive theories are reasonably accurate and that various theories generally agree in outcome. As more test burns are completed, and as more research and pilot incineration tests are conducted by EPA, a more complete incinerability hierarchy will be developed. As this data base is developing, the permit writer will need to exercise judgment in establishing the bounds on wastes and waste mixtures that can be burned at a given set of incinerator conditions. Thus, initially the trial burn burden may be large, but it should diminish substantially over time.

The Agency has placed a specific requirement in the trial burn section requiring that data collected from any approved trial burn be submitted to the Agency. This information is to be submitted whether or not the trial burn was successful in demonstration compliance with the performance standards. This data will allow the Agency to determine if excessive amounts of POHC's were emitted during the trial burn, to add to the information base being developed by the Agency, and to determine the reliability of successful trial burn results that are reported to the Agency.

D. Significant Comments; and Changes to Part 265

Commenters argued that banning the use of high BTU hazardous waste as fuel to start-up incinerators was contrary to sound practice. Some also argued that wastes which contain only carbon, hydrogen, and oxygen should be allowed as start-up fuel. Finally they asserted that EPA had failed to recognize degree of hazard of wastes.

The Agency has concluded that use of clean auxiliary fuel (such as fuel oil or natural gas) to start-up incinerators is a prudent practice. EPA realizes, however, that some wastes may be hazardous due solely to ignitability and might well be suitable for start-up. Thus, the final regulations for interim status incineration exempt wastes which are hazardous due solely to ignitability from the substantive requirements of this Subpart. The Agency has also modified the operating requirements to require that hazardous waste not be fed to the incinerator during shut down.

The Agency, however, disagrees with the comment that wastes which have only hydrogen, oxygen, and carbon in their structure should be exempted from the pre-heating requirement. An example of such a waste material is benzene, which contains only hydrogen and carbon, but which is hazardous because of its carcinogenic properties.

Finally, EPA has decided not to incorporate a degree of hazard approach into these Interim Status Standards since, even if feasible at all, it would require greater interaction between facilities and the Agency than interim status makes practical.

VI. Regulatory Analysis

Executive Order 12044 requires EPA to prepare a regulatory analysis for all new significant regulations. This analysis includes a comprehensive economic impact analysis and a discussion of the regulatory alternatives considered.

A. Economic Analysis

EPA plans to complete its formal analysis of the total Part 264 RCRA program and make it available for public review and comment in mid-1981. The Agency has, however, completed a fairly substantial preliminary analysis of the cost of the regulation published today. A copy of the preliminary cost analysis will shortly be available in the EPA Regional libraries, the EPA Headquarters library and the Docket Room in the Office of Solid Waste.

While total costs and impacts of the entire Part 264 regulation cannot be determined yet, EPA is building a model which allows such determinations. Inputs to this model are quantities of waste by waste stream and industry, unit costs of waste management, lists of feasible management methods for each waste stream, and capacity for existing management processes. The output from the model is the cost of the regulation by industry. These costs then serve as input to determining impacts. The incinerator costs discussed here will be used in this model.

The incremental costs by which RCRA regulations will increase the costs of current practice of managing hazardous waste are now being determined. These are the incremental costs of treating (or storing or disposing) of waste by a given method (e.g., in a incinerator) which is in compliance with the regulations. Preliminary costs have been developed for incinerators. In the following analysis these costs are presented on an incremental annualized after tax basis. Because they are incremental, they represent the additional cost of waste management imposed by the Part 264 general status regulations (over and above the costs imposed by the Part 265 interim status standards) on those owners or operators required to obtain a RCRA permit for incinerating hazardous waste. Because they are annualized, they represent the cost (in 1980 dollars) the owner or operator would incur if he incurred the same cost each year.

As a result of the permitting standards for incinerator, (Subpart O of Part 264), operators of incinerators will face higher costs. The regulations require the owners or operators of incinerators to achieve a destruction and removal efficiency (DRE) of 99.99%, to perform trial burns, to monitor continuously for carbon monoxide, to install an automatic shut down system which will automatically keep waste from entering the combustion chamber when incinerator operating conditions do not comply with the permit conditions, to close the incinerator against fugitive emissions, and to determine the principle organic hazardous constituents of the waste.

In the cost analysis, EPA determined that different types of wastes will incur different incremental costs. The primary reasons for cost differences among waste types is that some wastes require a higher temperature than others to assure a DRE of 99.99%, and that some types of wastes must be incinerated in a rotary kiln, while others can be incinerated in a liquid injector. The following table shows the annualized unit baseline (or pre-RCRA) cost for incineration, the cost increment due to the Part 265 Subpart O and financial requirements regulations, the increment due to the Part 264 Subpart O and Financial requirements regulations, and the cost of incineration following the Part 264 regulations. These figures show that the cost increment due to these Part 264 incinerator regulations is very low, and adds less than 6% to current costs even for the most toxic materials to be burned.

Annualized Incremental Unit Cost of Compliance With Part 264 for Incinerators[1]

[Unit cost (dollars per ton)]

Cost	Nonhalogenated liquids	Halogenated liquids	Nonhalogenated solids and sludges	Halogenated solids and sludges	Highly toxic materials
Baseline	$53.57	$259.29	$357.14	$556.79	$556.79
Part 265 without financial requirements	.97	1.94	.97	.97	.97
Part 265 financial requirements	1.86	7.04	12.34	12.34	12.34
Part 264 without financial requirements	3.62	7.23	3.62	11.62	45.48
Part 264 financial requirements	.22	.87	1.52	1.52	1.52
Total	60.24	276.37	375.59	583.24	617.10

[1] These costs are based on waste streams being incinerated as follows:

- Nonhalogenated liquids are incinerated in a liquid injection incinerator without pollution control devices and with a design capacity of 20,000 MT per year.
- Halogenated liquids are incinerated in a liquid injection incinerator with pollution control devices and with a design capacity of 10,000 MT per year.
- Nonhalogenated solids and sludges, halogenated solids and sludges, and highly toxic materials are incinerated in a rotary kiln incinerator with pollution control devices and with a design capacity of 20,000 MT per year.

The cost for Part 265 without financial requirements includes costs for monitoring, recordkeeping and reporting, administration, training and contingency plans, and equipment. It excludes the cost of waste analysis, which is dependent on the annual quantity of particular waste streams incinerated.

The cost for Part 265 financial requirements includes the cost of closure as well as providing a trust fund for closure. To the extent that owners or operators are able to use letters of credit or surety bonds to comply with the financial requirements, these costs will be significantly lower. The cost for Part 264 without financial requirements reflects costs for achieving the requisite DRE, performing trial burns, monitoring for CO, installing and operating an automatic waste feed cut-off system, determining the principal hazardous organic components of the waste, and periodically inspecting and analyzing burns to insure compliance with permit conditions. The cost for Part 264 financial requirements reflects the fact that the analysis assumes that owner or operators will build trust funds over 10 years for Part 264 and 15 years for Part 265.

The annualized incremental unit costs for Part 264 were derived from estimates of capital and operating and maintenance costs (O & M costs). The following table shows the capital and O & M costs, and serves as the basis for these Part 264 estimates.

Total Incremental Capital and Operating and Maintenance Cost of Compliance With Part 264 for Incinerators

[Cost in thousands of dollars]

Cost	Liquid injection—non-halogenated and halogenated liquids	Rotary kiln		
		Non-halogenated solids and sludges	Halogenated solids and sludges	Highly toxic materials
Capital	222.2	222.2	222.2	352.2
O & M	84.0	84.0	308.0	1,246.0

The cost analysis indicates that an owner or operator will incur capital costs for the following requirements: a) conducting trial burns; b) attaining the required destruction and removal efficiency; c) monitoring CO continuously; d) installing an automatic waste feed shut-off system; and e) determining the principal organic hazardous constituents of the waste feed. In addition, the owner or operator will incur annual operating and maintennce costs for (a) through (e), plus annual costs for periodic inspections and analyses of burns.

B. Regulatory Alternatives

EPA plans to prepare and make available for public comment in mid-1981 a full Regulatory Analysis for the entire RCRA program. This will include both the economic impact analysis and a summary of the regulatory approaches considered.

The Regulatory Flexibility Act (PL–96–354) requires all Federal agencies to consider the effects of their regulations on "small entities", i.e. small businesses, small organizations, and small governmental jurisdictions. It requires agencies to propose for public comment "Regulatory Flexibility Analysis" for any regulations proposed *after* January 1, 1981, and which will cause a significant impact on a substantial number of small entities. Since the Agency proposed this regulation before January 1, 1981, it is not legally required to comply with the Regulatory Flexibility Act.

However, the Agency is concerned about small entity impacts and has already considered them. EPA believes that a significant portion of the impact of the hazardous waste regulations on small businesses is caused by the regulations previously promulgated under § 3001 of RCRA. These rules define hazardous waste and thus determine who must comply with the regulation. For primarily administrative reasons, the Agency included a special exemption in the regulations promulgated on May 19, 1980 for small quantity generators (§ 261.5). This provision exempts from full regulation generators that produce less than 1000 kilograms of hazardous waste per calendar month (except that there are lower exemptions for certain acutely hazardous wastes). This exemption applies to firms that are small quantity generators which also incinerate their waste on-site. Such incinerators would not be subject to the Subpart O regulations for incinerators. Thus, EPA believes it has directly addressed the objectives of this Act.

VII. OMB Review

Under the Federal Reports Act of 1942, as amended by the Paperwork Reduction Act of 1980, OMB reviews reporting requirements in proposed forms and regulations in order to minimize the reporting burden on respondents and the cost to government. Although EPA has initiated discussions with the staff of OMB, time has prevented the completion and submission to OMB of the reporting requirements, and supporting materials, contained in these regulations. These regulations, pursuant to Section 3010(b) of the Act, do not take effect until six months after their promulgation. EPA anticipates that OMB review will be completed well before the reporting requirements take effect.

VIII. Supporting Documents

A. Background Documents

Included in the record supporting these regulations are two background documents providing response to public comments and rationale for how and why the regulations have come to be written the way they are. In conjunction with the references listed in them, these documents provide the basis for and defense of the promulgated regulations.

The background documents include: (1) summaries and responses to comments on the May 19 interim final, interim status, regulations; (2) summaries and responses to comments on the propriety of certain May 19 regulations as interim status requirements; (3) summaries and responses to comments on the proposed (December 1978) general standards; and (4) rationale for the general standards promulgated today.

Copies of these documents are available for review in the EPA regional office libraries and at the EPA headquarters library, Room 2404, Waterside Mall, 401 M Street, S.W., Washington, D.C. 20460.

B. Guidance Documents

To assist owners and operators of facilities as well as regulatory officials to implement these regulations, EPA has prepared guidance manuals. These will not have the effect of regulations, but will provide guidance on how to apply the regulations and will include certain operation information on incineration.

EPA has prepared the following manuals in support of the hazardous waste incinerator regulations: Engineering Handbook on Hazardous Waste Incineration; Permit Writers Guidance Document on Hazardous Waste Incineration.

For a more complete list of manuals that EPA is preparing in support of the entire hazardous waste regulatory program see the preamble discussion in the January 12, 1981 regulation.

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

Dated: January 13, 1981.

Douglas M. Costle,

Administrator.

For the reasons set out in the Preamble, 40 CFR Parts 264, 265, and 122 are amended as set forth below. Part 264, Subpart O, and §§ 122.25(b)(5) and 122.27(b) are published in the Federal Register as interim final rules, and Part 265, Subpart O, is published in the

Federal Register as a final rule (see preamble for discussion).

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

1. In § 264.10, paragraph (b) is revised to read as follows:

§ 264.10 Applicability.

* * * * *

(b) Section 264.18(b) is applicable only to facilities subject to regulation under Part 264, Subparts I, J, K, L, and O.

2. In § 264.13, paragraph (b)(6) is revised to read as follows:

§ 264.13 General waste analysis.

* * * * *

(b) * * *

(6) Where applicable, the methods which will be used to meet the additional waste analysis requirements for specific waste management methods as specified in §§ 264.17 and 264.341.

* * * * *

3. In § 264.15, paragraph (b)(4) is revised to read as follows:

§ 264.15 General inspection requirements.

* * * * *

(b) * * *

(4) The frequency of inspection may vary for the items on the schedule. However, it should be based on the rate of possible deterioration of the equipment and the probability of an environmental or human health incident if the deterioration or malfunction of any operator error goes undetected between inspections. Areas subject to spills, such as loading and unloading areas, must be inspected daily when in use. At a minimum, the inspection schedule must include the items and frequencies called for in §§ 264.174, 264.194, 264.226, 264.254, and 264.347, where applicable.

* * * * *

4. In § 264.73, paragraph (b) is amended by revising paragraph (b)(3), adding new paragraph (b)(6), and redesignating paragraph (b)(6) and (b)(7) as (b)(7) and (b)(8) respectively revised to read as follows:

§ 264.73 Operating Record.

* * * * *

(b) * * *

(3) Records and results of waste analyses performed as specified in §§ 264.13, 264.17, and 264.341;

* * * * *

(6) Monitoring, testing, or analytical data where required by § 264.347;

(7) For off-site facilities, notices to generators as specified in § 264.12(b); and

(8) All closure cost estimates under § 264.142, and, for disposal facilities, all post-closure cost estimates under § 264.144.

* * * * *

5. In § 264.112, paragraph (a) and paragraph (a)(1) are revised to read as follows:

§ 264.112 Closure plan; amendment of plan.

(a) The owner or operator of a hazardous waste management facility must have a written closure plan. The plan must be submitted with the permit application, in accordance with § 122.25(a)(13) of this Chapter, and approved by the Regional Administrator as part of the permit issuance proceeding under Part 124 of this Chapter. In accordance with § 122.29 of this Chapter, the approved closure plan will become a condition of any RCRA permit. The Regional Administrator's decision must assure that that approved closure plan is consistent with §§ 264.111, 264.113, 264.114, 264.115 and the applicable requirements of §§ 264.178, 264.197, 264.228, 264.258, and 264.351. A copy of the approved plan and all revisions to the plan must be kept at the facility until closure is completed and certified in accordance with § 264.115. The plan must identify steps necessary to completely or partially close the facility at any point during its intended operating life and to completely close the facility at the end of its intended operating life. The closure plan must include, at least:

(1) A description of how and when the facility will be partially closed, if applicable, and finally closed. The description must identify the maximum extent of the operation which will be unclosed during the life of the facility, and how the requirements of §§ 264.111, 264.113, 264.114, 264.115, and the applicable closure requirements of §§ 264.178, 264.197, 264.228, 264.258, and 264.351 will be met;

* * * * *

6. In § 264.142, paragraph (a) is revised to read as follows:

§ 264.142 Cost estimate for facility closure.

(a) The owner or operator must have a written estimate of the cost of closing the facility in accordance with the requirements in §§ 264.111–264.115 and applicable closure requirements in §§ 264.178, 264.197, 264.228, 264.258, and 264.351. The owner or operator must keep this estimate, and all subsequent estimates required in this Section, at the facility. The estimate must equal the cost of closure at the point in the facility's operating life when the extent and manner of its operation would make closure the most expensive, as indicated by its closure plan [see § 264.112(a)].

[*Comment:* For example, the closure cost estimate for a particular landfill may be for the cost of closure when its active disposal operations extend over 20 acres, if at all other times these operations extend over less than 20 acres. The estimate would not include costs of partial closures that the closure plan schedules before or after the time of maximum closure cost.]

* * * * *

7. In 40 CFR Part 264, Subpart O is added to read as follows:

Subpart O—Incinerators

Sec.

Subpart O—Incinerators

§ 264.340 Applicability.

(a) The regulations in this Subpart apply to owners and operators of facilities that incinerate hazardous waste, except as § 264.1 provides otherwise.

(b) If the Regional Administrator finds, after an examination of the waste analysis included with Part B of the applicants permit application, that the waste to be burned:

(1) Is either (i) listed as a hazardous waste in Part 261, Subpart D, of this Chapter only because it is ignitable (Hazard Code I) or, (ii) that the waste has been tested against the characteristics of hazardous waste under Part 261, Subpart C, of this Chapter and that it meets only the ignitability characteristic; and

(2) That the waste analysis included with Part B of the permit application includes none of the hazardous constituents listed in Part 261, Appendix VIII;

then the Regional Administrator may, in establishing the permit conditions, exempt the applicant from all requirements of this Subpart except § 264.341 (Waste Analysis) and § 264.351 (Closure).

(c) The owner or operator of an incinerator may conduct trial burns, subject only to the requirements of § 122.27(b) of this Chapter (Trial Burn Permits).

§ 264.341 Waste analysis.

(a) As a portion of a trial burn plan required by § 122.27(b) of this Chapter, or with Part B of his permit application, the owner or operator must have included an analysis of his waste feed sufficient to provide all information required by § 122.27(b)(2) or § 122.25(b)(5) of this Chapter.

(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)).

§ 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 § 122.27(b) 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) 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:

$$DRE = \left(\frac{W_{in} - W_{out}}{W_{in}}\right) \times 100\%$$

Where:

W_{in} = Mass feed rate of one principal organic hazardous constituent (POHC) in the waste stream feeding the incinerator, and

W_{out} = Mass emission rate of the same POHC present in exhaust emissions prior to release to the atmosphere.

(b) An incinerator burning hazardous waste containing more than 0.5% chlorine must remove 99% of the hydrogen chloride from the exhaust gas.

(c) An incinerator burning hazardous waste must not emit particulate matter exceeding 180 milligrams per dry standard cubic meter (0.08 grains per dry standard cubic foot) when corrected for 12% CO_2, using the procedures presented in the Clean Air Act regulations, "Standards of Performance for Incinerators", 40 CFR 60.50, Subpart E.

(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 § 122.15 of this Chapter.

§ 264.344 New wastes: trial burns or permit modifications.

(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 § 122.27(b) 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 be based on either trial burn results or alternative data included with Part B of a permit application under § 122.25(b)(5) of this Chapter.

§ 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) Air feed rate to the combustion system;

(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 ignitable waste exempted in accordance with § 264.340) must not be fed into the incinerator unless the incinerator is operating within the conditions of operation (temperature, air feed rate, etc.) specified in the permit.

(d) Fugitive emissions from the combustion zone must be controlled by:

(1) Keeping the combustion zone totally sealed against fugitive emissions; or

(2) Maintaining a combustion zone pressure lower than atmospheric pressure; or

(3) An alternate means of control demonstrated (with Part B of the permit application) to provide fugitive emissions control equivalent to maintenance of combustion zone pressure lower than atmospheric pressure.

(e) An incinerator must be operated with a functioning system to automatically cut off waste feed to the incinerator when operating conditions deviate from limits established under paragraph (a) of this Section.

(f) An incinerator must cease operation when changes in waste feed,

incinerator design, or operating conditions exceed limits designated in its permit.

§ 264.346 [Reserved]

§ 264.347 Monitoring and inspections.

(a) The owner or operator must conduct, as a minimum, the following monitoring while incinerating hazardous waste:

(1) Combustion temperature, waste feed rate, and air feed rate must be monitored on a continuous basis.

(2) CO must be monitored on a continuous basis at a point in the incinerator downstream of the combustion zone and prior to release to the atmosphere.

(3) Upon request by the Regional Administrator, sampling and analysis of the waste and exhaust emissions must be conducted to verify that the operating requirements established in the permit achieve the performance standards of § 264.343.

(b) The incinerator and associated equipment (pumps, valves, conveyors, pipes, etc.) must be completely inspected at least daily for leaks, spills, and fugitive emissions. All emergency waste feed cut-off controls and system alarms must be checked daily to verify proper operation.

(c) This monitoring and inspection data must be recorded and the records must be placed in the operating log required by § 264.73.

§§ 264.348–264.350 [Reserved]

§ 264.351 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 site.

[*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 the incinerator is not a hazardous waste, the owner or operator becomes a generator of hazardous waste and must manage it in accordance with applicable requirements of Parts 262–266 of this Chapter.]

§§ 264.352–264.999 [Reserved]

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

1. In § 265.73, paragraph (b)(3) is revised to read as follows:

§ 265.73 Operating record.

* * * * *

(b) * * *

(3) Records and results of waste analysis and trial tests performed as specified in §§ 265.13, 265.193, 265.225, 265.252, 265.273, 265.341, 265.375, and 265.402;

* * * * *

2. 40 CFR Part 265, Subpart O, is revised to read as follows:

Subpart O—Incinerators

Sec.
265.340 Applicability.
265.341 Waste analysis.
265.342–265.344 [Reserved]
265.345 General operating requirements.
265.346 [Reserved]
265.347 Monitoring and inspection.
265.348–265.350 [Reserved]
265.351 Closure.
265.352–265.369 [Reserved]

§ 265.340 Applicability.

(a) The regulations in this Subpart apply to owners or operators of facilities that treat hazardous waste in incinerators, except as § 265.1 and paragraph (b) of this Section provide otherwise.

(b) Incineration of wastes which:

(1) Meet only the ignitability characteristic under Part 261, Subpart C, of this Chapter, or

(2) Are listed in Part 261, Subpart D, of this Chapter for ignitability only (Hazard Code I),

are exempted from the requirements of this Subpart, except § 265.351, if the owner or operator can document that the waste feed would not reasonably be expected to contain constituents listed in Part 261, Appendix VIII of this Chapter. Such documentation must be in writing and must be kept at the facility.

§ 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 § 265.73, 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. 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 level controls.

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

(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 262–266 of this Chapter.]

§§ 265.352-265.369 [Reserved]

PART 122—EPA ADMINISTERED PERMIT PROGRAMS: THE HAZARDOUS WASTE PERMIT PROGRAM

1. In § 122.25, paragraph (b)(5) is added to read as follows:

§ 122.5 Contents of Part B

* * * * *

(b) * * *

(5) For facilities that *incinerate hazardous* waste, except as § 264.340 of this Chapter provides otherwise, the applicant must fulfill the requirements of paragraph (b)(5) (i), (ii), or (iii) of this Section.

(i) When seeking exemption under § 264.340(b) (Ignitable waste only):

(A) That the waste is either (1) listed as a hazardous waste in Part 261, Subpart D of this Chapter, only because it is ignitable (Hazard Code I) or, (2) that the waste has been tested against the characteristics of hazardous waste under Part 261, Subpart C of this Chapter, and that it meets only the ignitability characteristic, and includes none of the hazardous constituents listed in Part 261, Appendix VIII of this Chapter; or

(ii) Submit results of a trial burn conducted in accordance with § 122.27(b) including all the determinations required by § 122.27(b); or

(iii) In lieu of a trial burn, the applicant may submit the following information:

(A) An analysis of each waste or mixture of wastes to be burned including:

(*1*) Heat value of the waste in the form and composition in which it will be burned.

(*2*) Viscosity (if applicable), or description of physical form of the waste.

(*3*) An identification of any hazardous organic constitutents listed in Part 261, Appendix VIII, of this Chapter which are present in the waste to be burned, except that the applicant need not analyze for constituents listed in Part 261, Appendix VIII, of this Chapter which would reasonably not be expected to be found in the waste. The Constituents excluded from analysis must be identified and the basis for their exclusion stated. The waste analysis must rely on analytical techniques specified in EPA document SW-846 (referenced in 40 CFR Part 261, Appendix III) or their equivalent.

(*4*) An approximate quantification of the hazardous constituents identified in the waste, within the precision produced by the analytical methods specified in EPA document SW-846.

(*5*) A quantification of those hazardous constituents in the waste which may be designated as POHC's based on data submitted from other trial or operational burns which demonstrate compliance with the performance standard in § 264.343 of this Chapter.

(B) A detailed engineering description of the incinerator, including:

(*1*) Manufacturer's name and model number of incinerator.

(*2*) Type of incinerator.

(*3*) Linear dimension of incinerator unit including cross sectional area of combustion chamber.

(*4*) Description of auxiliary fuel system (type/feed).

(*5*) Capacity of prime mover.

(*6*) Description of automatic waste feed cutoff system(s).

(*7*) Stack gas monitoring and pollution control monitoring system.

(*8*) Nozzle and burner design.

(*9*) Construction materials.

(*10*) Location and description of temperature, pressure, and flow indicating devices and control devices.

(C) A description and analysis of the waste to be burned compared with the waste for which data from operational or trial burns are provided to support the contention that a trial burn is not needed. The data should include those items listed in § 122.25(b)(5)(iii)(A). This analysis should specify the POCH's which the applicant has identified in the waste for which a permit is sought, and any differences from the POCH's in the waste for which burn data are provided.

(D) The design and operating conditions of the incinerator unit to be used, compared with that for which comparative burn data are available.

(E) A description of the results submitted from any previously conducted trial burn(s) including:

(*1*) Sampling and analysis techniques used to calculate performance standards in § 264.343 of this Chapter,

(*2*) Methods and results of monitoring temperatures, waste feed rates, air feed rates, and carbon monoxide,

(*3*) Identification of any hazardous combustion by-products detected,

(*4*) The certification and results required by § 122.27(b)(5)(ii).

(F) The expected incinerator operation information to demonstrate compliance with §§ 264.343 and 264.345 of this chapter including:

(*1*) Expected carbon monoxide (CO) level in the stack exhaust gas.

(*2*) Waste feed rate.

(*3*) Combustion zone temperature.

(*4*) Air feed rate.

(*5*) Expected stack gas volume, flow rate, and temperature.

(*6*) Computed residence time for waste in the combustion zone.

(*7*) Expected hydrochloric acid removal efficiency.

(*8*) Expected fugitive emissions and their control procedures.

(*9*) Proposed waste feed cut-off limits based on the identified significant operating parameters.

(G) Such supplemental information as the Director finds necessary to achieve the purposes of this paragraph.

(H) Waste analysis data, including that submitted in paragraph (b)(5)(iii)(A), sufficient to allow the Director to specify as permit Principal Organic Hazardous Constituents (permit POHC's) those constituents for which destruction and removal efficiencies will be required.

(iv) The Director shall approve a permit application without a trial burn if he finds that:

(A) The wastes are sufficiently similar; and

(B) The incinerator units are sufficiently similar, and the data from other trial burns are adequate to specify (under § 264.345 of this Chapter) operating conditions that will ensure that the performance standards in § 264.343 of this Chapter will be met by the incinerator.

2. Section 122.27 is amended by revising the title, redesignating the existing Section as paragraph (a) and making conforming redesignations within paragraph (a), and adding a new paragraph (b) to read as follows:

§ 122.27 Short term permits.

(Applicable to State RCRA Programs, see § 123.7)

(a) *Emergency permits.* Notwithstanding any other provision of this part or Part 124, in the event the Director finds an imminent and substantial endangerment to human health or the environment the Director may issue a temporary emergency permit to a facility to allow treatment, storage, or disposal of hazardous waste for a non-permitted facility with an effective permit. This emergency permit:

(1) May be oral or written. If oral, it shall be followed in five days by a written emergency permit;

(2) Shall not exceed 90 days in duration;

(3) Shall clearly specify the hazardous wastes to be received, and the manner and location of their treatment, storage, or disposal;

(4) May be terminated by the Director at any time without process if he or she determines that termination is appropriate to protect human health and the environment;

(5) Shall be accompanied by a public notice published under § 124.11(b) including:

(i) Name and address of the office granting the emergency authorization;

(ii) Name and location of the permitted HWM facility;

(iii) A brief description of the wastes involved;

(iv) A brief description of the action authorized and reasons for authorizing it; and

(v) Duration of the emergency permit; and

(6) Shall incorporate, to the extent possible and not inconsistent with the emergency situation, all applicable requirements of this Part and 40 CFR Parts 264 and 266.

(b) *Trial burn permits.* For the purposes of determining feasibility of compliance with the incinerator performance standard of § 264.343 of this Chapter and of determining adequate incinerator operating conditions under § 264.345 of this Chapter, the Director may issue a trial burn permit to a facility to allow short term operation of a hazardous waste incinerator subject to paragraphs (b)(1)–(5) of this Section.

(1) The trial burn must be conducted in accordance with a trial burn plan prepared by the applicant and approved by the Director. The trial burn plan will then become a condition of the permit. The trial burn plan will include the following information:

(i) An analysis of each waste or mixture of wastes to be burned which includes:

(A) Heat value of the waste in the form and composition in which it will be burned.

(B) Viscosity (if applicable), or description of physical form of the waste.

(C) An identification of any hazardous organic constituents listed in Part 261, Appendix VIII of this Chapter, which are present in the waste to be burned, except that the applicant need not analyze for constituents listed in Part 261, Appendix VIII, of this Chapter which would reasonably not be expected to be found in the waste. The constituents excluded from analysis must be identified and the basis for their exclusion stated. The waste analysis must rely on analytical techniques specified in EPA document SW–846 (referenced in 40 CFR Part 261, Appendix III), or their equivalent.

(D) An approximate quantification of the hazardous constituents identified in the waste, within the precision produced by the analytical methods specified in EPA document SW–846.

(E) A quantification of those hazardous constituents in the waste which may be designated as POHC's based on data submitted from other trial or operational burns which demonstrate compliance with the performance standard in § 264.343 of this Chapter.

(ii) A detailed engineering description of the incinerator for which the trial burn permit is sought including:

(A) Manufacturer's name and model number of incinerator (if available).

(B) Type of incinerator.

(C) Linear dimensions of the incinerator unit including the cross sectional area of combustion chamber.

(D) Description of the auxiliary fuel system (type/feed).

(E) Capacity of prime mover.

(F) Description of automatic waste feed cut-off system(s).

(G) Stack gas monitoring and pollution control equipment.

(H) Nozzle and burner design.

(I) Construction materials.

(J) Location and description of temperature, pressure, and flow indicating and control devices.

(iii) A detailed description of sampling and monitoring procedures, including sampling and monitoring locations in the system, the equipment to be used, sampling and monitoring frequency, and planned analytical procedures for sample analysis.

(iv) A detailed test schedule for each waste for which the trial burn is planned including date(s), duration, quantity of waste to be burned, and other factors relevant to the Director's decision under paragraph (b)(4) of this section.

(v) A detailed test protocol, including, for each waste identified, the ranges of temperature, waste feed rate, air feed rate, use of auxiliary fuel, and any other relevant parameters that will be varied to affect the destruction and removal efficiency of the incinerator.

(vi) A description of, and planned operating conditions for, any emission control equipment which will be used.

(vii) Procedures for rapidly stopping waste feed, shutting down the incinerator, and controlling emissions in the event of an equipment malfunction.

(viii) Such other information as the Director reasonably finds necessary to determine whether to approve the trial burn plan in light of the purposes of this paragraph and the criteria in paragraph (b)(4) of this section.

(2) The Director, in reviewing the trial burn plan, shall evaluate the sufficiency of the information provided and may require the applicant to supplement this information, if necessary, to achieve the purposes of this paragraph.

(3) Based on the waste analysis data in the trial burn plan, the Director will specify as trial Principal Organic Hazardous Constituents (trial POHC's), those constituents for which destruction and removal efficiencies must be calculated during the trial burn. These trial PHOC's will be specified by the Director based on his estimate of the difficulty of incineration of the constituents identified in the waste analysis, the concentration or mass in the waste feed, and, for wastes listed in Part 261 of this Chapter, the hazardous waste constituent or constituents identified in Appendix VII of that Part as the basis for listing.

(4) The Director shall approve a trial burn plan if he finds that:

(i) The trial burn is likely to determine whether the incinerator performance standard required by § 264.343 of this Chapter can be met;

(ii) The trial burn itself will not present an imminent hazard to human health or the environment;

(iii) The trial burn will help the Director to determine operating requirements to be specified under § 264.345 of this Chapter; and

(iv) The information sought in paragraphs (b)(4)(i) and (iii) of this section cannot reasonably be developed through other means.

(5)(i) During each approved trial burn (or as soon after the burn as is practicable), the applicant must make the following determinations:

(A) A quantitative analysis of the trial POHC's in the waste feed to the incinerator.

(B) A quantitative analysis of the exhaust gas for the concentration and mass emissions of the trial POHC's, CO_2, O_2, and hazardous combustion by-products.

(C) A quantitative analysis of the scrubber water (if any), ash residues, and other residues, for the trial POHC's.

(D) A total mass balance of the trial POHC's in the waste.

(E) A computation of destruction and removal efficiency (DRE), in accordance with the DRE formula specified in § 264.343(a) of this Chapter.

(F) If the waste feed contains more than 0.5 percent chlorine, a computation of chlorine removal efficiency, in accordance with § 264.343(b).

(G) A computation of particulate emissions, in accordance with § 264.343(c) of this Chapter.

(H) An identification of sources of fugitive emissions and their means of control.

(I) A measurement of average, maximum, and minimum temperatures, and air feed rates.

(J) A continous measurement of CO in the exhaust gas.

(K) Such other information as the Director may specify as necessary to ensure that the trial burn will determine compliance with the performance standard in § 264.343 of this Chapter and to establish the operating conditions required by § 264.345 of this Chapter as necessary to meet that performance standard.

(ii) The applicant shall submit to the Director a certification that the trial burn has been carried out in accordance with the approved trial burn plan, and the results of all the determinations required in paragraph (b)(5)(i) of this Section. To the extent possible, this submission shall be made within 30 days of the completion of the trial burn, or sooner if the Director so requests.

(iii) All data collected during any trial burn must be submitted to the Director following the completion of the trial burn. The results of the trial burn must be included with Part B of the permit application, if a permit application is submitted.

(iv) All submissions required by this paragraph shall be certified on behalf of the applicant by the signature of a person authorized to sign a permit application or a report under § 122.6.

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