ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 9, 63, 260, 264, 265, 266, 270 and 271

[FRL–7971–8]

RIN 2050–AE01

National Emission Standards for Hazardous Air Pollutants: Final Standards for Hazardous Air Pollutants for Hazardous Waste Combustors (Phase I Final Replacement Standards and Phase II)

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This action finalizes national emission standards (NESHAP) for hazardous air pollutants for hazardous waste combustors (HWCs): hazardous waste burning incinerators, cement kilns, lightweight aggregate kilns, industrial/commercial/institutional boilers and process heaters, and hydrochloric acid production furnaces. EPA has identified HWCs as major sources of hazardous air pollutant (HAP) emissions. These standards implement section 112(d) of the Clean Air Act (CAA) by requiring hazardous waste combustors to meet HAP emission standards reflecting the performance of the maximum achievable control technology (MACT).

The HAP emitted by HWCs include arsenic, beryllium, cadmium, chromium, dioxins and furans, hydrogen chloride and chlorine gas, lead, manganese, and mercury. Exposure to these substances has been demonstrated to cause adverse health effects such as irritation to the lung, skin, and mucus membranes, effects on the central nervous system, kidney damage, and cancer. The adverse health effects associated with exposure to these specific HAP are further described in the preamble. For many HAP, these findings have only been shown with concentrations higher than those typically in the ambient air.

This action also presents our decision regarding the February 28, 2002 petition for rulemaking submitted by the Cement Kiln Recycling Coalition, relating to EPA's implementation of the so-called omnibus permitting authority under section 3005(c) of the Resource Conservation and Recovery Act (RCRA). That section requires that each permit issued under RCRA contain such terms and conditions as permit writers determine to be necessary to protect human health and the environment. In that petition, the Cement Kiln Recycling Coalition requested that we repeal the existing site-specific risk assessment policy and technical guidance for hazardous waste combustors and that we promulgate the policy and guidance as rules in accordance with the Administrative Procedure Act if we continue to believe that site-specific risk assessments may be necessary.

DATES: The final rule is effective December 12, 2005. The incorporation by reference of Method 0023A into § 63.14 is approved by the Director of the Federal Register as of December 12, 2005.

ADDRESSES: The official public docket is the collection of materials that is available for public viewing at the Office of Air and Radiation Docket and Information Center (Air Docket) in the EPA Docket Center, Room B–102, 1301 Constitution Ave., NW., Washington, DC.

FOR FURTHER INFORMATION CONTACT: For more information concerning applicability and rule determinations, contact your State or local representative or appropriate EPA Regional Office representative. For information concerning rule development, contact Michael Galbraith, Waste Treatment Branch, Hazardous Waste Minimization and Management Division, (5302W), U.S. EPA, 1200 Pennsylvania Avenue, NW., Washington DC 20460, telephone number (703) 605–0567, fax number (703) 308–8433, electronic mail address *galbraith.michael@epa.gov.*

SUPPLEMENTARY INFORMATION:

Regulated Entities

The promulgation of the final rule would affect the following North American Industrial Classification System (NAICS) and Standard Industrial Classification (SIC) codes:

Category	NAICS code	SIC code	Examples of potentially regulated entities
Any industry that combusts hazardous waste as defined in the final rule.	562211	4953	Incinerator, hazardous waste
	327310	3241	Cement manufacturing, clinker production
	327992	3295	Ground or treated mineral and earth manufacturing
	325	28	Chemical Manufacturers
	324	29	Petroleum Refiners
	331	33	Primary Aluminum
	333	38	Photographic equipment and supplies
	488, 561, 562	49	Sanitary Services, N.E.C.
	421	50	Scrap and waste materials
	422	51	Chemical and Allied Products, N.E.C
	512, 541, 561, 812	73	Business Services, N.E.C.
	512, 514, 541, 711	89	Services, N.E.C.
	924	95	Air, Water and Solid Waste Management

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. This table lists examples of the types of entities EPA is now aware could potentially be regulated by this action. Other types of entities not listed could also be affected. To determine whether your facility, company, business, organization, etc., is regulated by this action, you should examine the applicability criteria in Part II of this preamble. If you have any questions regarding the applicability of this action to a particular entity, consult the person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

Abbreviations and Acronyms Used in This Document

acfm	actual cubic feet per minute
Btu	British thermal units
CAA	Clean Air Act
CFR	Code of Federal Regulations
DRE	destruction and removal efficiency
dscf	dry standard cubic foot
dscm	dry standard cubic meter

EPA	Environmental Protection Agency
FR	Federal Register
gr/dscf	grains per dry standard cubic foot
HAP	hazardous air pollutant(s)
ICR	Information Collection Request
kg/hr	kilograms per hour
kW-hour	kilo Watt hour
MACT	Maximum Achievable Control Technology
mg/dscm	milligrams per dry standard cubic meter
MMBtu	million British thermal unit
ng/dscm	nanograms per dry standard cubic meter
NESHAP	national emission standards for HAP
ng	nanograms
POHC	principal organic hazardous constituent
ppmv	parts per million by volume
ppmw	parts per million by weight
Pub. L.	Public Law
RCRA	Resource Conservation and Recovery Act
SRE	system removal efficiency
TEQ	toxicity equivalence
µg/dscm	micrograms per dry standard cubic meter
U.S.C.	United States Code

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Part One: Background and Summary

I. What Is the Statutory Authority for This Standard?

Section 112 of the Clean Air Act requires that the EPA promulgate regulations requiring the control of HAP emissions from major and certain area sources. The control of HAP is achieved through promulgation of emission standards under sections 112(d) and (in a second round of standard setting) (f).

EPA's initial list of categories of major and area sources of HAP selected for regulation in accordance with section 112(c) of the Act was published in the **Federal Register** on July 16, 1992 (57 FR 31576). Hazardous waste incinerators, Portland cement plants, clay products manufacturing (including lightweight aggregate kilns), industrial/commercial/institutional boilers and process heaters, and hydrochloric acid production furnaces are among the listed 174 categories of sources. The listing was based on the Administrator's determination that these sources may reasonably be anticipated to emit one or more of the 186 listed HAP in quantities sufficient to designate them as major sources.

II. What Is the Regulatory Development Background of the Source Categories in the Final Rule?

Today's notice finalizes standards for controlling emissions of HAP from hazardous waste combustors: incinerators, cement kilns, lightweight aggregate kilns, boilers, process heaters[1], and hydrochloric acid production furnaces that burn hazardous waste. We call incinerators, cement kilns, and lightweight aggregate kilns Phase I sources because we have already promulgated standards for those source categories. We call boilers and hydrochloric acid production furnaces Phase II sources because we intended to promulgate MACT standards for those source categories after promulgating MACT standards for Phase I sources. The regulatory background of Phase I and Phase II source categories is discussed below.

A. Phase I Source Categories

Phase I combustor sources are regulated under the Resource Conservation and Recovery Act (RCRA), which establishes a "cradle-to-grave" regulatory structure overseeing the safe treatment, storage, and disposal of hazardous waste. We issued RCRA rules to control air emissions from hazardous waste burning incinerators in 1981, 40 CFR Parts 264 and 265, Subpart O, and from cement kilns and lightweight aggregate kilns that burn hazardous waste in 1991, 40 CFR Part 266, Subpart H. These rules rely generally on risk-based standards to assure control necessary to protect human health and the environment, the applicable RCRA standard. See RCRA section 3004 (a) and (q).

The Phase I source categories also are subject to standards under the Clean Air Act. We promulgated standards for Phase I sources on September 30, 1999 (64 FR 52828). This final rule is referred to in this preamble as the Phase I rule or 1999 final rule. These emission standards created a technology-based national cap for hazardous air pollutant emissions from the combustion of hazardous waste in these devices. The rule regulates emissions of numerous hazardous air pollutants: dioxin/furans, other toxic organics (through surrogates), mercury, other toxic metals (both directly and through a surrogate), and hydrogen chloride and chlorine gas. Where necessary, Section 3005(c)(3) of RCRA provides the authority to impose additional conditions on a source-by-source basis in a RCRA permit if necessary to protect human health and the environment.

A number of parties, representing interests of both industrial sources and of the environmental community, sought judicial review of the Phase I rule. On July 24, 2001, the United States Court of Appeals for the District of Columbia Circuit granted portions of the Sierra Club's petition for review and vacated the challenged portions of the standards. *Cement Kiln Recycling Coalition* v. *EPA*, 255 F. 3d 855 (D.C. Cir. 2001). The court held that EPA had not demonstrated that its calculation of MACT floors met the statutory requirement of being no less stringent than (1) the average emission limitation achieved by the best performing 12 percent of existing sources and, for new sources, (2) the emission control achieved in practice by the best controlled similar source for new sources. 255 F.3d at 861, 865–66. As a remedy, the court, after declining to rule on most of the issues presented in the industry petitions for review, vacated the "challenged regulations," stating that: "[W]e have chosen not to reach the bulk of industry petitioners' claims, and leaving the regulations in place during remand would ignore petitioners' potentially meritorious challenges." Id.

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[1] A process heater meets the RCRA definition of a boiler. Therefore, process heaters that burn hazardous wastes are covered under subpart EEE as boilers, and are discussed as such in subsequent parts of the preamble.

at 872. Examples of the specific challenges the Court indicated might have merit were provisions relating to compliance during start up/shut down and malfunction events, including emergency safety vent openings, the dioxin/furan standard for lightweight aggregate kilns, and the semivolatile metal standard for cement kilns. *Id.* However, the Court stated, ''[b]ecause this decision leaves EPA without standards regulating [hazardous waste combustor] emissions, EPA (or any of the parties to this proceeding) may file a motion to delay issuance of the mandate to request either that the current standards remain in place or that EPA be allowed reasonable time to develop interim standards.'' Id.

Acting on this invitation, all parties moved the Court jointly to stay the issuance of its mandate for four months to allow EPA time to develop interim standards, which would replace the vacated standards temporarily, until final standards consistent with the Court's mandate are promulgated. The interim standards were published on February 13, 2002 (67 FR 6792). EPA did not justify or characterize these standards as conforming to MACT, but rather as an interim measure to prevent adverse consequences that would result from the regulatory gap resulting from no standards being in place. Id. at 6793, 6795–96; see also 69 FR at 21217 (April 20, 2004). EPA also entered into a settlement agreement, enforceable by the Court of Appeals, to issue final standard conforming to the Court's mandate by June 14, 2005. That date has since been extended to September 14, 2005.

B. Phase II Source Categories

Phase II combustors—boilers and hydrochloric acid production furnaces—are also regulated under the Resource Conservation and Recovery Act (RCRA) pursuant to 40 CFR Part 266, Subpart H, and (for reasons discussed below) are also subject to the MACT standard setting process in section 112(d) of the CAA. We delayed promulgating MACT standards for these source categories pending reevaluation of the MACT standard-setting methodology following the Court's decision to vacate the standards for the Phase I source categories. We also have entered into a judicially enforceable consent decree with Sierra Club that requires EPA to promulgate MACT standards for the Phase II sources by June 14, 2005, since extended to September 14, 2005—the same date that (for independent reasons) is required for the replacement standards for Phase I sources.

III. How Was the Final Rule Developed?

We proposed standards for HWCs on April 20, 2004 (69 FR 21197). The public comment period closed on July 6, 2004. In addition, on February 4, 2005, we requested certain key commenters to comment by email on a limited number of issues arising from public comments on the proposed rule. The comment period for those issues closed on March 7, 2005.

We received approximately 100 public comment letters on the proposed rule and the subsequent direct request for comments. Comments were submitted by owner/operators of HWCs, trade associations, state regulatory agencies and their representatives, and environmental groups. Today's final rule reflects our consideration of all of the comments and additional information we received. Major public comments on the proposed rule along with our responses, are summarized in this preamble.

IV. What Is the Relationship Between the Final Rule and Other MACT Combustion Rules?

The amendments to the Subpart EEE, Part 63, standards for hazardous waste combustors apply to the source categories that are currently subject to that subpart—incinerators, cement kilns, and lightweight aggregate kilns that burn hazardous waste. Today's final rule, however, also amends Subpart EEE to establish MACT standards for the Phase II source categories—those boilers and hydrochloric acid production furnaces that burn hazardous waste.

Generally speaking, you are an affected source pursuant to Subpart EEE if you combust, or have previously combusted, hazardous waste in an incinerator, cement kiln, lightweight aggregate kiln, boiler, or hydrochloric acid production furnace. You continue to be an affected source until you cease burning hazardous waste and initiate closure requirements pursuant to RCRA. Affected sources do not include: (1) Sources exempt from regulation under 40 CFR part 266, subpart H, because the only hazardous waste they burn is listed under 40 CFR 266.100(c); (2) research, development, and demonstration sources exempt under § 63.1200(b); and (3) boilers exempt from regulation under 40 CFR part 266, subpart H, because they meet the definition of small quantity burner under 40 CFR 266.108. See § 63.1200(b).

If you never previously combusted hazardous waste, or have ceased burning hazardous waste and initiated RCRA closure requirements, you are not subject to Subpart EEE. Rather, EPA has promulgated separate MACT standards for sources that do not burn hazardous waste within the following source categories: commercial and industrial solid waste incinerators (40 CFR Part 60, Subparts CCCC and DDDD); Portland cement manufacturing facilities (40 CFR Part 63, Subpart LLL); industrial/commercial/institutional boilers and process heaters (40 CFR Part 63, Subpart DDDDD); and hydrochloric acid production facilities (40 CFR Part 63, Subpart NNNNN). In addition, EPA considered whether to establish MACT standards for lightweight aggregate manufacturing facilities that do not burn hazardous waste, and determined that they are not major sources of HAP emissions. Thus, EPA has not established MACT standards for lightweight aggregate manufacturing facilities that do not burn hazardous waste.

Note that non-stack emissions points are not regulated under Subpart EEE.[2] Emissions attributable to storage and handling of hazardous waste prior to combustion (i.e., emissions from tanks, containers, equipment, and process vents) would continue to be regulated pursuant to either RCRA Subpart AA, BB, and CC and/or an applicable MACT that applies to the before-mentioned material handling devices. Emissions unrelated to the hazardous waste operations may be regulated pursuant to other MACT rulemakings. For example, Portland cement manufacturing facilities that combust hazardous waste are subject to both Subpart EEE and Subpart LLL, and hydrochloric acid production facilities that combust hazardous waste may be subject to both Subpart EEE and Subpart NNNNN.[3] In these instances Subpart EEE controls HAP emissions from the cement kiln and hydrochloric acid production furnace stack, while Subparts LLL and NNNNN would control HAP emissions from other operations that are not directly related to the combustion of hazardous waste (e.g., clinker cooler emissions for cement production facilities, and hydrochloric acid product transportation and storage for hydrochloric acid production facilities).

Note that if you temporarily cease burning hazardous waste for any reason, you remain an affected source and are still subject to the applicable Subpart

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[2] Note, however, that fugitive emissions attributable to the combustion of hazardous waste from the combustion device are regulated pursuant to Subpart EEE.

[3] Hydrochloric acid production furnaces that combust hazardous waste are also affected sources subject to Subpart NNNNN if they produce a liquid acid product that contains greater than 30% hydrochloric acid.

EEE requirements. However, even as an affected source, the emission standards or operating limits do not apply if: (1) Hazardous waste is not in the combustion chamber and you elect to comply with other MACT (or CAA section 129) standards that otherwise would be applicable if you were not burning hazardous waste, e.g., the nonhazardous waste burning Portland Cement Kiln MACT (Subpart LLL); or (2) you are in a startup, shutdown, or malfunction mode of operation.

V. What Are the Health Effects Associated With Pollutants Emitted by Hazardous Waste Combustors?

Today's final rule protects air quality and promotes the public health by reducing the emissions of some of the HAP listed in Section 112(b)(1) of the CAA. Emissions data collected in the development of this final rule show that metals, hydrogen chloride and chlorine gas, dioxins and furans, and other organic compounds are emitted from hazardous waste combustors. The HAP that would be controlled with this rule are associated with a variety of adverse health affects. These adverse health effects include chronic health disorders (e.g., irritation of the lung, skin, and mucus membranes and effects on the blood, digestive tract, kidneys, and central nervous system), and acute health disorders (e.g., lung irritation and congestion, alimentary effects such as nausea and vomiting, and effects on the central nervous system). Provided below are brief descriptions of risks associated with HAP that are emitted from hazardous waste combustors.

Antimony

Antimony occurs at very low levels in the environment, both in the soils and foods. Higher concentrations, however, are found at antimony processing sites, and in their hazardous wastes. The most common industrial use of antimony is as a fire retardant in the form of antimony trioxide. Chronic occupational exposure to antimony (generally antimony trioxide) is most commonly associated with ''antimony pneumoconiosis,'' a condition involving fibrosis and scarring of the lung tissues. Studies have shown that antimony accumulates in the lung and is retained for long periods of time. Effects are not limited to the lungs, however, and myocardial effects (effects on the heart muscle) and related effects (e.g., increased blood pressure, altered EKG readings) are among the best-characterized human health effects associated with antimony exposure. Reproductive effects (increased incidence of spontaneous abortions and higher rates of premature deliveries) have been observed in female workers exposed in an antimony processing facilities. Similar effects on the heart, lungs, and reproductive system have been observed in laboratory animals.

EPA assessed the carcinogenicity of antimony and found the evidence for carcinogenicity to be weak, with conflicting evidence from inhalation studies with laboratory animals, equivocal data from the occupational studies, negative results from studies of oral exposures in laboratory animals, and little evidence of mutagenicity or genotoxicity.[4] As a consequence, EPA concluded that insufficient data are available to adequately characterize the carcinogenicity of antimony and, accordingly, the carcinogenicity of antimony cannot be determined based on available information. However, the International Agency for Research on Cancer in an earlier evaluation, concluded that antimony trioxide is ''possibly carcinogenic to humans'' (Group 2B).

Arsenic

Chronic (long-term) inhalation exposure to inorganic arsenic in humans is associated with irritation of the skin and mucous membranes. Human data suggest a relationship between inhalation exposure of women working at or living near metal smelters and an increased risk of reproductive effects, such as spontaneous abortions. Inorganic arsenic exposure in humans by the inhalation route has been shown to be strongly associated with lung cancer, while ingestion or inorganic arsenic in humans has been linked to a form of skin cancer and also to bladder, liver, and lung cancer. EPA has classified inorganic arsenic as a Group A, human carcinogen.

Beryllium

Chronic inhalation exposure of humans to high levels of beryllium has been reported to cause chronic beryllium disease (berylliosis), in which granulomatous (noncancerous) lesions develop in the lung. Inhalation exposure to high levels of beryllium has been demonstrated to cause lung cancer in rats and monkeys. Human studies are limited, but suggest a causal relationship between beryllium exposure and an increased risk of lung cancer. We have classified beryllium as a Group B1, probable human carcinogen, when inhaled; data are inadequate to determine whether beryllium is carcinogenic when ingested.

Cadmium

Chronic inhalation or oral exposure to cadmium leads to a build-up of cadmium in the kidneys that can cause kidney disease. Cadmium has been shown to be a developmental toxicant in animals, resulting in fetal malformations and other effects, but no conclusive evidence exists in humans. An association between cadmium exposure and an increased risk of lung cancer has been reported from human studies, but these studies are inconclusive due to confounding factors. Animal studies have demonstrated an increase in lung cancer from long-term inhalation exposure to cadmium. EPA has classified cadmium as a Group B1, probable carcinogen.

Chlorine gas

Chlorine is an irritant to the eyes, the upper respiratory tract, and lungs. Chronic exposure to chlorine gas in workers has resulted in respiratory effects including eye and throat irritation and airflow obstruction. No information is available on the carcinogenic effects of chlorine in humans from inhalation exposure. A National Toxicology Program (NTP) study showed no evidence of carcinogenic activity in male rats or male and female mice, and equivocal evidence in female rats, from ingestion of chlorinated water. The EPA has not classified chlorine for potential carcinogenicity. In the absence of specific scientific evidence to the contrary, it is the Agency's policy to classify noncarcinogenic effects as threshold effects. RfC development is the default approach for threshold (or nonlinear) effects.

Chromium

Chromium may be emitted in two forms, trivalent chromium (chromium III) or hexavalent chromium (chromium VI). The respiratory tract is the major target organ for chromium VI toxicity for inhalation exposures. Bronchitis, decreases pulmonary function, pneumonia, and other respiratory effects have been noted from chronic high does exposure in occupational settings due to chromium VI. Limited human studies suggest that chromium VI inhalation exposure may be associated with complications during pregnancy and childbirth, while animal studies have not reported reproductive effects from inhalation exposure to chromium VI. Human and animal studies have clearly established that inhaled chromium VI is

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[4] See ''Evaluating THe Carcinogenicity of Antimony,'' Rish Assessment Issue Paper (98–030/07–26–99), Superfund Technical Support Center, National Center for Environmental Assessment, July 26, 1999.

a carcinogen, resulting in an increased risk of lung cancer. EPA has classified chromium VI as a Group A, human carcinogen.

Chromium III is less toxic than chromium VI. The respiratory tract is also the major target organ for chromium III toxicity, similar to chromium VI. Chromium III is an essential element in humans, with a daily intake of 50 to 200 micrograms per day recommended for an adult. The body can detoxify some amount of chromium VI to chromium III. EPA has not classified chromium III with respect to carcinogenicity.

Cobalt

Cobalt is a relatively rare metal that is produced primarily as a by-product during refining of other metals, especially copper. Cobalt has been widely reported to cause respiratory effects in humans exposed by inhalation, including respiratory irritation, wheezing, asthma, and pneumonia. Cardiomyopathy (damage to the heart muscle) has also been reported, although this effect is better known from oral exposure. Other effects of oral exposure in humans are polycythemia (an abnormally high number of red blood cells) and the blocking of uptake of iodine by the thyroid. In addition, cobalt is a sensitizer in humans by any route of exposure. Sensitized individuals may react to inhalation of cobalt by developing asthma or to ingestion or dermal contact with cobalt by developing dermatitis. Cobalt is as a vital component of vitamin B_{12}, though there is no evidence that intake of cobalt is ever limiting in the human diet.

A number of epidemiological studies have found that exposures to cobalt are associated with an increased incidence of lung cancer in occupational settings. The International Agency for Research on Cancer (part of the World Health Organization) classifies cobalt and cobalt compounds as ''possibly carcinogenic to humans'' (Group 2B). The American Conference of Governmental Industrial Hygienists has classified cobalt as a confirmed animal carcinogen with unknown relevance to humans (category A3). An EPA assessment concludes that under EPA's cancer guidelines, cobalt would be considered likely to be carcinogenic to humans.[5]

Dioxins and Furans

Exposures to 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8–TCDD) and related compounds at levels 10 times or less above those modeled to approximate average background exposure have resulted in adverse non-cancer health effects in animals. This statement is based on assumptions about the toxic equivalent for these compounds, for which there is acknowledged uncertainty. These effects include changes in hormone systems, alterations in fetal development, reduced reproductive capacity, and immunosuppression. Effects that may be linked to dioxin and furan exposures at low dose in humans include changes in markers of early development and hormone levels. Dioxin and furan exposures are associated with altered liver function and lipid metabolism changes in activity of various liver enzymes, depression of the immune system, and endocrine and nervous system effects. EPA in its 1985 dioxin assessment classified 2,3,7,8–TCDD as a probable human carcinogen. The International Agency for Research on Cancer (IARC) concluded in 1997 that the overall weight of the evidence was sufficient to characterize 2,3,7,8–TCDD as a known human carcinogen.[6] In 2001 the U.S. Department of Health and Human Services National Toxicology Program in their 9th Report on Carcinogens classified 2,3,7,8–TCDD as a known human carcinogen.[7]

The chemical and environmental stability of dioxins and their tendency to accumulate in fat have resulted in their detection within many ecosystems. In the United States and elsewhere, accidental contamination of the environment by 2,3,7,8–TCDD has resulted in deaths in many species of wildlife and domestic animals.[8] High residues of this compound in fish have resulted in closing rivers to fishing. Laboratory studies with birds, mammals, aquatic organisms, and other species have demonstrated that exposure to 2,3,7,8–TCDD can result in acute and delayed mortality as well as carcinogenic, teratogenic, mutagenic, histopathologic, immunotoxic, and reproductive effects, depending on dose received, which varied widely in the experiments.[9]

Hydrogen chloride/hydrochloric acid

Hydrogen chloride, also called hydrochloric acid, is corrosive to the eyes, skin, and mucous membranes. Chronic (long-term) occupational exposure to hydrochloric acid has been reported to cause gastritis, bronchitis, and dermatitis in workers. Prolonged exposure to low concentrations may also cause dental discoloration and erosion. No information is available on the reproductive or developmental effects of hydrochloric acid in humans. In rats exposed to hydrochloric acid by inhalation, altered estrus cycles have been reported in females and increased fetal mortality and decreased fetal weight have been reported in offspring. EPA has not classified hydrochloric acid for carcinogenicity. In the absence of specific scientific evidence to the contrary, it is the Agency's policy to classify noncarcinogenic effects as threshold effects. RfC development is the default approach for threshold (or nonlinear) effects.

Lead

Lead can cause a variety of effects at low dose levels. Chronic exposure to high levels of lead in humans results in effects on the blood, central nervous system, blood pressure, and kidneys. Children are particularly sensitive to the chronic effects of lead, with slowed cognitive development, reduced growth and other effects reported. Reproductive effects, such as decreased sperm count in men and spontaneous abortions in women, have been associated with lead exposure. The developing fetus is at particular risk from maternal lead exposure, with low birth weight and slowed postnatal neurobehavioral development noted. Human studies are inconclusive regarding lead exposure and cancer, while animal studies have reported an increase in kidney cancer from lead exposure by the oral route. EPA has classified lead as a Group B2, probable human carcinogen.

Manganese

Health effects in humans have been associated with both deficiencies and excess intakes of manganese. Chronic exposure to low levels of manganese in the diet is considered to be nutritionally essential in humans, with a recommended daily allowance of 2 to 5 milligrams per day (mg/d). Chronic

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[5] See ''Derivation of a Provisional Carcinogenicity Assessment for Cobalt and Compounds,'' Risk Assessment Issue Paper (00–122/1–15–02), Superfund Technical Support Center, National Center for Environmental Assessment, January 15, 2002. This is a provisional EPA assessment that has been externally peer reviewed but has not yet been incorporated in IRIS.

[6] IARC (International Agency for Research on Cancer). (1997) IARC monographs on the evaluation of carcinogenic risks to humans. Vol. 69. Polychlorinated dibenzo-para-dioxins and polychlorinated dibenzofurans. Lyon, France.

[7] The U.S. Department of Health and Human Services, National Toxicology Program 9th Report on Carcinogens, Revised January 2001.

[8] This does not necessarily apply in regard to laboratory testing, which tend to use 2,3,7,8 TCDD as the test compound.

[9] Eisler, R. 1986. Dioxin hazards to fish, wildlife, and invertebrates: a synoptic review. U.S. Fish and Wildlife Service Biological Report. 85(1.8).

exposure to high levels of manganese by inhalation in humans results primarily in central nervous system effects. Visual reaction time, hand steadiness, and eye-hand coordination were affected in chronically-exposed workers. Impotence and loss of libido have been noted in male workers afflicted with manganism attributed to inhalation exposures. EPA has classified manganese in Group D, not classifiable as to carcinogenicity in humans.

Mercury

Mercury exists in three forms: elemental mercury, inorganic mercury compounds (primarily mercuric chloride), and organic mercury compounds (primarily methyl mercury). Each form exhibits different health effects. Various sources may release elemental or inorganic mercury; environmental methyl mercury is typically formed by biological processes after mercury has precipitated from the air.

Chronic exposure to elemental mercury in humans also affects the central nervous system, with effects such as increased excitability, irritability, excessive shyness, and tremors. The EPA has not classified elemental mercury with respect to cancer.

The major effect from chronic exposure to inorganic mercury is kidney damage. Reproductive and developmental animal studies have reported effects such as alterations in testicular tissue, increased embryo resorption rates, and abnormalities of development. Mercuric chloride (an inorganic mercury compound) exposure has been shown to result in forestomach, thyroid, and renal tumors in experimental animals. EPA has classified mercuric chloride as a Group C, possible human carcinogen.

Nickel

Nickel is an essential element in some animal species, and it has been suggested it may be essential for human nutrition. Nickel dermatitis, consisting of itching of the fingers, hand and forearms, is the most common effect in humans from chronic exposure to nickel. Respiratory effects have also been reported in humans from inhalation exposure to nickel. No information is available regarding the reproductive of developmental effects of nickel in humans, but animal studies have reported such effects, although a consistent dose-response relationship has not been seen. Nickel forms released from industrial boilers include soluble nickel compounds, nickel subsulfide, and nickel carbonyl. Human and animal studies have reported an increased risk of lung and nasal cancers from exposure to nickel refinery dusts and nickel subsulfide. Animal studies of soluble nickel compounds i.e., nickel carbonyl) have reported lung tumors. The EPA has classified nickel refinery subsulfide as a Group A, human carcinogen and nickel carbonyl as a Group B2, probable human carcinogen.

Organic HAP

Organic HAPs include halogenated and nonhalogenated organic classes of compounds such as polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs). Both PAHs and PCBs are classified as potential human carcinogens, and are considered toxic, persistent and bioaccumulative. Organic HAP also include compounds such as benzene, methane, propane, chlorinated alkanes and alkenes, phenols and chlorinated aromatics. Adverse health effects of HAPs include damage to the immune system, as well as neurological, reproductive, developmental, respiratory and other health problems.

Particulate Matter

Atmospheric particulate matter (PM) is composed of sulfate, nitrate, ammonium, and other ions, elemental carbon, particle-bound water, a wide variety of organic compounds, and a large number of elements contained in various compounds, some of which originate from crustal materials and others from combustion sources. Combustion sources are the primary origin of trace metals found in fine particles in the atmosphere. Ambient PM can be of primary or secondary origin.

Exposure to particles can lead to a variety of serious health effects. The largest particles do not get very far into the lungs, so they tend to cause fewer harmful health effects. Fine particles pose the greatest problems because they can get deep into the lungs. Scientific studies show links between these small particles and numerous adverse health effects. Epidemiological studies have shown a significant correlation between elevated PM levels and premature mortality. Other important effects associated with PM exposure include aggravation of respiratory and cardiovascular disease (as indicated by increased hospital admissions, emergency room visits, absences from school or work, and restricted activity days), lung disease, decreased lung function, asthma attacks, and certain cardiovascular problems. Individuals particularly sensitive to PM exposure include older adults and people with heart and lung disease.

This is only a partial summary of adverse health and environmental effects associated with exposure to PM. Further information is found in the 2004 Criteria Document for PM (''Air Quality Criteria for Particulate Matter,'' EPA/600/P–99/002bF) and the 2005 Staff Paper for PM (EPA, ''Review of the National Ambient Air Quality Standards for Particulate Matter, Policy Assessment of Scientific and Technical Information: OAQPS Staff Paper,'' (June 2005)).

Selenium

Selenium is a naturally occurring substance that is toxic at high concentrations but is also a nutritionally essential element. Studies of humans chronically exposed to high levels of selenium in food and water have reported discoloration of the skin, pathological deformation and loss of nails, loss of hair, excessive tooth decay and discoloration, lack of mental alertness, and listlessness. The consumption of high levels of selenium by pigs, sheep, and cattle has been shown to interfere with normal fetal development and to produce birth defects. Results of human and animal studies suggest that supplementation with some forms of selenium may result in a reduced incidence of several tumor types. One selenium compound, selenium sulfide, is carcinogenic in animals exposed orally. We have classified elemental selenium as a Group D, not classifiable as to human carcinogenicity, and selenium sulfide as a Group B2, probable human carcinogen.

Part Two: Summary of the Final Rule

I. What Source Categories and Subcategories Are Affected by the Final Rule?

Today's rule promulgates standards for controlling emissions of HAP from hazardous waste combustors: incinerators, cement kilns, lightweight aggregate kilns, boilers, and hydrochloric acid production furnaces that burn hazardous waste. A description of each source category can be found in the proposed rule (see 69 FR at 21207–08).

Hazardous waste burning incinerators, cement kilns, and lightweight aggregate kilns are currently subject to 40 CFR part 63, subpart EEE, National Emission Standards for Hazardous Air Pollutants (NESHAP). Today's rule revises the emissions limits and certain compliance and monitoring provisions of subpart EEE for these source categories. The definitions of hazardous waste incinerator, hazardous waste cement kiln, and hazardous waste lightweight aggregate kiln appear at 40 CFR 63.1201(a).

Boilers that burn hazardous waste are also affected sources under today's rule. The rule uses the RCRA definition of a boiler under 40 CFR 260.10 and includes industrial, commercial, and institutional boilers as well as thermal units known as process heaters. Hazardous waste burning boilers will continue to comply with the emission standards found under 40 CFR part 266, subpart H (i.e., the existing RCRA rules) until they demonstrate compliance with the requirements of 40 CFR part 63, subpart EEE, and, for permitted sources, subsequently remove these requirements from their RCRA permit.

Finally, hydrochloric acid production furnaces that burn hazardous waste are affected sources under today's rule. These furnaces are a type of halogen acid furnace included in the definition of ''industrial furnace'' defined at § 260.10. Hydrochloric acid production furnaces that burn hazardous waste will continue to comply with the emission standards found under 40 CFR part 266, subpart H, until they demonstrate compliance with 40 CFR part 63, subpart EEE, and, for permitted sources, subsequently remove these requirements from their RCRA permit.

II. What Are the Affected Sources and Emission Points?

Today's rule apply to each major and area source incinerator, cement kiln, lightweight aggregate kiln, boiler, and hydrochloric acid production furnace that burns hazardous waste.[10] We note that only major source boilers and hydrochloric acid production furnaces are subject to the full suite of subpart EEE emission standards.[11] The emissions limits apply to each emission point (e.g., stack) where gases from the combustion of hazardous waste are discharged or otherwise emitted into the atmosphere. For facilities that have multiple combustion gas discharge points, the emission limits generally apply to each emission point. A cement kiln, for example, could be configured to have dual stacks where the majority of combustion gases are discharged though the main stack and other combustion gases emitted through a separate stack, such as an alkali bypass stack. In that case, the emission standards would apply separately to each of these stacks.[12]

III. What Pollutants Are Emitted and Controlled?

Hazardous waste combustors emit dioxin/furans, sometimes at high levels depending on the design and operation of the emission control equipment, and, for incinerators, depending on whether a waste heat recovery boiler is used. All hazardous waste combustors can also emit high levels of other organic HAP if they are not designed, operated, and maintained to operate under good combustion conditions.

Hazardous waste combustors can also emit high levels of metal HAP, depending on the level of metals in the waste feed and the design and operation of air emissions control equipment. Hazardous waste burning hydrochloric acid production furnaces, however, generally feed and emit low levels of metal HAP.

All of these HAP metals (except for the volatile metal mercury) are emitted as a portion of the particulate matter emitted by these sources. Hazardous waste combustors can also emit high levels of particulate matter, except that hydrochloric acid production furnaces generally feed hazardous wastes with low ash content and consequently emit low levels of particulate matter. A majority of particulate matter emissions from hazardous waste combustors are in the form of fine particulate. Particulate emissions from incinerators and liquid fuel-fired boilers depend on the ash content of the hazardous waste feed and the design and operation of air emission control equipment. Particulate emissions from cement kilns and lightweight aggregate kilns are not significantly affected by the ash content of the hazardous waste fuel because uncontrolled particulate emissions are attributable primarily to fine raw material entrained in the combustion gas. Thus, particulate emissions from kilns depends on operating conditions that effect entrainment of raw material, and the design and operation of the emission control equipment.

IV. Does the Final Rule Apply to Me?

The final rule applies to you if you own or operate a hazardous waste combustor—an incinerator, cement kiln, lightweight aggregate kiln, boiler, or hydrochloric acid production facility that burns hazardous waste. The final rule does not apply to a source that meets the applicability requirements of § 63.1200(b) for reasons explained at 69 FR at 21212–13.

V. What Are the Emission Limitations?

You must meet the emission limits in Tables 1 and 2 of this preamble for your applicable source category and subcategory. Standards are corrected to 7 percent oxygen. As noted at proposal, we previously promulgated requirements for carbon monoxide, total hydrocarbon, and destruction and removal efficiency standards under subpart EEE for incinerators, cement kilns, and lightweight aggregate kilns. We view these standards as unaffected by the Court's vacature of the challenged regulations in its decision of July 24, 2001. We are therefore not re-promulgating and reopening consideration of these standards in today's final rule, but are summarizing these standards in Tables 1 and 2 for reader's convenience.[13] See 69 FR at 21221, 21248, 21261 and 21274.

Liquid fuel boilers equipped with dry air pollution control devices are subject to different dioxin/furan emission standards than liquid fuel boilers that are not equipped with dry air pollution control devices.[14] Liquid fuel boilers processing hazardous waste with a heating value less than 10,000 BTU/lb must comply with the emission concentration-based standards (expressed as mass of total HAP emissions per volume of stack gas emitted) for mercury, semivolatile metals, low volatile metals, and total chlorine. Liquid fuel boilers processing hazardous waste with heating values greater than 10,000 BTU/lb must comply with thermal emissions-based standards (expressed as mass of HAP emissions attributable to the hazardous waste per million BTU input from the hazardous waste) for those same pollutants. Low volatile metal standards for liquid fuel boilers apply only to emissions of chromium, whereas the low volatile metal standard for the other source categories applies to the combined emissions of chromium, arsenic, and beryllium. Semivolatile metal standards apply to the combined emissions of lead and cadmium.

For any of the source categories except hydrochloric acid production

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[10] A major source emits or has the potential to emit 10 tons per year of any single hazardous air pollutant or 25 tons per year or greater of hazardous air pollutants in the aggregate. An area source is a source that is not a major source.

[11] See Part Four, Section II.A for a discussion of the standards that are applicable to area source boilers and hydrochloric acid production furnaces.

[12] We note that there is a provision that allows cement kilns with dual stacks to average emissions on a flow-weighted basis to demonstrate compliance with the metal and chlorine emission standards. See §§ 63.1204(e) and 63.1220(3).

[13] We are also republishing these standards, for reader's convenience only, in the new replacement standard section for these source categories. See § 63.1219, § 63.1220 and § 673.1219.

[14] Liquid fuel boilers equipped with a wet air pollution control device followed by a dry air pollution control device do not meet the definition of a dry air pollution device.

furnaces, you may elect to comply with an alternative to the total chlorine standard under which you would establish site-specific, health-based emission limits for hydrogen chloride and chlorine based on national exposure standards. This alternative chlorine standard is discussed in part two, section IX and part four, section VII.

Incinerators and liquid and solid fuel boilers may elect to comply with an alternative to the particulate matter standard that would limit emissions of all the semivolatile metal HAPs and low volatile metal HAPs. Under this alternative, the numerical emission limits for semivolatile metal and low volatile metal emission HAP are identical to the limitations included in Tables 1 and 2. However, for semivolatile metals, the alternative standard applies to the combined emissions of lead, cadmium, and selenium; for low volatile metals, the standard applies to the combined emissions of chromium, arsenic, beryllium, antimony, cobalt, manganese, and nickel. See § 63.1219(e).

TABLE 1.—SUMMARY OF EMISSION LIMITS FOR EXISTING SOURCES

	Incinerators	Cement kilns	Lightweight aggregate kilns	Solid fuel-fired boilers[1]	Liquid fuel-fired boilers[1]	Hydrochloric acid production furnaces[1]
Dioxin/Furans (ng TEQ/dscm).	0.20 or 0.40 and temperature control < 400°F at APCD inlet[6].	0.20 or 0.40 and temperature control < 400°F at APCD inlet.	0.20 or rapid quench below 400°F at kiln exit.	CO or HC and DRE standard as a surrogate.	0.40 for dry APCD sources; CO or HC and DRE standard as surrogate for others.	CO or HC and DRE standard as surrogate.
Mercury	130 μg/dscm	Hazardous waste feed restriction of 3.0 ppmw and 120 μg/dscm MTEC[11]; or 120 μg/dscm total emissions.	120 hazardous waste MTEC[11] feed restriction or 120 μg/dscm total emissions.	11 μg/dscm ...	4.2E-5lb/MMBtu[2], [5] or 19 μg/dscm[2]; depending on BTU content of hazardous waste[13].	Total chlorine standard as surrogate.
Particulate Matter ...	0.013 gr/dscf[8]	0.028 gr/dscf and 20% opacity[12].	0.025 gr/dscf	0.030 gr/dscf[8]	0.035 gr/dscf[8]	Total chlorine standard as surrogate.
Semivolatile Metals (lead + cadmium).	230 μg/dscm	7.6 E-4 lbs/MMBtu[5] and 330 μg/dscm[3].	3.0E-4 lb/MMBtu[5] and 250 μg/dscm[3].	180 μg/dscm	8.2 E–5 lb/MMBtu[2], [5] or 150 μg/dscm[2]; depending on BTU content of hazardous waste[13].	Total chlorine standard as surrogate.
Low Volatile Metals (arsenic + beryllium + chromium).	92 μg/dscm	2.1 E-5 lbs/MMBtu[5] and 56 μg/dscm[3].	9.5E-5 lb/MMBtu[5] and 110 μg/dscm[3].	380 μg/dscm	1.26E–4 lbMMBtu[4], [5] or 370 μg/dscm[4]; depending on BTU content of hazardous waste[13].	Total chlorine standard as surrogate.
Total Chlorine (hydrogen chloride + chlorine gas).	32 ppmv[7]	120 ppmv[7]	600 ppmv[7]	440 ppmv[7]	5.08E–2 lb/MMBtu[5], [7] or 31 ppmv[7]; depending on BTU content of hazardous waste[13].	150 ppmv or 99.923% system removal efficiency.
Carbon Monoxide (CO) or Hydrocarbons (HC).	100 ppmv CO[9] or 10 ppmv HC.	See Note # 10 below.	100 ppmv CO[9] or 20 ppmv HC.	(2) 100 ppmv CO[9] or 10 ppmv HC		
Destruction and Removal Efficiency.	99.99% for each principal organic hazardous pollutant. For sources burning hazardous wastes F020, F021, F022, F023, F026, or F027, however, 99.9999% for each principal organic hazardous pollutant.					

Notes:

[1] Particulate matter, semivolatile metal, low volatile metal, and total chlorine standards for solid and liquid fuel boilers apply only to major sources. Particulate matter, semivolatile and low volatile metal standards for hydrochloric acid production furnaces apply only to major sources, although area sources must still comply with the surrogate total chlorine standard to control mercury emissions.

[2] Standard is based on normal emissions data, and is therefore expressed as an annual average emission limitation.

[3] Sources must comply with both the thermal emissions and emission concentration standards.

[4] Low volatile metal standard for liquid fuel-fired boilers is for chromium only.

[5] Standards expressed as mass of pollutant contributed by hazardous waste per million BTU contributed by the hazardous waste.

[6] APCD means "air pollution control device".

[7] Sources may elect to comply with site-specific risk-based emission limits for hydrogen chloride and chlorine gas

[8] Sources may elect to comply with an alternative to the particulate matter standard.

[9] Sources that elect to comply with the CO standard must demonstrate compliance with the HC standard during the comprehensive performance test that demonstrates compliance with the destruction and removal efficiency requirement.

[10] Kilns without a bypass: 20 ppmv HC or 100 ppmv CO[9]. Kilns with a bypass/mid-kiln sampling system: 10 ppmv HC or 100 ppmv CO9 in the bypass duct, mid-kiln sampling system or bypass stack.

[11] MTEC means "maximum theoretical emission concentration", and is equivalent to the feed rate divided by gas flow rate

[12] The opacity standard does not apply to a source equipped with a bag leak detection system under 63.1206(c)(8) or a particulate matter detection system under 63.1206(c)(9).

[13] Emission concentration-based standards apply to sources processing hazardous waste with energy content less than 10,000 BTU/lb; thermal emission standards apply to sources processing hazardous waste with energy content greater than 10,000 btu/lb.

TABLE 2.—SUMMARY OF EMISSION LIMITS FOR NEW OR RECONSTRUCTED SOURCES

	Incinerators	Cement kilns	Lightweight aggregate kilns	Solid fuel boilers [1]	Liquid fuel boilers [1]	Hydrochloric acid production furnaces [1]
Dioxin/Furans (ng TEQ/dscm).	0.11 for dry APCD and/or WHB [5] sources; 0.20 for other sources.	0.20 or 0.40 and temperature control <400 °F at APCD inlet.	0.20 or rapid quench <400 °F at kiln exit.	CO or HC and DRE standard as a surrogate.	0.40 for sources with dry APCD; CO or HC and DRE standard as a surrogate for other sources.	CO or THC and DRE standard as a surrogate.
Mercury	8.1 μg/dscm	Hazardous waste feed restriction of 1.9 ppmw and 120 μg/dscm MTEC [10]; or 120 μg/dscm total emissions.	120 hazardous waste MTEC [10] feed restriction or 120 μg/dscm total emissions.	11 μg/dscm	1.2E–6 lb/MMBtu [2,4] or 6.8 μg/dscm [2]; depending on BTU content of hazardous waste [12].	TCl as surrogate.
Particulate matter (gr/dscf).	0.0015 [7]	0.0023 and 20% opacity [11].	0.0098	0.015 [7]	0.0087 [7]	TCl as surrogate.
Semivolatile Metals (lead + cadmium).	10 μg/dscm	6.2E–5 lb/MMBtu [4] and 180 μg/dscm.	3.7 E–5 lb/MMBtu [4] and 43 μg/dscm.	180 μg/dscm	6.2 E–6 lb/MMBtu [2,4] or 78 μg/dscm [2]; depending on BTU content of hazardous waste [12].	TCl as surrogate.
Low Volatile Metals (arsenic + beryllium + chromium).	23 μg/dscm	1.5E–5 lb/MMBtu [4] and 54 μg/dscm.	3..3E–5 lb/MMBtu [4] and 110 μg/dscm.	190 μg/dscm	1.41E–5lb/MMBtu [3,4] or 12 μg/dscm [3]; depending on BTU content of hazardous waste [12].	TCl as surrogate.
Total Chlorine (Hydrogen chloride + chlorine gas).	21 ppmv [6]	86 ppmv [6]	600 ppmv [6]	73 ppmv [6]	5.08E–2 lb/MMBtu [4,6] or 31 ppmv [6]; depending on BTU content of hazardous waste [12].	25 ppmv or 99.987% SRE.
Carbon monoxide (CO) or Hydrocarbons (HC).	100 ppmv CO [8] or 10 ppmv HC.	See note #9 below.	100 ppmv CO [8] or 20 ppmv HC.	100 ppmv CO [8] or 10 ppmv HC		
Destruction and Removal Efficiency.	99.99% for each principal organic hazardous pollutant. For sources burning hazardous wastes F020, F021, F022, F023, F026, or F027, however, 99.9999% for each principal organic hazardous pollutant.					

Notes:

[1] Particulate matter, semivolatile metal, low volatile metal, and total chlorine standards for solid and liquid fuel boilers apply only to major sources. Particulate matter, semivolatile and low volatile metal standards for hydrochloric acid production furnaces apply only to major sources, although area sources must still comply with the surrogate total chlorine standard to control mercury emissions.

[2] Standard is based on normal emissions data, and is therefore expressed as an annual average emission limitation.

[3] Low volatile metal standard for liquid fuel-fired boilers is for chromium only. Arsenic and beryllium are not included in the low volatile metal total for liquid fuel-fired boilers.

[4] Standards expressed as mass of pollutant contributed by hazardous waste per million BTU contributed by the hazardous waste.

[5] APCD means "air pollution control device", WHB means "waste heat boiler".

[6] Sources may elect to comply with risk-based emission limits for hydrogen chloride and chlorine gas.

[7] Sources may elect to comply with an alternative to the particulate matter standard.

[8] Sources that elect to comply with the CO standard must demonstrate compliance with the THC standard during the comprehensive performance test that demonstrates compliance with the destruction and removal efficiency requirement.

[9] Greenfield kilns without a bypass: 20 ppmv HC or 100 ppmv CO [8] and 50 ppmv HC. Greenfield kilns with a bypass/mid kiln sampling system: Main stack standard of 50 ppmv HC and 10 ppmv HC or 100 ppmv CO [8] in the bypass duct, mid-kiln sampling system or bypass stack. Greenfield kilns with a bypass/mid-kiln sampling system: 10 ppmv HC or 100 ppmv CO [8] in the bypass duct, mid-kiln sampling system or bypass stack; Non-greenfield kilns without a bypass: 20 ppmv HC or 100 ppmv CO [8]. A greenfield kiln is a kiln whose construction commenced after April 19, 1996 at a plant site where a cement kiln (whether burning hazardous waste or not) did not previously exist.

[10] MTEC means "maximum theoretical emission concentration", and is equivalent to the feed rate divided by gas flow rate.

[11] The opacity standard does not apply to a source equipped with a bag leak detection system under 63.1206(c)(8) or a particulate matter detection system under 63.1206(c)(9).

[12] Emission concentration-based standards apply to sources processing hazardous waste with energy content less than 10,000 BTU/lb; thermal emission standards apply to sources processing hazardous waste with energy content greater than 10,000 btu/lb.

VI. What Are the Testing and Initial Compliance Requirements?

The testing and initial compliance requirements we promulgate today for solid fuel boilers, liquid fuel boilers, and hydrochloric acid production furnaces are identical to those that are applicable to incinerators, cement kilns, and lightweight aggregate kilns at §§ 63.1206, 63.1207, and 63.1208. We note, however, that today's final rule revises some of these requirements as they apply to all or specific HWCs (*e.g.*, one-time dioxin/furan test for sources not subject to a numerical dioxin/furan standard; dioxin/furan stack test method; hydrogen chloride and chlorine stack test methods)

We also discuss compliance and testing dates for incinerators, cement kilns, and lightweight aggregate kilns as well. Even though we are not repromulgating the compliance and testing requirements for those source categories, those sources must demonstrate compliance with the replacement emission standards promulgated today.

A. Compliance Dates

The time-line for testing and initial compliance requirements is as follows:

1. The compliance date is October 14, 2008; [15]
2. You must submit a comprehensive performance test plan to the permitting authority for review and approval 12 months prior to commencing the test.
3.You must submit an eligibility demonstration for the health-based compliance alternative to the total chlorine emission standard 12 months before the compliance date if you elect to comply with § 63.1215;
4. You must place in the operating record a Documentation of Compliance by the compliance date identifying the operating parameter limits that, using available information, you have determined will ensure compliance with the emission standards;
5. For boilers and hydrochloric acid production furnaces, you must commence the initial comprehensive performance test within 6 months after the compliance date;
6. For incinerators, cement kilns, and lightweight aggregate kilns, you must commence the initial comprehensive performance test within 12 months after the compliance date;
7. You must complete the initial comprehensive performance test within 60 days of commencing the test; and
8. You must submit a Notification of Compliance within 90 days of completing the test documenting compliance with emission standards and continuous monitoring system requirements.

B. Testing Requirements

All hazardous waste combustors must commence the initial comprehensive performance test under the time lines discussed above. The purpose of the comprehensive performance test is to document compliance with the emission standards of the final rule and establish operating parameter limits to maintain compliance with those standards. You must also conduct periodic comprehensive performance testing every five years.

If your source is subject to a numerical dioxin/furan emission standard (i.e., incinerators, cement kilns, lightweight aggregate kilns that comply with the 0.2 ng TEQ/dscm standard, and liquid fuel boilers equipped with a dry air pollution control device), you must conduct a dioxin/furan confirmatory performance test no later than 2.5 years after each comprehensive performance test (i.e., midway between comprehensive performance tests). If your source is not subject to a numerical dioxin/furan emission standard (e.g., solid fuel boilers, lightweight aggregate kilns that comply with the 400 °F temperature limit at the kiln exit, liquid fuel boilers equipped with wet or no air pollution control system, and hydrochloric acid production furnaces), you must conduct a one-time dioxin/furan test to enable the Agency to evaluate the effectiveness of the carbon monoxide/hydrocarbon standard and the destruction and removal efficiency standard in controlling dioxin/furan emissions for those sources. Previous dioxin/furan emission tests may be used to meet this requirement if the combustor operated under the conditions required by the rule and if design and operation of the combustor has not changed since the test in a manner that could increase dioxin/furan emissions. The Agency will use those emissions data when reevaluating the MACT standards under CAA section 112(d)(6), when determining whether to develop residual risk standards for these sources pursuant to section 112(f)(2), and when determining whether the source's RCRA Permit is protective of human health and the environment.

You must use the following stack test methods to document compliance with the emission standards: (1) Method 29 for mercury, semivolatile metals, and low volatile metals; and (2) Method 26/26A, Methods 320 or 321, or ASTM D 6735–01 for hydrogen chloride and chlorine; [16] (3) either Method 0023A or Method 23 for dioxin/furans; and (4) either Method 5 or 5i for particulate matter.

C. Initial Compliance Requirements

The initial compliance requirements for solid fuel boilers, liquid fuel boilers, and hydrochloric acid production furnaces include: [17]

1. You must place in the operating record a Documentation of Compliance by the compliance date identifying the operating parameter limits that, using available information, you have determined will ensure compliance with the emission standards;
2. You must develop and comply with a startup, shutdown, and malfunction plan;
3. You must install an automatic waste feed cutoff system that links the operating parameter limits to the waste feed cutoff system;
4. You must control combustion system leaks;
5. You must establish and comply with an operator training and certification program;
6. You must establish and comply with an operation and maintenance plan;
7. If your source is equipped with a baghouse, you must install either a bag leak detection system or a particulate matter detection system; [18] and
8. If your source is equipped with an electrostatic precipitator or ionizing wet scrubber, you must either establish site-specific control device operating parameter limits which limits are linked to the automatic waste feed cutoff system, or install a particulate matter detection system and take corrective measures when the alarm level is exceeded.

VII. What Are the Continuous Compliance Requirements?

The continuous compliance requirements for solid fuel boilers, liquid fuel boilers, and hydrochloric acid production furnaces are identical to those applicable to incinerators, cement kilns, and lightweight aggregate kilns. See § 63.1209. We note, however, that today's final rule revises some of these requirements as they apply to all or specific HWCs (e.g., bag leak detection system requirements; optional particulate matter detection system requirements; compliance assurance for thermal emissions-based standards).

You must use carbon monoxide or hydrocarbon continuous emissions monitors (as well as an oxygen continuous emissions monitor to correct the carbon monoxide or hydrocarbon values to 7% oxygen) to ensure compliance with the carbon monoxide or hydrocarbon emission standards.

You must also establish limits (as applicable) on the feedrate of metals, chlorine, and ash, key combustor operating parameters, and key operating

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[15] See 69 FR at 21313 for rationale. We received no adverse comments at proposal.

[16] Note that you may be required to use other test methods to document emissions of hydrogen chloride and chlorine if you elect to comply with the alternative, health-based emission limits for total chlorine under § 63.1215. See § 63.1208(b)(5).

[17] These same requirements currently apply to incinerators, cement kilns, and lightweight aggregate kilns.

[18] A major difference between a bag leak detection system and a particulate matter detection system is the way the alarm level is established. The alarm level for a bag leak detection system is established using concepts in the Agency's bag leak detection system guidance document while the alarm level for a particulate matter detection system is established based on the detector response during the comprehensive performance test. The ash feedrate limit for incinerators and boilers is waived if you use a particulate matter detection system but not if you use a bag leak detection system because the bag leak detection system alarm level may not provide reasonable assurance of continuous compliance with the particulate matter emission standard.

parameters of the air pollution control device based on operations during the comprehensive performance test. You must continuously monitor these parameters with a continuous monitoring system.

VIII. What Are the Notification, Recordkeeping, and Reporting Requirements?

The notification, recordkeeping, and reporting requirements that we promulgate today for solid fuel boilers, liquid fuel boilers, and hydrochloric acid production furnaces are identical to those that are applicable to incinerators, cement kilns, and lightweight aggregate kilns. See §§ 63.1210 and 63.1211. We note, however, that today's final rule revises some of these requirements as they apply to all or specific HWCs.

You must submit notifications including the following to the permitting authority in addition to those required by the NESHAP General Provisions, subpart A of 40 CFR part 63:

1. Notification of changes in design, operation, or maintenance (§ 63.1206(b)(5)(i));

2. Notification of performance test and continuous monitoring system evaluation, including the performance test plan and continuous monitoring system performance evaluation plan (§ 63.1207(e));

3. Notification of compliance, including results of performance tests and continuous monitoring system evaluations (§§ 63.1210(b), 63.1207(j); 63.1207(k), and 63.1207(l)); and

4. Various notifications if you request or elect to comply with alternative requirements at § 63.1210(a)(2).

You must submit the following reports to the permitting authority in addition to those required by the NESHAP General Provisions, subpart A of 40 CFR part 63:

1. Startup, shutdown, and malfunction plan, if you elect to comply with § 63.1206(c)(2)(ii)(B));

2. Excessive exceedances report (§ 63.1206(c)(3)(vi)); and

3. Emergency safety vent opening reports (§ 63.1206(c)(4)(iv)).

Finally, you must keep records documenting compliance with the requirements of Subpart EEE. Recordkeeping requirements are prescribed in § 63.1211(b), and include requirements under the NESHAP General Provisions, subpart A of 40 CFR

IX. What Is the Health-Based Compliance Alternative for Total Chlorine, and How Do I Demonstrate Eligibility?

A. Overview

The rule allows you to establish and comply with health-based compliance alternatives for total chlorine for hazardous waste combustors other than hydrochloric acid production furnaces in lieu of the MACT technology-based emission standards established under §§ 63.1216, 63.1217, 63.1219, 63.1220, and 63.1221. See § 63.1215. To identify and comply with the limits, you must:

(1) Identify a total chlorine emission rate for each on-site hazardous waste combustor. You may select total chlorine emission rates as you choose to demonstrate eligibility for the health-based limits, except the total chlorine emission rate limits for incinerators, cement kilns, and lightweight aggregate kilns cannot result in total chlorine emission concentrations exceeding the Interim Standards provided by §§ 63.1203, 63.1204, and 63.1205;[19]

(2) Calculate the HCl-equivalent emission rate for the total chlorine emission rates you select, considering long-term exposure and using Reference Concentrations (RfCs) as the health threshold metric. This emission rate is called the annual average HCl-equivalent emission rate;

(3) Perform an eligibility demonstration to determine if your annual average HCl-equivalent emission rate meets the national exposure standard (i.e., Hazard Index not exceeding 1.0 considering the maximum annual average ambient concentration of hydrogen chloride and chlorine at an off-site receptor location which concentrations are attributable to all on-site hazardous waste combustors) and thus is below the annual average HCl-equivalent emission rate limit;

(4) Calculate the HCl-equivalent emission rate for the total chlorine emission rates you select, considering short-term exposure and using acute Reference Exposure Levels (aRELs) as the health threshold metric. This emission rate is called the 1-hour average HCl-equivalent emission rate.

(5) Determine whether your 1-hour HCl-equivalent emission rate may exceed the national exposure standard (i.e., Hazard Index not exceeding 1.0 considering the maximum 1-hour average ambient concentration of hydrogen chloride and chlorine at an off-site receptor location which concentrations are attributable to all on-site hazardous waste combustors) and thus may exceed the 1-hour average HCl-equivalent emission rate limit when complying with the annual average HCl-equivalent emission rate limit, absent an hourly rolling average limit on the feedrate of total chlorine and chloride.

(6) Submit your eligibility demonstration, including your determination of whether the 1-hour average HCl-equivalent emission rate limit may be exceeded absent an hourly rolling average limit on the feedrate of total chlorine and chloride, for review and approval;

(7) Document during the comprehensive performance test the total chlorine system removal efficiency for each combustor and use this system removal efficiency to calculate chlorine feedrate limits. Also, document that total chlorine emissions during the test do not exceed the 1-hour average HCl-equivalent emission rate limit during any run of the test. In addition, establish operating limits on the emission control device based on operations during the comprehensive performance test; and

(8) Comply with the requirements for changes in the design, operation, or maintenance of the facility which could affect the HCl-equivalent emission rate limits or system removal efficiency for total chlorine, and changes in the vicinity of your facility over which you do not have control (e.g., new receptors locating proximate to the facility).

B. HCl-Equivalent Emission Rates

You must express total chlorine emission rates (lb/hr) from each on-site hazardous waste combustor, including hydrochloric acid production furnaces[20], as an annual average HCl-equivalent emission rate and a 1-hour average HCl-equivalent emission rate. See § 63.1215(b). The annual average HCl-equivalent emission rate equates chlorine emission rates to hydrogen chloride (HCl) emission rates using Reference Concentrations (RfCs) as the health risk metric for long-term exposure. The 1-hour average HCl-equivalent emission rate equates chlorine emission rates to HCl emission rates using 1-hour Reference Exposure

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[19] Note that the final rule sunsets the Interim Standards on the compliance date of today's rule but codifies the Interim Standards for total chlorine under § 63.1215(b)(7).

[20] Although hydrochloric acid production furnaces are not eligible for the health-based total chlorine emission limits (because control of total chlorine is a surrogate for control of metal HAP), you must consider total chlorine emissions from hydrochloric acid production furnaces when demonstrating that total chlorine emissions from all on-site hazardous waste combustors will not exceed the Hazard Index limit of 1.0 at an off-site receptor location.

Levels (aRELs) as the health risk metric for acute exposure.

To calculate HCl-equivalent emission rates, you must apportion total chlorine emissions (ppmv) between chlorine and HCl using the volumetric ratio of chlorine to hydrogen chloride (Cl_2/HCl).

- To calculate the annual average HCl-equivalent emission rate (lb/hr) and the emission rate limit, you must use the historical average Cl_2/HCl volumetric ratio from all regulatory compliance tests and the gas flowrate (and other relevant parameters) from the most recent RCRA compliance test or MACT performance test.
- To calculate the 1-hour average HCl-equivalent emission rate (lb/hr) and emission rate limit, you must use the highest Cl_2/HCl volumetric ratio from all regulatory compliance tests and the gas flowrate from the most recent RCRA compliance test or MACT performance test.
- If you believe that the Cl_2/HCl volumetric ratio for one or more historical compliance tests is not representative of the current ratio, you may request that the permitting authority allow you to screen those ratios from the analysis of historical ratios.
- If the permitting authority believes that too few historical Cl_2/HCl ratios are available to establish a representative average ratio and a representative maximum ratio, the permitting authority may require you to conduct periodic testing to establish representative ratios.
- You must include the Cl_2/HCl volumetric ratio demonstrated during each performance test in your data base of historical Cl_2/HCl ratios to update the ratios for subsequent calculations of the annual average and 1-hour average HCl-equivalent emission rates (and emission rate limits).

C. Eligibility Demonstration

You must perform an eligibility demonstration to determine whether the total chlorine emission rates you select for each on-site hazardous waste combustor meet the national exposure standard (i.e., the Hazard Index of 1.0 cannot be exceeded at an off-site receptor location considering maximum annual average ambient concentrations attributable to all on-site hazardous waste combustors and the RfCs for HCl and chlorine) using either a look-up table analysis or a site-specific compliance demonstration.[21] Eligibility for the health-based total chlorine standard is determined by comparing the annual average HCl-equivalent emission rate for the total chlorine emission rate you select for each combustor to the annual average HCl-equivalent emission rate limit.

The annual average HCl-equivalent emission rate limit is the HCl-equivalent emission rate, determined by equating the toxicity of chlorine to HCl using RfCs as the health risk metric for long-term exposure, which ensures that maximum annual average ambient concentrations of HCl equivalents do not exceed a Hazard Index of 1.0, rounded to the nearest tenths decimal place (0.1) and considering all on-site hazardous waste combustors. See § 63.1215(b)(2).

Your facility is eligible for the health-based compliance alternatives for total chlorine if either: (1) The annual average HCl-equivalent emission rate for each on-site hazardous waste combustor is below the HCl-equivalent emission rate limit determined from the appropriate value for the emission rate limit in the applicable look-up table and the proration procedure for multiple combustors discussed below; or (2) the annual average HCl-equivalent emission rate for each on-site hazardous waste combustor is below the annual average HCl-equivalent emission rate limit you calculate based on a site-specific compliance demonstration.

1. Look-Up Table Analysis

Look-up tables for the eligibility demonstration are provided as Tables 1 and 2 to § 63.1215. Table 1 presents annual average HCl-equivalent emission rate limits for sources located in flat terrain. For purposes of this analysis, flat terrain is terrain that rises to a level not exceeding one half the stack height within a distance of 50 stack heights.

Table 2 presents annual average HCl-equivalent emission rate limits for sources located in simple elevated terrain. For purposes of this analysis, simple elevated terrain is terrain that rises to a level exceeding one half the stack height, but that does not exceed the stack height within a distance of 50 stack heights.

If your facility is not located in either flat or simple elevated terrain, you must conduct a site-specific compliance demonstration.

To determine the annual average HCl-equivalent emission rate limit for a source from the look-up table, you must use the stack height and stack diameter for your hazardous waste combustors and the distance between the stack and the property boundary. If any of these values for stack height, stack diameter, and distance to nearest property boundary do not match the exact values in the look-up table, you must use the next lowest table value. If you have more than one hazardous waste combustor on site, you must adjust the emission rate limits provided by the tables such that the sum of the ratios for all combustors of the adjusted emission rate limit to the emission rate limit provided by the table cannot exceed 1.0. See § 63.1215 (c)(3)(v).

2. Site-Specific Compliance Demonstration

You may use any scientifically-accepted peer-reviewed risk assessment methodology for your site-specific compliance demonstration to calculate an annual average HCl-equivalent emission rate limit for each on-site hazardous waste combustor. An example of one approach for performing the demonstration for air toxics can be found in the EPA's ''Air Toxics Risk Assessment Reference Library, Volume 2, Site-Specific Risk Assessment Technical Resource Document,'' which may be obtained through the EPA's Air Toxics Web site at *http://www.epa.gov/ttn/atw.*

To determine the annual average HCl-equivalent emission rate limit for each on-site hazardous waste combustor, your site-specific compliance demonstration must, at a minimum: (1) estimate long-term inhalation exposures through the estimation of annual or multi-year average ambient concentrations; (2) estimate the inhalation exposure for the actual individual most exposed to the facility's emissions from hazardous waste combustors, considering locations where people reside and where people congregate for work, school, or recreation; (3) use site-specific, quality-assured data wherever possible; (4) use health-protective default assumptions wherever site-specific data are not available, and: (5) contain adequate documentation of the data and methods used for the assessment so that it is transparent and can be reproduced by an experienced risk assessor and emissions measurement expert.

To establish the annual average HCl-equivalent emission rate limit for each combustor, you may apportion as you elect among the combustors the annual average HCl-equivalent emission rate limit for the facility, which limit ensures that the RfC-based Hazard Index of 1.0 is not exceeded.

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[21] The total chlorine emission rates (lb/hr) for incinerators, cement kilns, and lightweight aggregate kilns cannot result in total chlorine emission concentrations (ppmv) exceeding the Interim Standards provided by §§ 63.1203, 63.1204, and 63.1205. The final rule sunsets the Interim Standards on the compliance date of today's rule but codifies the Interim Standards for total chlorine under § 63.1215(b)(7).

D. Assurance That the 1-Hour HCl-Equivalent Emission Rate Will Not Be Exceeded

The long-term, RfC-based Hazard Index will always be higher than the short-term, aREL-based Hazard Index for a constant HCl-equivalent emission rate because the health threshold levels for short-term exposure are orders of magnitude higher than the health threshold levels for long-term exposure.[22] Even though maximum 1-hour average ambient concentrations are substantially higher than maximum annual average concentrations, the higher short-term ambient concentrations do not offset the much higher health threshold levels for short-term exposures. Thus, the long-term, RfC-based Hazard Index will always govern regarding whether a source can make an eligibility demonstration. Accordingly, eligibility for the health-based emission limits is based solely on whether a source can comply with the annual average HCl-equivalent emission rate limit.

Nonetheless, some sources may have highly variably chlorine feedrates (and corresponding highly variable HCl-equivalent emission rates) such that they may feed chlorine at very high levels for short periods of time and still remain in compliance with the chlorine feedrate limit established to ensure compliance with the annual average HCl-equivalent emission rate limit.[23] To ensure that the 1-hour HCl-equivalent emission rate limit will not be exceeded during these periods of peak emissions, you must establish a 1-hour average HCl-equivalent emission rate and 1-hour average HCl-equivalent emission rate limit for each combustor and consider site-specific factors including prescribed criteria to determine if the 1-hour average HCl-equivalent emission rate limit may be exceeded absent an hourly rolling average limit on chlorine feedrate. If the 1-hour average HCl-equivalent emission rate limit may be exceeded, you must establish an hourly rolling average feedrate limit on chlorine.

You must calculate the 1-hour average HCl-equivalent emission rate from the total chlorine emission rate you select for each source.

You must establish the 1-hour average HCl-equivalent emission rate limit for each affected source using either a look-up table analysis or site-specific analysis. Look-up tables are provided for 1-hour average HCl-equivalent emission rate limits as Table 3 and Table 4 to this section. Table 3 provides limits for facilities located in flat terrain. Table 4 provides limits for facilities located in simple elevated terrain. You must use the Tables to establish emission rate limits in the same manner as you use Tables 1 and 2 to establish annual average HCl-equivalent emission rate limits.

If you conduct a site-specific analysis to establish a 1-hour average HCl-equivalent emission rate limit, you must follow the risk assessment procedures you used to establish an annual average HCl-equivalent emission rate limit. The 1-hour HCl-equivalent emission rate limit, however, is the emission rate than ensures that the Hazard Index associated with maximum 1-hour average exposures is not greater than 1.0.

You must consider criteria including the following to determine if a source may exceed the 1-hour HCl-equivalent emission rate limit absent an hourly rolling average chlorine feedrate limit: (1) The ratio of the 1-hour average HCl-equivalent emission rate based on the total chlorine emission rate you select for each hazardous waste combustor to the 1-hour average HCl-equivalent emission rate limit for the combustor; and (2) the potential for the source to vary total chlorine and chloride feedrates substantially over the averaging period for the feedrate limit you establish to ensure compliance with the annual average HCl-equivalent emission rate limit.

If you determine that a source may exceed the 1-hour average HCl-equivalent emission rate limit, you must establish an hourly rolling average chlorine feedrate limit as discussed below in Section G.

You must include the following information in your eligibility demonstration to document your determination whether an hourly rolling average feedrate limit is needed to maintain compliance with the 1-hour HCl-equivalent emission rate limit: (1) Determination of the Cl2/HCl volumetric ratio established for 1-hour average HCl-equivalent emission rate determinations as provided by § 63.1215(b)(6)(ii); (2) determination of the 1-hour average HCl-equivalent emission rate calculated from the total chlorine emission rate you select for the combustor; (3) determination of the 1-hour average HCl-equivalent emission rate limit; (4) determination of the ratio of the 1-hour average HCl-equivalent emission rate to the 1-hour HCl-equivalent emission rate limit for the combustor; and (5) determination of the potential for the source to vary chlorine feedrates substantially over the averaging period for the long-term feedrate limit (*i.e.*, 12-hours, or up to annually) established to maintain compliance with the annual average HCl-equivalent emission rate limit.

E. Review and Approval of Eligibility Demonstrations

The permitting authority will review and approve your eligibility demonstration. Your eligibility demonstration must contain, at a minimum, the information listed in § 63.1215(d)(1).

1. Review and Approval for Existing Sources

If you operate an existing source, you must submit the eligibility demonstration to your permitting authority for review and approval not later than 12 months prior to the compliance date. You must also submit a separate copy of the eligibility demonstration to: U.S. EPA, Risk and Exposure Assessment Group, Emission Standards Division (C404–01), Attn: Group Leader, Research Triangle Park, North Carolina 27711, electronic mail address *REAG@epa.gov*.

Your permitting authority should notify you of approval or intent to disapprove your eligibility demonstration within 6 months after receipt of the original demonstration, and within 3 months after receipt of any supplemental information that you submit. A notice of intent to disapprove your eligibility demonstration will identify incomplete or inaccurate information or noncompliance with prescribed procedures and specify how much time you will have to submit additional information or to comply with the MACT total chlorine standards. If your eligibility demonstration is disapproved, the permitting authority may extend the compliance date of the total chlorine standard to allow you to make changes to the design or operation of the combustor or related systems as quickly as practicable to enable you to achieve compliance with the MACT standard for total chlorine.

If your permitting authority has not approved your eligibility demonstration by the compliance date, and has not issued a notice of intent to disapprove your demonstration, you may nonetheless begin complying, on the compliance date, with the annual average HCl-equivalent emission rate limits you present in your eligibility demonstration.

If your permitting authority issues a notice of intent to disapprove your eligibility demonstration after the

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[22] USEPA, ''Technical Support Document for HWC MACT Standards, Volume III: Selection of MACT Standards,'' September 2005, Section 24.2.

[23] See discussion below in Section F regarding the requirement to establish chlorine feedrate limits.

compliance date, the authority will identify the basis for that notice and specify how much time you will have to submit additional information or to comply with the MACT total chlorine standards. The permitting authority may extend the compliance date of the total chlorine standard to allow you to make changes to the design or operation of the combustor or related systems as quickly as practicable to enable you to achieve compliance with the MACT standard for total chlorine.

2. Review and Approval for New and Reconstructed Sources

The procedures for review and approval of eligibility demonstrations applicable to existing sources discussed above also apply to new or reconstructed sources, except that the date you must submit the eligibility demonstration is as discussed below.

If you operate a new or reconstructed source that starts up by April 12, 2007, or a solid fuel-fired boiler or liquid fuel-fired boiler that is an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP before April 12, 2007, you must either: (1) Submit an eligibility demonstration for review and approval by April 12, 2006 and comply with the HCl-equivalent emission rate limits and operating requirements you establish in the eligibility demonstration; or (2) comply with the final total chlorine emission standards under §§ 63.1216, 63.1217, 63.1219, 63.1220, and 63.1221, by October 12, 2005, or upon startup, whichever is later, except for a standard that is more stringent than the standard proposed on April 20, 2004 for your source. If a final standard is more stringent than the proposed standard, you may comply with the proposed standard until October 14, 2008, after which you must comply with the final standard.

If you operate a new or reconstructed source that starts up on or after April 12, 2007, or a solid fuel-fired boiler or liquid fuel-fired boiler that is an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP on or after April 12, 2007, you must comply with either of the following. You may submit an eligibility demonstration for review and approval 12 months prior to startup. Alternatively, you may comply with the final total chlorine emission standards under §§ 63.1216, 63.1217, 63.1219, 63.1220, and 63.1221 upon startup. If the final standard is more stringent than the standard proposed for your source on April 20, 2004, however, and if you start operations before October 14, 2008, you may comply with the proposed standard until October 14, 2008, after which you must comply with the final standard.

F. Testing Requirements

You must comply with the requirements for comprehensive performance testing under § 63.1207.

1. Test Methods for Stack Gas Containing Alkaline Particulate

If you operate a cement kiln or a combustor equipped with a dry acid gas scrubber, you must use EPA Method 320/321 or ASTM D 6735–01, or an equivalent method, to measure hydrogen chloride, and the back-half (caustic impingers) of Method 26/26A, or an equivalent method, to measure chlorine.

2. Test Methods for Stack Gas Containing High Levels of Bromine or Sulfur

If you operate an incinerator, boiler, or lightweight aggregate kiln and your feedstreams contain bromine or sulfur during the comprehensive performance test at the levels indicated below, you must use EPA Method 320/321 or ASTM D 6735'01, or an equivalent method, to measure hydrogen chloride, and Method 26/26A, or an equivalent method, to measure chlorine and hydrogen chloride combined. You must determine your chlorine emissions to be the higher of: (1) The value measured by Method 26/26A, or an equivalent method; or (2) the value calculated by the difference between the combined hydrogen chloride and chlorine levels measured by Method 26/26a, or an equivalent method, and the hydrogen chloride measurement from EPA Method 320/321 or ASTM D 6735–01, or an equivalent method.

These procedures apply if you feed during the comprehensive performance test bromine at a bromine/chlorine ratio in feedstreams greater than 5 percent by mass, or sulfur at a sulfur/chlorine ratio in feedstreams greater than 50 percent by mass.[24]

Finally, you should precondition the M26/26A filter for one hour prior to beginning the performance test to minimize the potential for a low bias caused by adsorption/absorption of hydrogen chloride on the filter.

G. Monitoring Requirements

You must establish and comply with limits on the same operating parameters that apply to sources complying with the MACT standard for total chlorine under § 63.1209(o), except that feedrate limits on total chlorine and chloride must be established as described below.

1. Feedrate Limit to Ensure Compliance with the Annual Average HCl-Equivalent Emission Rate Limit

For sources subject to the feedrate limit for total chlorine and chloride under § 63.1209(n)(4) to ensure compliance with the semivolatile metals standard, the feedrate limit (and averaging period) for total chlorine and chloride to ensure compliance with the annual average HCl-equivalent emission rate limit is the same as required by that paragraph. Thus, the chlorine feedrate limit is the average of the run averages during the comprehensive performance test, and is established as a 12-hour rolling average.

That chlorine feedrate limit cannot exceed the numerical value (i.e., not considering the averaging period) of the feedrate limit that ensures compliance with the annual average HCl-equivalent emission rate limit, however. Therefore, the numerical value of the total chlorine and chloride feedrate limit must not exceed the value you calculate as the annual average HCl-equivalent emission rate limit (lb/hr) divided by [1 − system removal efficiency]. You must calculate a total chlorine system removal efficiency for each test run of the comprehensive performance test as [1 − total chlorine emission rate (g/s)/ chlorine feedrate (g/s)], and calculate the average system removal efficiency of the test run averages. If your source does not control total chlorine, you must assume zero system removal efficiency. If emissions during the comprehensive performance test exceed the annual average HCl-equivalent emission rate limit, eligibility for the health-based emission limits is not affected. This is because the emission rate limit is an annual average limit. Compliance is based on a 12-hour rolling average chlorine feedrate limit (rather than an (up to) an annual averaging period) for sources subject to the 12-hour rolling average feedrate limit for total chlorine and chloride under § 63.1209(n)(4) to ensure compliance with the semivolatile metals standard given that the more stringent feedrate limit (i.e., the feedrate limit with the shorter averaging period) would apply.

For sources exempt from the feedrate limit for total chlorine and chloride under § 63.1209(n)(4) because they comply with § 63.1207(m)(2) (which allows compliance with the semivolatile metals emission standard absent emissions testing by assuming all metals fed are emitted), the feedrate limit for total chlorine and chloride to ensure

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[24] USEPA, ''Technical Support Document for HWC MACT Standards, Volume IV: Compliance with the HWC MACT Standards,'' September 2005, Chapter 15.1.2.

compliance with the annual average HCl-equivalent emission rate must be established as follows:

- You must establish an average period for the feedrate limit that does not exceed an annual rolling average;
- You must calculate a total chlorine system removal efficiency for each test run of the comprehensive performance test as [1 − total chlorine emission rate (g/s)/chlorine feedrate (g/s)], and calculate the average system removal efficiency of the test run averages. If your source is not equipped with a control system that consistently and reproducibly controls total emissions (e.g., wet or dry scrubber), you must assume zero system removal efficiency. If emissions during the comprehensive performance test exceed the annual average HCl-equivalent emission rate limit, eligibility for emission limits under this section is not affected. The emission rate limit is an annual average limit and compliance is based on an annual average feedrate limit on total chlorine and chloride (or a shorter averaging period if you so elect under paragraph (g)(2)(ii)(A) of this section); and
- You must calculate the feedrate limit for total chlorine and chloride as the annual average HCl-equivalent emission rate limit (lb/hr) divided by [1 − system removal efficiency] and comply with the feedrate limit on the averaging period you establish.

2. Feedrate Limit To Ensure Compliance With the 1-Hour Average HCl-Equivalent Emission Rate Limit

You must establish an hourly rolling average feedrate limit on total chlorine and chloride to ensure compliance with the 1-hour average HCl-equivalent emission rate limit unless you determine that the hourly rolling average feedrate limit is waived as discussed under Section D above. If required, you must calculate the hourly rolling average feedrate limit for total chlorine and chloride as the 1-hour average HCl-equivalent emission rate limit (lb/hr) divided by [1 − system removal efficiency] using the system removal efficiency demonstrated during the comprehensive performance test.

H. Relationship Among Emission Rates, Emission Rate Limits, and Feedrate Limits

We summarize here the relationship among: (1) the total chlorine emission rate you select in your eligibility demonstration; (2) the annual average and 1-hour average HCl-equivalent emission rates you present in your eligibility demonstration; (3) the annual average and 1-hour average emission rate limits you present in your eligibility demonstration; (4) performance test emission rates for total chlorine and HCl-equivalent emissions; and (5) long-term and hourly rolling average chlorine feedrate limits.

1. Total Chlorine Emission Rate, Annual Average HCl-Equivalent Emission Rate, and Annual Average HCl-Equivalent Emission Rate Limit

For the eligibility demonstration, you must select a total chlorine emission concentration (ppmv) for each combustor, determine the Cl_2/HCl volumetric ratio, calculate the annual average HCl-equivalent emission rate (lb/hr), and document that the emission rate does not exceed the annual average HCl-equivalent emission rate limit.

You select a total chlorine (*i.e.*, HCl and chlorine combined) emission concentration (ppmv) for each hazardous waste combustor expressed as chloride ($Cl^{(-)}$) equivalent. For incinerators, cement kilns, and lightweight aggregate kilns, this emission concentration cannot exceed the Interim Standards for total chlorine. You then determine the average Cl_2/HCl volumetric ratio considering all historical regulatory emissions tests and apportion total chlorine emissions between Cl_2 and HCl accordingly. You use these apportioned volumetric emissions to calculate the Cl_2 and HCl emission rates (lb/hr) using the average gas flowrate (and other relevant parameters) for the most recent RCRA compliance test or MACT performance test for total chlorine. Finally, you use these Cl_2 and HCl emission rates to calculate an annual average HCl-equivalent emission rate, which cannot exceed the annual average HCl-equivalent emission rate limit that you establish as discussed below.

To establish the annual average HCl-equivalent emission rate limit, you may either use Tables 1 or 2 in § 63.1215 to look-up the limit, or conduct a site-specific risk analysis. Under the site-specific risk analysis option, the annual average HCl-equivalent emission rate limit would be the highest emission rate that the risk assessment estimates would result in a Hazard Index not exceeding 1.0 for the actual individual most exposed to the facility's emissions considering off-site locations where people reside and where people congregate for work, school, or recreation.

If you have more than one on-site hazardous waste combustor, and if you use the look-up tables to establish the annual average HCl-equivalent emission rate limits, the sum of the ratios for all combustors of the annual average HCl-equivalent emission rate to the annual average HCl-equivalent emission rate limit cannot not exceed 1.0. This will ensure that the RfC-based Hazard Index of 1.0 is not exceeded, a principle criterion of the eligibility demonstration.

If you use site-specific risk analysis to demonstrate that a Hazard Index of 1.0 is not exceeded, you would generally identify for each combustor the maximum annual average HCl-equivalent emission rate that the risk assessment estimates would result in an RfC-based Hazard Index of 1.0 at any off-site receptor location (i.e., considering locations where people reside and where people congregate for work, school, or recreation.[25] This emission rate would be the annual average HCl-equivalent emission rate limit for each combustor.

2. 1-Hour Average HCl-Equivalent Emission Rate and Emission Rate Limit

As discussed in Section D above, you must determine in your eligibility demonstration whether the 1-hour HCl-equivalent emission rate limit may be exceeded absent an hourly rolling average chlorine feedrate limit. To make this determination, you must establish a 1-hour average HCl-equivalent emission rate and a 1-hour average HCl-equivalent emission rate limit.

You calculate the 1-hour average HCl-equivalent emission rate from the total chlorine emission rate, established as discussed above, using the equation in § 63.1215(b)(3).

You establish the 1-hour average HCl-equivalent emission rate limit by either using Tables 3 or 4 in § 63.1215 to look-up the limit, or conducting a site-specific risk analysis. Under the site-specific risk analysis option, the 1-hour average HCl-equivalent emission rate limit would be the highest emission rate that the risk assessment estimates would result in an aREL-based Hazard Index not exceeding 1.0 at any off-site receptor location (i.e., considering locations where people reside and where people congregate for work, school, or recreation).

3. Performance Test Emissions

During the comprehensive performance test, you must demonstrate a system removal efficiency for total chlorine as [1 − TCl emitted (lb/hr)/chlorine fed (lb/hr)]. During the test, however, the total chlorine emission rate you select for each combustor and the annual average HCl-equivalent

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[25] Note again, however, that the total chlorine emission concentration (ppmv) is capped by the Interim Standards for incinerators, cement kilns, and lightweight aggregate kilns.

emission rate limit can exceed the levels you present in the eligibility demonstration. This is because those emission rates are annual average rates and need not be complied with over the duration of three runs of the performance test, which may be nominally only 3 hours.

The 1-hour average HCl-equivalent emission rate limit cannot be exceeded during any run of the comprehensive performance test, however. This limit is based on an aREL Hazard Index of 1.0; an exceedance of the limit over a test run with a nominal 1-hour duration would result in a Hazard Index of greater than 1.0.

4. Chlorine Feedrate Limits

To maintain compliance with the annual average HCl-equivalent emission rate limit, you must establish a long-term average chlorine feedrate limit. In addition, if you determine under § 63.1205(d)(3) that the 1-hour average HCl-equivalent emission rate may be exceeded (i.e., because your chlorine feedrate may vary substantially over the averaging period for the long-term chlorine feedrate limit), you must establish an hourly rolling average chlorine feedrate limit.

Long-Term Chlorine Feedrate Limit. The chlorine feedrate limit to maintain compliance with the annual average HCl-equivalent emission rate is either: (1) The chlorine feedrate during the comprehensive performance test if you demonstrate compliance with the semivolatile metals emission standard during the test (see § 63.1209(o)); or (2) if you comply with the semivolatile metals emission standard under § 63.1207(m)(2) by assuming all metals in the feed to the combustor are emitted, the HCl-equivalent emission rate limit divided by [1 − system removal efficiency] where you demonstrate the system removal efficiency during the comprehensive performance test.

If you establish the chlorine feedrate limit based on the feedrate during the performance test to demonstrate compliance with the semivolatile metals emission standard, the averaging period for the feedrate limit is a 12-hour rolling average. If you establish the chlorine feedrate limit based on the system removal efficiency during the performance test, the averaging period is up to an annual rolling average. See discussion in Part Four, Section VII.B of this preamble.

If you comply with the semivolatile metals emission standard under § 63.1207(m)(2), however, the long-term chlorine feedrate limit is based on the system removal efficiency during the comprehensive performance test rather than the feedrate during the performance test. This is because the averaging period for this chlorine feedrate limit (that ensures compliance with the annual average HCl-equivalent emission rate limit) is up to an annual rolling average. See § 63.1215(g)(2). Thus, the chlorine feedrate, and total chlorine emissions, can be higher than the limit during the relatively short duration of the comprehensive performance tests.

Hourly Rolling Average Chlorine Feedrate Limit. If you determine under § 63.1205(d)(3) that the 1-hour average HCl-equivalent emission rate limit may be exceeded, you must establish an hourly rolling average chlorine feedrate limit. That feedrate limit is established as the 1-hour HCl-equivalent emission rate limit divided by [1 − system removal efficiency]. The hourly rolling average chlorine feedrate limit is not established based on feedrates during the performance test because performance test feedrates may be substantially lower than the feedrate needed to ensure compliance with the 1-hour average HCl-equivalent emission rate. Note, however, that the hourly rolling average feedrate limit cannot be exceeded during any run of the comprehensive performance test. This chlorine feedrate limit is based on the 1-hour average HCl-equivalent emission rate limit, which is based on an aREL Hazard Index of 1.0. Thus, an exceedance of the hourly rolling average feedrate limit (and the 1-hour lHCl-equivalent emission rate limit) over a test run with a nominal 1-hour duration would result in a Hazard Index of greater than 1.0.

I. Changes

Your requirements will change in response to changes that affect the HCl-equivalent emission rate or HCl-equivalent emission rate limit for a source.

1. Changes Over Which You Have Control

Changes That Affect HCl-Equivalent Emission Rate Limits. If you plan to change the design, operation, or maintenance of the facility in a manner that would decrease the annual average or 1-hour average HCl-equivalent emission rate limit (*e.g.*, reduce the distance to the property line; reduce stack gas temperature; reduce stack height), prior to the change you must submit to the permitting authority a revised eligibility demonstration documenting the lower emission rate limits and calculations of reduced total chlorine and chloride feedrate limits.

If you plan to change the design, operation, or maintenance of the facility in a manner than would increase the annual average or 1-hour average HCl-equivalent emission rate limit, and you elect to increase your total chlorine and chloride feedrate limits, prior to the change you must submit to the permitting authority a revised eligibility demonstration documenting the increased emission rate limits and calculations of the increased feedrate limits prior to the change.

Changes That Affect System Removal Efficiency. If you plan to change the design, operation, or maintenance of the combustor in a manner than could decrease the system removal efficiency, you are subject to the requirements of § 63.1206(b)(5) for conducting a performance test to reestablish the combustor's system removal efficiency. You also must submit a revised eligibility demonstration documenting the lower system removal efficiency and the reduced feedrate limits on total chlorine and chloride.

If you plan to change the design, operation, or maintenance of the combustor in a manner than could increase the system removal efficiency, and you elect to document the increased system removal efficiency to establish higher feedrate limits on total chlorine and chloride, you are subject to the requirements of § 63.1206(b)(5) for conducting a performance test to reestablish the combustor's system removal efficiency. You must also submit a revised eligibility demonstration documenting the higher system removal efficiency and the increased feedrate limits on total chlorine and chloride.

2. Changes Over Which You Do Not Have Control

If you use site-specific risk assessment in lieu of the look-up tables to establish the HCl-equivalent emission rate limit, you must review the documentation you use in your eligibility demonstration every five years from the date of the comprehensive performance test and submit for review and approval with the comprehensive performance test plan either a certification that the information used in your eligibility demonstration has not changed in a manner that would decrease the annual average HCl-equivalent emission rate limit, or a revised eligibility demonstration. Examples of changes beyond your control that may decrease the annual average HCl-equivalent emission rate limit (or 1-hour average HCl-equivalent emission rate limit) are construction of residences at a location exposed to higher ambient concentrations than evaluated during your previous risk analysis, or a reduction in the RfCs or aRELs.

If, in the interim between the dates of your comprehensive performance tests, you have reason to know of changes that would decrease the annual average HCl-equivalent emission rate limit, you must submit a revised eligibility demonstration as soon as practicable but not more frequently than annually.

If you determine that you cannot demonstrate compliance with a lower annual average HCl-equivalent emission rate limit (dictated by a change over which you do not have control) during the comprehensive performance test because you need additional time to complete changes to the design or operation of the source or related systems, you may request that the permitting authority grant you additional time to make those changes as quickly as practicable.

X. Overview on Floor Methodologies

The most contentious issue in the rulemaking involved methodologies for determining MACT floors, namely, which sources are best performing, and what is their level of performance. Superficially, these questions have a ready answer: the best performers are the lowest emitters as measured by compliance tests, and those tests fix their level of performance. But compliance tests are snapshots which do not fully capture sources' total operating variability. Since the standards must be met at all times, picking lowest compliance test data to set the standard results in standards best performing sources themselves would be unable to meet at all times.

To avoid this impermissible result, EPA selected approaches that reasonably estimate best performing sources' total variability. Certain types of variability can be quantified statistically, and EPA did so here (using standard statistical approaches) in all of the floor methodologies used in the rule. There are other components of variability, however, which cannot be fully quantified, but nonetheless must be accounted for in reasonably estimating best performing sources' performance over time. EPA selected ranking methodologies which best account for this total variability.

Where control of the feed of HAP is feasible and technically assessable (the case for HAP metals and for total chlorine), EPA used a methodology that ranked sources by their ability to best control both HAP feed and HAP emissions. This methodology thus assesses the efficiency of control of both the HAP inputs to a hazardous waste combustion unit, and the efficiency of control of the unit's outputs. This methodology reasonably selects the best performing (and for new sources, best controlled) sources, and reasonably assesses their level of performance. When HAP feed control is not feasible, notably where HAP is contributed by raw material and fossil fuel inputs, EPA determined best performers and their level of performance using a methodology that selects the lowest emitters using the best air pollution control technology. This methodology reasonably estimates the best performing sources' level of performance, and better accounts for total variability in emissions levels of the best performing sources.

EPA carefully examined approaches selecting lowest emitters as best performers. Examination of other test conditions from the same best performing sources shows, however, that this approach results in standards not achievable even by the best performers. Indeed, in order to meet such standards, even ''best performing'' sources (lowest emitting in individual tests) would have to add additional air pollution control technology. EPA views this result as an end run around the section 112(d)(2) beyond-the-floor process, because floor standards would force industry-wide technological changes without consideration of the factors (cost and energy in particular) which Congress mandated for consideration when establishing beyond-the-floor standards.

Part Three: What Are the Major Changes Since Proposal?

I. Database

A. Hazardous Burning Incinerators

Five incinerators have been removed from the database because they have initiated or completed RCRA closure.[26] Two incinerators have been added to the list of sources used to calculate the floor levels.[27] Emissions data from source 3015 has been excluded for purposes of calculating the particulate matter floor because the source was processing an atypical waste stream from a particulate matter compliance perspective. See part four, section I.F. We have excluded the most recent mercury and dioxin/furan emissions data from source 327, and have instead used data from an older test condition to represent this source's emissions because the source encountered problems with its carbon injection system during the most recent test. See part four, section I.F. Emissions data from source 3006 has been excluded for purposes of calculating the semivolatile metal standard because this source did not measure cadmium emissions during its emissions test. See part four, section I.F. We have added mercury emissions data from source 901 (DSSI) to the incinerator mercury database because this source (which is otherwise subject to standards for liquid fuel boilers) is burning a waste which is unlike that burned by any other liquid fuel boiler with respect to mercury concentration and waste provenance, but typical of waste burned by incinerators with respect to those factors. See part four, section VI.D.1. This change correspondingly affects the liquid fuel boiler standard by removing that data from the liquid fuel boiler database.

B. Hazardous Waste Cement Kilns

1. Use of Emissions Data From Ash Grove Cement Company

The emissions data from Ash Grove Cement Company, which operates a recently constructed preheater/precalciner kiln located in Chanute, Kansas, are considered when calculating MACT floors for new hazardous waste burning cement kilns. In the proposal, we did not consider their emissions data in the floor analyses for existing sources because Ash Grove Cement used the data to demonstrate compliance with the new source interim standards, and did not address the data for purposes of new source standards. See 69 FR at 21217 n. 35. Consistent with our position on use of post-1999 emissions data, we are including Ash Grove Cement's emissions data in the floor analyses for new sources. See also Part Four, Section I.B of the preamble.

2. Removal of Holcim's Emissions Data From EPA's HWC Data Base

Following cessation of hazardous waste operations in 2003, we are removing all emissions data from both wet process cement kilns at Holcim's Holly Hill, South Carolina, plant from our hazardous waste combustor data base. This is consistent with our approach in both this rule and the 1999 rule to base the standards only on performance of sources that actually are operating (i.e., burning hazardous waste). See also Part Four, Section I.A and 64 FR at 52844.

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[26] See ''Final Technical Support Document for HWC MACT Standards, Volume II: HWC Database'' for a list of the sources that have initiated or completed RCRA closure.

[27] We noticed the data from these sources but did not include them in the MACT standard calculations at proposal. Note that inclusion of these sources did not affect any of the calculated MACT standards. See ''Final Technical Support Document for HWC MACT Standards, Volume II: HWC Database'' for more discussion.

3. Use of Mercury Data

As discussed below, we are using a commenter-submitted dataset as the basis of the mercury standards for existing and new cement kilns. This comprehensive dataset documents the day-to-day levels of mercury in hazardous waste fired to all cement kilns for a three year period covering 1999 to 2001. We have determined that the commenter-submitted data are more representative than data used at proposal. See Part Four, Section I.D of the preamble for our rationale.

C. Hazardous Waste Lightweight Aggregate Kilns

We are incorporating mercury data submitted by a commenter into the MACT floor analysis for existing and new lightweight aggregate kilns. These data document the day-to-day levels of mercury in hazardous waste fired to lightweight aggregate kilns located at Solite Corporation's Arvonia plant between October 2003 and June 2004. We have determined that the commenter-submitted data are more representative than the data used at proposal. See Part Four, Section I.E of the preamble for our rationale.

D. Liquid Fuel Boilers

In the proposed rule, we classified liquid fuel boilers as one category. The final rule classifies them into two for purposes of the mercury, semivolatile metals, chromium, and total chlorine standards: one for liquid fuel boilers burning lower heating value hazardous waste (hazardous waste with a heating value less than 10,000 Btu/lb), and another for liquid fuel boilers burning higher heating value hazardous waste (hazardous waste with a heating value of 10,000 Btu/lb or greater).

We also made other, minor changes to the data base because some sources have initiated closure, were misclassified as other sources in the proposed rule, or were inadvertently not considered in the floor calculations although the sources' test reports were in the docket at proposal.

E. HCl Production Furnaces

Six of the 17 hydrochloric acid production furnaces have ceased burning hazardous waste since proposal. Consequently, we do not use emissions data from these sources to establish the final standards. All six of these sources were equipped with waste heat recovery boilers and had relatively high dioxin/furan emissions. In addition, we reclassified source #2020 as a boiler based on comments received at proposal.

F. Total Chlorine Emissions Data Below 20 ppmv

We corrected all the total chlorine measurements in the data base that were below 20 ppmv to account for potential systemic negative biases in the Method 0050 data in response to comments on the proposed rule. See the discussion in Part Four, Section I.C.1 below.

To account for the bias, we corrected all total chlorine emissions data that were below 20 ppmv to 20 ppmv. We accounted for within-test condition emissions variability for the corrected data by imputing a standard deviation that is based on a regression analysis of run-to-run standard deviation versus emission concentration for all data above 20 ppmv. This approach of using a regression analysis to impute a standard deviation is similar to the approach we used to account for total variability (i.e., test-to-test and within test variability) of PM emissions for sources that use fabric filters.

II. Emission Limits

A. Incinerators

The changes in the incinerator standards for existing sources since proposal are:

Standard	Proposed limit	Final limit
Dioxin/Furans (ng TEQ/dscm)	Sources with dry air pollution control systems or waste heat boilers: 0.28; For others: 0.2 or 0.4 and temperature control at inlet of air pollution control device < 400 °F.	For all sources, 0.20 or 0.40 and temperature control < 400 °F at the air pollution control device inlet.
Particulate Matter (gr/dscf)	0.015	0.013.
Semivolatile Metals (µg/dscm)	59	230.
Low Volatile Metals (µg/dscm)	84	92.
Total Chlorine (ppmv)	1.5	32.
Alternative to the particulate matter standard: Combined emissions of lead, cadmium and selenium (µg/dscm).	59	230.
Alternative to the particulate matter standard: Combined emissions of arsenic, berrylium, chrome, antimony, cobalt, manganese, and nickel (µg/dscm).	84	92.

The changes in the incinerator standards for new sources since proposal are:

Standard	Proposed limit	Final limit
Particulate Matter (gr/dscf)	0.0007	0.0015
Mercury (µg/dscm)	8.0	8.1
Semivolatile Metals (µg/dscm)	6.5	10
Low Volatile Metals (µg/dscm)	8.9	23
Total Chlorine (ppmv)	0.18	21
Alternative to the particulate matter standard: Combined emissions of lead, cadmium and selenium (µg/dscm)	6.5	10
Alternative to the particulate matter standard: Combined emissions of arsenic, berrylium, chrome, antimony, cobalt, manganese, and nickel (µg/dscm)	8.9	23

Hazardous Waste Burning Cement Kilns

The changes in the standards for existing cement kiln since proposal are:

Standard	Proposed limit	Final limit
Mercury (µg/dscm)	64[1]	Both 3.0 ppmw[2] and either 120 µg/dscm (stack emissions) or 120 µg/dscm (expressed as a hazardous waste MTEC)[3].
Particulate matter	0.028 gr/dscf	0.028 gr/dscf *and* 20% opacity[4].
Semivolatile metals	4.0E–04 lb/MMBtu[5]	7.6E–04 lb/MMBtu[5] *and* 330 µg/dscm.
Low volatile metals	1.4E–05 lb/MMBtu[5]	2.1E–05 lb/MMBtu[5] *and* 56 µg/dscm.
Total chlorine (ppmv)[6]	110	120.

[1] The proposed mercury standard was an annual limit.

[2] Feed concentration of mercury in hazardous waste as-fired.

[3] HW MTEC means maximum theoretical emissions concentration of the hazardous waste and MTEC is defined at § 63.1201(a).

[4] The opacity standard does not apply to a source equipped with a bag leak detection system under § 63.1206(c)(8) or a particulate matter detection system under § 63.1206(c)(9).

[5] Standard is expressed as mass of pollutant stack emissions attributable to the hazardous waste per million British thermal unit heat input of the hazardous waste.

[6] Combined standard, reported as a chloride ($\mathrm{Cl}^{(-)}$) equivalent.

The changes in the standards for new cement kilns since proposal are:

Standard	Proposed limit	Final limit
Mercury (µg/dscm)	35[1]	Both 1.9 ppmw[2] and either 120 µg/dscm (stack emissions) or 120 µg/dscm (expressed as a hazardous waste MTEC)[3].
Particulate matter	0.0058 gr/dscf	0.0023 gr/dscf and 20% opacity[4].
Semivolatile metals	6.2E–05 lb/MMBtu[5]	6.2E–05 lb/MMBtu[5] *and* 180 µg/dscm.
Low volatile metals	1.4E–05 lb/MMBtu[5]	1.5E–05 lb/MMBtu[5] *and* 54 µg/dscm.
Total chlorine (ppmv)[6]	78	86.

[1] The proposed mercury standard was an annual limit.

[2] Feed concentration of mercury in hazardous waste as-fired.

[3] HW MTEC means maximum theoretical emissions concentration of the hazardous waste and MTEC is defined at § 63.1201(a).

[4] The opacity standard does not apply to a source equipped with a bag leak detection system under § 63.1206(c)(8) or a particulate matter detection system under § 63.1206(c)(9).

[5] Standard is expressed as mass of pollutant stack emissions attributable to the hazardous waste per million British thermal unit heat input of the hazardous waste.

[6] Combined standard, reported as a chloride ($\mathrm{Cl}^{(-)}$) equivalent.

C. Hazardous Waste Burning Lightweight Aggregate Kilns

The changes in the standards for existing lightweight aggregate kilns since proposal are:

Standard	Proposed limit	Final limit
Dioxins and furans (ng TEQ/dscm)	0.40	0.20 *or* rapid quench of the flue gas at the exit of the kiln to less than 400 °F.
Mercury (µg/dscm)	67[1]	120 µg/dscm (stack emissions) or 120 µg/dscm (expressed as a hazardous waste MTEC)[2].
Semivolatile metals	3.1E–04 lb/MMBtu[3] *and* 250 µg/dscm	3.0E–04 lb/MMBtu[3] *and* 250 µg/dscm.

[1] The proposed mercury standard was an annual limit.

[2] HW MTEC means maximum theoretical emissions concentration of the hazardous waste and MTEC is defined at § 63.1201(a).

[3] Standard is expressed as mass of pollutant stack emissions attributable to the hazardous waste per million British thermal unit heat input of the hazardous waste.

The changes in the standards for new lightweight aggregate kilns since proposal are:

Standard	Proposed limit	Final limit
Dioxins and furans (ng TEQ/dscm)	0.40	0.20 *or* rapid quench of the flue gas at the exit of the kiln to less than 400 °F.

Standard	Proposed limit	Final limit
Particulate matter	0.0099 gr/dscf	0.0098 gr/dscf.
Mercury (µg/dscm)	67[1]	120 µg/dscm (stack emissions) or 120 µg/dscm (expressed as a hazardous waste MTEC)[2].
Semivolatile metals	2.4E–05 lb/MMBtu[3] *and* 43 µg/dscm	3.7E–05 lb/MMBtu[3] *and* 43 µg/dscm.

[1] The proposed mercury standard was an annual limit.

[2] HW MTEC means maximum theoretical emissions concentration of the hazardous waste and MTEC is defined at § 63.1201(a).

[3] Standard is expressed as mass of pollutant stack emissions attributable to the hazardous waste per million British thermal unit heat input of the hazardous waste.

D. Solid Fuel Boilers

The changes in the solid fuel boiler standards for existing sources since proposal are:

Standard	Proposed limit	Final limit
Mercury (µg/dscm)	10	11
Semivolatile Metals (µg/dscm)	170	180
Low Volatile metals (µg/dscm)	210	380
Alternative to the particulate matter standard: Combined emissions of lead, cadmium and selenium (µg/dscm)	170	180
Alternative to the particulate matter standard: Combined emissions of arsenic, beryllium, chromium, antimony, cobalt, manganese, and nickel (µg/dscm)	210	380

The changes in the solid fuel boiler standards for new sources since proposal are:

Standard	Proposed limit	Final limit
Mercury (µg/dscm)	10	11
Semivolatile Metals (µg/dscm)	170	180
Low Volatile metals (µg/dscm)	210	380
Alternative to the particulate matter standard: Combined emissions of lead, cadmium and selenium (µg/dscm)	170	180

E. Liquid Fuel Boilers

We redefined the liquid fuel boiler subcategory into two separate boiler subcategories based on the heating value of the hazardous waste they burn: Those that burn waste below 10,000 Btu/lb, those that burn hazardous waste with a heating value of 10,000 Btu/lb or greater. See Part Four, Section VI.D.2 of today's preamble for a complete discussion.

The additional changes to the liquid fuel boiler standards for existing sources since proposal are:

Standard	Proposed limit	Final limit	
		HW Fuel < 10,000 Btu/lb	HW Fuel ≥ 10,000 Btu/lb
Mercury (lb/MM Btu)	3.7E–6	19 µg/dscm	4.2E–5
Particulate matter (gr/dscf)	0.032	0.035	
Semivolatile metals (lb/MM Btu)	1.1E–5	150 µg/dscm	8.2E–5
Chromium (lb/MM Btu)	1.1E–4	370 µg/dscm	1.3E–4
Total chlorine (Lb/MM Btu)	2.5E–2	31 ppmv	5.1E–2
Alternative to the particulate matter standard: Combined emissions of lead, cadmium and selenium (lb/MM Btu).	1.1E–5	150 µg/dscm	8.2E–5
Alternative to the particulate matter standard: Combined emissions of arsenic, beryllium, chromium, antimony, cobalt, manganese, and nickel (lb/MM Btu).	1.1E–4	370 µg/dscm	1.3E–4

The changes in the liquid fuel boiler standards for new sources since proposal are:

Standard	Proposed limit	Final limit	
		HW fuel < 10,000 Btu/lb	HW fuel > 10,000 Btu/lb
Dioxin and Furan, dry APCD (ng TEQ/dscm)	0.015 or temp control <400F for dry APCD.	0.40	
Mercury (lb/MM Btu)	3.8E–7	6.8 µg/dscm	1.2E–6
Particulate matter (gr/dscf)	0.0076	0.0087	
Semivolatile metals (lb/MM Btu)	4.3E–6	78 µg/dscm	6.2E–6
Chromium (lb/MM Btu)	3.6E–5	12 µg/dscm	1.4E–5
Total chlorine (lb/MM Btu)	7.2E–4	31 µg/dscm	5.1E–2
Alternative to the particulate matter standard: Combined emissions of lead, cadmium and selenium (lb/MM Btu).	4.3E–6	78 µg/dscm [1]	6.2E–6 [1]
Alternative to the particulate matter standard: Combined emissions of arsenic, beryllium, chromium, antimony, cobalt, manganese, and nickel (lb/MM Btu).	3.6E–5	12 µg/dscm [2]	1.4E–5 [2]

[1] New or reconstructed liquid fuel boilers that process residual oil or liquid feedstreams that are neither fossil fuel nor hazardous waste and that operate pursuant to the alternative to the particulate matter standard must comply with the alternative emission concentration standard of 4.7 µg/dscm, which is applicable to lead, cadmium and selenium emissions attributable to all feedstreams (hazardous and nonhazardous).

[2] New or reconstructed liquid fuel boilers that process residual oil or liquid feedstreams that are neither fossil fuel nor hazardous waste that operate pursuant to the alternative to the particulate matter standard must comply with the alternative emission concentration standard of 12 µg/dscm, which is applicable to arsenic, beryllium, chrome, antimony, cobalt, manganese, and nickel emissions attributable to all feedstreams (hazardous and nonhazardous).

F. Hydrochloric Acid Production Furnaces

The changes in the hydrochloric acid production furnace standards for existing sources since proposal are:

Standard	Proposed limit	Final limit
Dioxin and Furans	0.4 ng TEQ/dscm	Carbon Monoxide/Total Hydrocarbons and DRE standards as surrogates.
Total chlorine	14 ppmv or 99.9927% system removal efficiency	150 ppmv or 99.923% system removal efficiency.

The changes in the hydrochloric acid production furnace standards for new sources since proposal are:

Standard	Proposed limit	Final limit
Dioxin and Furans	0.4 ng TEQ/dscm	Carbon Monoxide/Total Hydrocarbons and DRE standards as surrogates
Total chlorine	1.2 ppmv or 99.9994% system removal efficiency	25 ppmv or 99.987% system removal efficiency

G. Dioxin/Furan Testing for Sources Not Subject to a Numerical Standard

Today's final rule requires that all sources not subject to a numerical dioxin and furan standard perform a one time test to determine their dioxin and furan emissions. See the discussion in Part Four, Section VII.L.

In the proposed rule, this requirement was limited to solid fuel boilers and those liquid fuel boilers with a wet or no air pollution control system. The final rule expands this requirement to include hydrochloric acid production furnaces and those lightweight aggregate kilns that elect to comply with the temperature limit at the kiln exit in lieu of the 0.20 ng TEQ/dscm dioxin/furan standard. Those sources are not subject to a numerical dioxin/furan standard under the final rule for reasons explained in Volume III of the Technical Support Document, Sections 12 and 15. We note that sources not subject to a numerical dioxin/furan emission standard are subject to the carbon monoxide or hydrocarbon standards and the DRE standard as surrogates.

We are making no changes to the implementation of this requirement. See the proposed rule at 69 FR at 21307 for more information.

III. Statistics and Variability

A. Using Statistical Imputation To Address Variability of Nondetect Values

In the final rule, we use a statistical approach to impute the value of nondetect emissions and feedrate measurements to avoid dampening of the variability of data sets when nondetect measurements are assumed to be present at the detection limit.

At proposal, we assumed that nondetects (i.e., HAP levels in stack emissions below the level of detection of the applicable analytic method) are invariably present at the detection limit. Commenters on the proposed rule stated, however, that assuming nondetects are present at the detection limit dampens emissions variability—a consideration necessary to reasonably ascertain sources' performance over time. This could have significant practical consequence for those data sets (such as the data base for liquid fuel boilers) dominated by nondetected values. We agree with these commenters, and instead of making the arbitrary assumption that all nondetected values are identical (which in fact is highly unlikely), we are using a statistical methodology to impute the value of nondetect measurements.

The imputation approach assigns a value for each nondetect measurement in a data set within the possible range of values that results in maximizing the 99th percentile upper prediction limit for the data set. For example, the possible range of values for a measurement that is 100% nondetect is between zero and the detection limit.

On February 4, 2005 we distributed a direct request for comments on the imputation approach to major stakeholders. We respond to the comments we received in Part Four, Section IV.D of today's notice.

B. Degrees of Freedom When Imputing a Standard Deviation Using the Universal Variability Factor for Particulate Matter Controlled by a Fabric Filter

The use of the universal variability factor to impute a standard deviation for particulate emissions from sources controlled with a fabric filter takes advantage of the empirical observation that the standard deviation of particulate emissions from sources is positively correlated to the average particulate emissions of sources. Based on this observation, we use regression analysis to determine the best fitting curve to explain the relationship of average value to standard deviation.

In the final rule, we use the actual sample size, rather than an assumed sample size of nine used at proposal, to determine the degrees of freedom for the t-statistic to calculate the floor using the standard deviation imputed from the universal variability factor for particulate matter controlled by a fabric filter.

At proposal, we used eight degrees of freedom to identify the t-statistic to account for within-test condition variability (i.e., run-to-run variability) for standard deviations imputed from the universal variability factor regression.[28] This is because, on average, about three test conditions with nine individual test runs are associated with each source used to develop the regression curve.

A commenter states, however, that this approach can dramatically understate variability when imputing a standard deviation for a source with only three runs because the t-statistic is substantially higher for 2 degrees of freedom than 8 degrees of freedom.

We agree with the commenter. Moreover, using the actual number of runs to identify the t-statistic rather than assuming nine runs is appropriate given that the true test condition average is less certain for sources with only three runs, and thus there is less certainty in the imputed standard deviation. The higher t-statistic associated with a three-run data set reflects this uncertainty.

In addition, we include emissions data classified as ''normal'' in the regression analysis for the final rule. At proposal, we used only data classified as CT (i.e., highest compliance test condition in a test campaign) or IB (i.e., a compliance test condition that achieved lower emissions than another compliance test condition in the test campaign). We conclude that normal data (i.e., emissions data that were not used to establish operating limits and thus do not reflect variability in controllable operating parameters) should also be considered in the regression analysis because particulate matter emissions are relatively insensitive to baghouse inlet loading and operating conditions.[29] Including normal emissions in the analysis provides additional data to better quantify these devices' performance variability.

IV. Compliance Assurance for Fabric Filters, Electrostatic Precipitators, and Ionizing Wet Scrubbers

The final rule provides additional requirements to clarify how you determine the duration of periods of operation when the alarm set point has been exceeded for a bag leak detection system or a particulate matter detection system:

1. You must keep records of the date, time, and duration of each alarm, the time corrective action was initiated and completed, and a brief description of the cause of the alarm and the corrective action taken.
2. You must record the percent of the operating time during each 6-month period that the alarm sounds.
3. In calculating the operating time percentage, if inspection of the fabric filter, electrostatic precipitator, or ionizing wet scrubber demonstrates that no corrective action is required, no alarm time is counted.
4. If corrective action is required, each alarm shall be counted as a minimum of 1 hour.

The final rule also establishes revised procedures for establishing the alarm set point if you elect to use a particulate matter detector system in lieu of site-specific operating parameter limits for compliance assurance for sources equipped with electrostatic precipitators and ionizing wet scrubbers. The rule explicitly allows you to maximize controllable operating parameters during the comprehensive performance test to account for variability by, for example, detuning the APCD or spiking ash. To establish the alarm set-point, you may either establish the set-point as the average of the test condition run average detector responses during the comprehensive performance test or extrapolate the detector response after approximating the correlation between the detector response and particulate matter emission concentrations. You may extrapolate the detector response up to a response value that corresponds to 50% of the particulate matter emission standard or 125% of the highest particulate matter concentration used to develop the correlation, whichever is greater. To establish an approximate correlation of the detector response to particulate matter emission concentrations you should use as guidance Performance Specification-11 for PM CEMS (40 CFR Part 60, Appendix B), except that you need conduct only 5 runs to establish the initial correlation rather than a minimum of 15 runs required by PS–11.

The final rule also notes that an exceedance of a detector response that corresponds to the particulate matter emission standard is not evidence that the standard has been exceeded because the correlation is an approximate correlation used for the purpose of compliance assurance to determine when corrective measures must be taken. The correlation, however, does not meet the requirements of PS–11 for compliance monitoring.

In addition, if you elect to use a particulate matter detection system in lieu of site-specific control device operating parameter limits on the electronic control device, the ash feedrate limit for incinerators and boilers under § 63.1209(m)(3) is waived. The ash feedrate limit is waived because the particulate matter detection system continuously monitors relative particulate matter emissions and the alarm set point provides reasonable assurance that emissions will not exceed the standard.[30]

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[28] USEPA, ''Draft Technical Support Document for HWC MACT Standards, Volume III: Selection of MACT Standards,'' March 2004, p. 5–4.

[29] USEPA, ''Technical Support Document for HWC MACT Standards, Volume III: Selection of MACT Standards,'' September 2005, Section 5.3. See also Part Four, Section III.C of this preamble.

[30] Note that if your incinerator or boiler is equipped with a fabric filter and you elect under § 63.1206(c)(8)(i) to use a particulate matter detection system in lieu of a bag leak detection system for compliance assurance, the ash feedrate limit is waived. The ash feedrate limit is not waived if you use a bag leak detection system, however, because the alarm level may not ensure compliance with the emission standard when you follow the

Finally, you must submit an excessive exceedance notification within 30 days of the date that the alarm set-point is exceeded more than 5 percent of the time during any 6-month block period of time, or within 30 days after the end of the 6-month block period, whichever is earlier. The proposed rule would have required you to submit that notification within 5 days of the end of the 6-month block period.

V. Health-Based Compliance Alternative for Total Chlorine

The final rule includes the following major changes to the proposed health-based compliance alternative for total chlorine:

(1) You must use 1-hour Reference Exposure Levels (aRELs) rather than 1-hour acute exposure guideline levels (AEGL–1) as the acute health risk threshold metric when calculating 1-hour HCl-equivalent emission rates;

(2) You must establish a long-term average chlorine feedrate limit (i.e., 12 hour rolling average or an (up to) annual rolling average) as the annual average HCl-equivalent emission rate limit divided by [1 − system removal efficiency]. You establish the total chlorine system removal efficiency during the comprehensive performance test. The proposed rule would have required you to establish the long-term average chlorine feedrate limit as the average of the test run averages of the comprehensive performance test.[31]

(3) At proposal, we requested comment on whether and how to establish a short-term chlorine feedrate limit to ensure that the acute exposure Hazard Index of 1.0 is not exceeded. See 69 FR at 21304. We conclude for the final rule that a 1-hour rolling average feedrate limit may be needed for some situations (i.e., if chlorine feedrates can vary substantially during the averaging period for the long-term feedrate limit and potentially result in an exceedance of the 1-hour average HCl-equivalent emission rate limit). Accordingly, although your eligibility for the health-based compliance alternatives is based on annual average HCl-equivalent emissions, you must determine considering prescribed criteria whether your 1-hour HCl-equivalent emission rate may exceed the national exposure standard (i.e., Hazard Index not exceeding 1.0 considering the maximum 1-hour average ambient concentration of hydrogen chloride and chlorine at an off-site receptor location[32]) and thus may exceed the 1-hour average HCl-equivalent emission rate limit absent an hourly rolling average limit on the feedrate of chlorine. If the acute exposure standard may be exceeded, you must establish an hourly rolling average chlorine feedrate limit as the 1-hour HCl-equivalent emission rate limit divided by [1 − system removal efficiency]. You establish the system removal efficiency during the comprehensive performance test.

(4) When calculating HCl-equivalent emission rates, rather than partitioning total chlorine emissions between chlorine and HCl (i.e., the Cl_2/HCl volumetric ratio) based on the comprehensive performance test as proposed, you must establish the Cl_2/HCl volumetric ratio used to calculate the annual average HCl-equivalent emission rate based on the historical average ratio from all regulatory compliance tests. You must establish the Cl_2/HCl volumetric used to calculate the 1-hour average HCl-equivalent emission rate as the highest of the historical ratios from all regulatory compliance tests. The rule allows you to exclude ratios from historical compliance tests where the emission data may not be representative of the current Cl_2/HCl ratio for reasons such as changes to the design or operation of the combustor or biases in measurement methods. The rule also explicitly allows the permitting authority to require periodic emissions testing to obtain a representative average and maximum ratio;

(5) The look-up table analysis has been refined by presenting annual average and 1-hour HCl-equivalent emission rate limits as a function of stack height, stack diameter, and distance to property line. In addition, separate look-up tables are presented for flat terrain and simple elevated terrain;

(6) The proposed rule required approval of the eligibility demonstration before you could comply with the alternative health-based emission limits for total chlorine. Under the final rule, if your permitting authority has not approved your eligibility demonstration by the compliance date, and has not issued a notice of intent to disapprove your demonstration, you may nonetheless begin complying, on the compliance date, with the annual average HCl-equivalent emission rate limits you present in your eligibility demonstration. In addition, if your permitting authority issues a notice of intent to disapprove your eligibility demonstration, the authority will identify the basis for that notice and specify how much time you will have to submit additional information or to comply with the MACT total chlorine standards. The permitting authority may extend the compliance date of the total chlorine standards to allow you to make changes to the design or operation of the combustor or related systems as quickly as practicable to enable you to achieve compliance with the MACT total chlorine standards;

(7) We have revised the approach for determining chlorine emissions if you feed bromine or sulfur during the comprehensive performance test at levels higher than those specified in § 63.1215(e)(3)(ii)(B). Under the final rule, you must use EPA Method 320/321 or ASTM D 6735'01, or an equivalent method, to measure hydrogen chloride, and Method 26/26A, or an equivalent method, to measure chlorine and hydrogen chloride. You must determine your chlorine emissions to be the higher of: (1) The value measured by Method 26/26A, or an equivalent method; or (2) the value calculated by difference between the combined hydrogen chloride and chlorine levels measured by Method 26/26a, or an equivalent method, and the hydrogen chloride measurement from EPA Method 320/321 or ASTM D 6735–01, or an equivalent method; and

(8) The proposed rule would have required you to conduct a new comprehensive performance test if you planned to make changes to the facility that would lower the annual average HCl-equivalent emission rate limit. Under the final rule, you would be required to conduct a performance test as a result of a planned change only for a change to the design, operation, or maintenance of the combustor that could affect the system removal efficiency for total chlorine if the change could reduce the system removal efficiency, or if the change would increase the system removal efficiency and you elect to increase the feedrate limits on total chlorine and chloride.

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concepts in the Agency's guidance document on bag leak detection systems to establish the alarm level.

[31] Note that, as a practical matter, most sources must establish the chlorine feedrate limit as the average of the test run average feedrate limit during the comprehensive performance test to demonstrate compliance with the semivolatile emission standard. This is because chlorine feedrate is a compliance assurance parameter for the semivolatile metal emission standard. That feedrate limit is based on a 12-hour rolling average. To ensure compliance with the annual average HCl-equivalent emission rate limit, however, that feedrate limit cannot exceed the value calculated as the annual average HCl-equivalent emission rate limit divided by [1 − system removal efficiency], where you demonstrate the total chlorine system removal efficiency during the performance test.

[32] Under the site-specific risk assessment approach to demonstrate eligibility, you must consider locations where people reside and where people congregate for work, school, or recreation.

Part Four: What Are the Responses to Major Comments?

I. Database

A. Revisions to the EPA's Hazardous Waste Combustor Data Base

Comment: Several commenters identify sources which have ceased operations as a hazardous waste combustor and should be removed from EPA's data base.

Response: We agree with commenters that data and information from sources no longer burning hazardous waste should not be included in our hazardous waste combustor data base and should not be used to calculate the MACT standards. We consider any source that has initiated RCRA closure procedures and activities as a source that is no longer burning hazardous waste. This data handling decision is consistent with the approach we used in the 1999 final rule. See 64 FR at 52844. As we stated in that rule, ample emissions data remain to support calculating the MACT standards without using data from sources that no longer burn hazardous waste.

As a result, we removed the following former hazardous waste combustors from the data base: the Safety-Kleen incinerator in Clarence, New York, the Dow Chemical Company incinerators in Midland, Michigan, and LaPorte, Texas, the two Holcim wet process cement kilns in Holly Hill, South Carolina, the Dow Chemical Company liquid fuel-fired boiler in Freeport, Texas, the Union Carbide liquid fuel-fired boilers in Hahnville, Louisiana, and Texas City, Texas, and six Dow Chemical Company hydrochloric production furnaces in Freeport, Texas.

We are retaining, however, Solite Corporation's lightweight aggregate facility in Cascade, Virginia, in the data base. Even though the facility recently initiated RCRA closure procedures, this data handling decision differs from those listed in the preceding paragraph because Solite Corporation provided this new information in February 2005 while information on the other closures was reported or available to us in 2004. Because we cannot continually adjust our data base and still finalize this rulemaking by the court-ordered deadline, we stopped making revisions to the data base in late 2004. Additional facility changes after that date, like Solite Corporation's Cascade facility closure, simply could not be incorporated.

Comment: One commenter identifies a source in EPA's data base that should be classified as a boiler instead of a hydrochloric acid production furnace.

Response: We agree with the commenter. In today's rule, Dow Chemical Company's boiler F–2820, located in Freeport, Texas, is reclassified in our data base as a boiler. This source is identified as unit number 2020 in our data base.

B. Use of Data From Recently Upgraded Sources

Comment: Many commenters recommend that EPA remove from the data base (or not consider for standards-setting purposes) emissions data from sources that upgraded their emissions controls to comply with the promulgated emission standards of either the 1999 rule or the 2002 interim standards. Several commenters also state that any emissions data that were obtained or used to demonstrate compliance with the promulgated standards of 1999 or 2002 should not be used for standard-setting purposes by the Agency. That is, EPA must evaluate the source category as it existed at the beginning of the rule development process and not after emissions controls are later added to comply with the 1999 or 2002 standards. Several commenters also state that EPA is only partly correct in claiming that the interim standards are not MACT standards because the interim standards were established and considered to be MACT until the Court issued its opinion in July 2001. Until that time, sources proceeded to upgrade their facilities to achieve the standards promulgated in 1999. The rationale for these recommendations is threefold: (1) Use of the data unfairly ignores the MACT-driven reductions already achieved by some sources; (2) it is contrary to sound public policy to use data from upgraded facilities to ''ratchet down'' the MACT floors to a level more stringent because these sources would not have increased their level of performance but for the legal obligation to comply with the standards; and (3) EPA's reliance on *National Lime Ass'n* v. *EPA*, 233 F.3d 625, 640 (D.C. Cir. 2000), for the proposition that the motivation for a source's performance is legally irrelevant in developing MACT floor levels is misplaced because that case involved the initial MACT standard setting process, and not a subsequent rule.

One commenter agrees with EPA's proposed position and states that use of data from sources that have upgraded is not only appropriate, but also required by the Clean Air Act. This commenter states that the actual performance of sources that have upgraded their emissions equipment—to meet the 1999 standards or for any reason—is reflected only by the most recently generated emissions data for the source. Thus, the Clean Air Act requires EPA to use the most recently generated data available to it and precludes the Agency from using older, out-of-date performance data.

EPA also received several comments stating that the language of section 112(d)(3)(A) of the Clean Air Act informs how the Agency should consider emissions data from sources that conducted testing after that 1999 rule was promulgated. One commenter states that the only data which should not be used in calculating the MACT floors are from sources that are subject to lowest achievable emission rates (LAER). Thus, the commenter states, Congress considered the possibility of significant and recent upgrades, and concluded that EPA should use up-to-date data to reflect source's performance, but must exclude certain sources from the floor calculation if their upgrades were of a specific degree and were accomplished within a specific period of time. Another commenter states that Congress did not intend to pile technology upon technology as confirmed by section 112(d)(3)(A) that specifically excludes sources that implemented LAER from consideration when establishing section 112(d) standards. Thus, the commenter states, considering data from sources that have upgraded violates both the language and intent of the Clean Air Act. Another commenter states that, while Congress no doubt contemplated that EPA should use all available emissions information in setting initial MACT standards, neither the statute nor the legislative history suggest that follow-up MACT rulemakings require the use of data reflecting compliance efforts with previous MACT standards or interim standards.

Response: As proposed, EPA maintains its position on use of post-1999 emissions data. The statute indicates that EPA is to base MACT floors on performance of sources ''for which the Administrator has emissions information.'' Section 112(d)(3)(A); *CKRC*, 255 F. 3d at 867. There can be no dispute that post-1999 performance data in EPA's possession fits this description. We also reiterate that the motivation for the control reflected in data available to us is irrelevant. See 69 FR at 21217–218. We further agree with those commenters who pointed out that Congress was explicit when it wanted certain emissions information (i.e., sources operating pursuant to a LAER standard) excluded from consideration in establishing floors. There is, of course, no such enumerated exception for sources that have upgraded their performance for other reasons.

We also do not agree with those commenters arguing (with respect to the standards for the Phase 1 sources (incinerators, cement kilns, and lightweight aggregate kilns)) in effect that the present rulemaking involves revision of an existing MACT standard. If this were indeed a revision of a MACT standard under section 112(d)(6), then EPA would not redetermine floor levels. See 70 FR at 20008 (April 15, 2005). However, EPA has not to date promulgated valid MACT floors or valid MACT standards for these sources. The 1999 standards do not reflect MACT, as held by the *CKRC* court. The interim standards likewise do not reflect MACT, but were designed to prevent a regulatory gap and were described as such from their inception. 67 FR at 7693 (Feb. 13, 2002); see also *Joint Motion of all Parties for Stay of Issuance of Mandate* in case no. 99–1457 (October 19, 2001), pp. 11–12 (''The Parties emphasize that the contemplated interim rule is in the nature of a remedy. It would not respond to the Court's mandate regarding the need to demonstrate that EPA's methodology reasonably predicts the performance of the average of the best performing twelve percent of sources (or best-performing source). EPA intends to address those issues in a subsequent rule, which will necessarily require a longer time to develop, propose, and finalize.'') EPA consequently believes that it is adopting in this rule the initial section 112(d) MACT standards for hazardous waste burning incinerators, cement kilns, and lightweight aggregate kilns, and that the floor levels for existing sources are based, as provided in section 112(d)(3), on performance of those sources for which EPA has ''emissions information.''

However, we disagree with the comment that we must make exclusive use of the most recent information from hazardous waste combustion sources. There is no such restriction in section 112(d)(3). EPA has exhaustively examined all of the data in its possession for all source categories covered by this rule, and determined (and documented) which data are suitable for evaluating sources' performance.

C. Correction of Total Chlorine Data to Address Potential Bias in Stack Measurement Method

Comment: Several commenters state that EPA's proposed total chlorine standards of 1.5 ppm for existing incinerators and 0.18 ppm for new incinerators are based on biased data of indeterminate quality and are unachievable. Commenters assert that Method 26A and its RCRA equivalent, SW 846 Method 0050, have a negative bias at concentrations below 20 ppmv when used on stacks controlled with wet scrubbers. Commenters cite two recurring situations when this bias is likely to occur: (1) hydrogen chloride dissolving in condensed moisture in the sampling train; and (2) hydrogen chloride reacting with alkaline compounds from the scrubber water that are collected on the filter ahead of the impingers.

Commenters are particularly concerned about the negative bias associated with stack gas containing substantial water vapor. Commenters note that EPA found in a controlled laboratory study by Steger[33] that the bias is between 17 and 29 percent at stack gas moisture content of 7 to 9 percent. This stack gas moisture is much less than the nominal 50% moisture contained in some hazardous waste combustor stacks according to the commenters. Commenters believe this is why EPA's Method 0050, which was used to gather most of the data in the HWC MACT data base, states in Section 1.2 that ''this method is not acceptable for demonstrating compliance with HCl emission standards less than 20 ppm.''

Moreover, commenters state that the procedures in Method 0050 to address the negative bias caused by condensed moisture were not followed for many RCRA compliance tests. The method uses an optional cyclone to collect moisture droplets, and requires a 45 minute purge of the cyclone and sampling train to recover hydrogen chloride from water collected by the cyclone and any condensed moisture in the train. The cyclone is not necessary if the stack gas does not contain water droplets. According to commenters, the cyclone and subsequent purge were often not used in the presence of water droplets because a potential low bias below 20 ppmv was irrelevant when demonstrating compliance with emission standards on the order of 100 ppmv. There was no need for the extra complexity and expense of using a cyclone and train purge given the purpose of the test. Although the data were acceptable for their intended purpose, commenters conclude that the data are not useful for establishing standards below 20 ppmv.

For these reasons, commenters suggest that EPA not consider total chlorine measurements below 20 ppmv when establishing the standards.

Response: For the reasons discussed below, we corrected all total chlorine measurements in our data base for all source categories that were below 20 ppmv to 20 ppmv to establish the total chlorine floors. Moreover, to address run-to-run variability given that all runs for several data sets are now corrected to 20 ppmv, we impute a run standard deviation based on a regression analysis of run standard deviation versus total chlorine concentration for sources with total chlorine measurements greater than 20 ppmv. This is the same approach we used to impute variability from sources using fabric filters when determining the particulate matter MACT floors.

Effect of Moisture Vapor. Commenters imply that stack gas with high levels of gas phase water vapor will inherently be problematic, particularly at emissions less than 20 ppmv. There is no basis for claiming that water vapor, per se, causes a bias in SW–846 Method 0050 or its equivalent, Method 26A. Condensed moisture (i.e., water droplets), however, can cause a bias because it can dissolve hydrogen chloride in the sampling train and prevent it from being captured in the impingers if the sampling train is not properly purged. Water droplets can potentially be present due to entrainment from the wet scrubber, condensation in cooler regions of the stack along the stack walls, and entrainment from condensed moisture dripping down the stack wall across the inlet duct opening.

Although Method 0050 addresses the water droplet issue by use of a cyclone and 45 minute purge, the Steger paper (Ibid.) concludes that a 45 minute purge is not adequate to evaporate all water collected by the cyclone in stacks with a total moisture content (vapor and condensed moisture) of 7 to 9%. At those moisture levels, Steger documented the negative bias that commenters reference. Steger's recommendation was to increase the heat input to the sample train by increasing the train and filter temperature from 120C (248F) to 200C (392F). We agree that increasing the probe and filter temperature will provide a better opportunity to evaporate any condensed moisture, but another solution to the problem is to require that the post-test purge be run long enough to evaporate all condensed moisture. That is the approach used by Method 26A, which EPA promulgated after Method 0050, and which sources must use to demonstrate compliance with the final standards. Method 26A uses an extended purge time rather than

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[33] Steger, J.L., et al, ''Laboratory Evaluation of Method 0050 for Hydrogen Chloride'', Proc of 13th Annual Incineration Conference, Houston, TX, May 1994.

elevating the train temperature to address condensed moisture because that approach can be implemented by the stack tester at the site without using nonstandard equipment.

We attempted to quantify the level of condensed moisture in the Steger study and to compare it to the levels of condensed moisture that may be present in hazardous waste combustor stack gas. This would provide an indication if the bias that Steger quantified with a 45 minute purge might also be applicable to some hazardous waste combustors. We conclude that this comparison would be problematic, however, because: (1) given the limited information available in the Steger paper, it is difficult to quantify the level of condensed moisture in his gas samples; and (2) we cannot estimate the levels of condensed moisture in hazardous waste combustor stack gas because, even though condensed moisture may have been present during a test, method protocol is to report the saturation moisture level only (i.e., the amount of water vapor present), and not the total moisture content (i.e., both condensed and vapor phase moisture).

We can conclude, however, that, if hazardous waste combustor stack gas were to contain the levels of condensed moisture present in the gas that Steger tested, the 45 minute purge required by Method 0050 would not be sufficient to avoid a negative bias. We also conclude that this is potentially a practical issue and not merely a theoretical concern because, as commenters note, hazardous waste combustors that use wet scrubbers are often saturated with water vapor that will condense if the flue gas cools.

Data from Wet Stacks When a Cyclone Was Not Used. Commenters state that Method 0050 procedures for addressing water droplets (adequate or not, as discussed above) were not followed in many cases because a low bias below 20 ppmv was not relevant to demonstrating compliance with standards on the order of 100 ppmv. We do not know which data sets may be problematic because, as previously stated, the moisture concentration reported was often the saturation (vapor phase only) moisture level and not the total (vapor and liquid) moisture in the flue gas. We also have no documentation that a cyclone was used—even in situations where the moisture content was documented to be above the dew point. We therefore conclude that all data below 20 ppmv from sources controlled with a wet scrubber are suspect and should be corrected.

Potential Bias Due to Filter Affinity for Hydrogen Chloride. Studies by the American Society of Testing and Materials indicate that the filter used in the Method 0050 train (and the M26/26A trains) may adsorb/absorb hydrogen chloride and cause a negative bias at low emission levels. (See ASTM D6735–01, section 11.1.3 and ''note 2'' of section 14.2.3) This inherent affinity for hydrogen chloride can be satisfied by preconditioning the sampling train for one hour. None of the tests in our database were preconditioned in such a manner.

We are normally not concerned about this type of bias because we would expect the bias to apply to all sources equally (e.g., wet or dry gas) and for all subsequent compliance tests. In other words, we are ordinarily less concerned if a standard is based on biased data, as long as the means by which the standard was developed and the means of compliance would experience identical bias.

However, we did correct the wet gas measurements below 20 ppmv to address the potential low bias caused by condensed moisture. This correction would also correct for any potential bias caused by the filter's inherent affinity for hydrogen chloride. This results in a data set that is partially corrected for this issue—sources with wet stacks would be corrected for this potential bias while sources with dry stacks would not be corrected. To address this unacceptable mix of potentially biased and unbiased data (i.e., dry gas data biased due to affinity of filter for hydrogen chloride and wet gas data corrected for condensed moisture and affinity of filter for hydrogen chloride), we also correct total chlorine measurements from dry gas stacks (i.e., sources that do not use wet scrubbers).

Deposition of Alkaline Particulate on the Filter. Commenters are also concerned that hydrogen chloride may react with alkaline compounds from the scrubber water droplets that are collected on the filter ahead of the impingers. Commenters suggest this potential cause for a low bias at total chlorine levels below 20 ppmv is another reason not to use measurements below 20 ppmv to establish the standards.

Although alkaline particulate deposition on the method filter causing a negative bias is a much greater concern for sources that have stack gas containing high levels of alkaline particulate (e.g., cement kilns, sources equipped with dry scrubbers), we agree with commenters that this may be of concern for all sources equipped with wet scrubbers. Our approach to correct all data below 20 ppmv addresses this concern.

Decision Unique to Hazardous Waste Combustors. We note that the rationale for our decision to correct total chlorine data below 20 ppmv to account for the biases discussed above is unique to the hazardous waste combustor MACT rule. Some sources apparently did not follow Method 0050 procedures to minimize the low bias caused by condensed moisture for understandable reasons. Even if sources had followed Method 0050 procedures to minimize the bias (i.e., cyclone and 45 minute purge) there still may have been a substantial bias because of insufficient purge time, as Steger's work may indicate. We note that the total chlorine stack test method used by sources other than hazardous waste combustors—Method 26A—requires that the cyclone and sampling train be purged until all condensed moisture is evaporated. We believe it is necessary to correct our data below 20 ppmv data because of issues associated exclusively with Method 0050 and how it was used to demonstrate compliance with these sources.

Determining Variability for Data at 20 ppmv. Correcting those total chlorine data below 20 ppmv to 20 ppmv brings about a situation identical to the one we confronted with nondetect data. See Part Four, Section V.B. below. The MACT pool of best performing source(s) for some data sets is now comprised of largely the same values. This has the effect of understating the variability associated with these data.

To address this concern, we took an approach similar to the one we used to determine variability of PM emissions for sources equipped with a fabric filter. In that case, we performed a linear regression on the data, charting variability against emissions, and used the variability that resulted from the linear regression analysis as the variability for the sources average emissions. In this case, most or all of the incinerator and liquid fuel boiler sources in the MACT pool have average emissions at or near 20 ppmv. We therefore performed a linear regression on the total chlorine data charting average test condition results above 20 ppmv against the variability associated with that test condition. The variability associated with 20 ppmv was the variability we used for incinerator and liquid fuel boiler data sets affected by the 20 ppmv correction.

We also considered using the statistical imputation approach we used for nondetect values. See discussion in Section IV.B below. The statistical imputation approach for correcting data below 20 ppmv without dampening variability would involve imputing a value between the reported value and 20 ppmv because the ''true'' value of the biased data would lie in this interval. This approach would be problematic, however, given that many of the reported values were much lower than 20 ppmv; our statistical imputation approach would tend to overestimate the run to run variability. Consequently, we conclude that a regression analysis approach is more appropriate. A regression analysis is particularly pertinent in this situation because: (1) We consider data above 20 ppmv used to develop the regression to be unbiased; and (2) all the corrected data averages for which we are imputing a standard deviation from the regression curve are at or near 20 ppmv. Thus, any potential concern about downward extrapolation from the regression would be minimized.

We note that, although a regression analysis is appropriate to estimate run-to-run variability for the corrected total chlorine data, we could not use a linear regression analysis to address variability of nondetect values. To estimate a standard deviation from a regression analysis, we would need to know the test condition average emissions. This would not be feasible, however, because some or all of the run measurements for a test condition are nondetect. In addition, we are concerned that a regression analysis would not accurately estimate the standard deviation at low emission levels because we would have to extrapolate the regression downward to levels where we have few measured data (i.e., data other than nondetect). Moreover, the statistical imputation approach is more suitable for handling nondetects because the approach calculates the run-to-run variability by taking into account the percent nondetect for the emissions for each run.[34] A regression approach would be difficult to apply particularly in the case of test conditions containing partial nondetects or a mix of detect and nondetect values. Given these concerns with using a regression analysis to estimate the standard deviation of test conditions with runs that have one or more nondetect (or partial nondetect) measurements, we conclude that the statistical imputation approach best assures that the calculated floor levels account for run-to-run emissions variability.

Compliance with the Standards. The final standards are based on data that were corrected to address specific issues concerning these data. See the above discussion regarding stack gas moisture, filter affinity for hydrogen chloride, and alkaline compound reactions with hydrogen chloride in the sampling train.

Sources must demonstrate compliance using a stack test method that also addresses these issues. Sources with wet stacks must use Method 26A and follow those procedures regarding the use of a cyclone and the purging of the system whenever condensed moisture may be present in the sampling system.

Finally, all sources—those with either wet or dry gas—should precondition the sampling train for one hour prior to beginning the test to satisfy the filter's affinity for hydrogen chloride. The permitting authority will ensure that sources precondition the sample train (under authority of § 63.1209(g)(2)) when they review and approve the performance test plan.

D. Mercury Data for Cement Kilns

Comment: Several commenters state that EPA's data base of mercury emissions data (and associated feed concentrations of mercury in the hazardous waste) are unrepresentative and unsuitable for use in determining MACT standards for cement kilns. These comments are supported by an extensive amount of data submitted by the cement manufacturing industry including three years of data documenting day-to-day levels of mercury in hazardous waste fuels fired to all 14 hazardous waste burning cement kilns.[35] The commenters recommend that EPA use the commenter-submitted data as the basis for assessing cement kilns' performance for control of mercury because it is the most complete and representative data available to EPA.

Response: We agree that the commenter-submitted mercury data are more representative than those we used at proposal. First, these data represent a significantly larger and more comprehensive dataset compared to the one used to support the proposed mercury standard. The commenter-submitted data document the day-to-day levels of mercury in hazardous waste fired to all cement kilns for a three year period covering 1999 to 2001. In total, approximately 20,000 measurements of the concentration of mercury in hazardous waste are included in the dataset. When considered in whole, these data describe the performance (and variability thereof) of all cement kilns for the three year period because each measurement represents the mercury concentration in the burn tank used to fire the kiln over the course of a day's operation (or longer period).[36] In comparison, the data used to support the proposed floor level consisted of a much smaller dataset of approximately 50 test conditions representing a snapshot of performance somewhere in the range of normal operations, with each test condition representing a relatively short period of time (e.g., several hours).[37] As discussed at proposal, we were concerned regarding the representativeness of this smaller dataset. See 69 FR at 21251. In addition, the commenter-submitted dataset allows us to better evaluate the only mercury control technique used by existing hazardous waste burning cement kilns—controlling the feed concentration of mercury in the hazardous waste. The commenters have demonstrated convincingly that the mercury dataset used at proposal does not properly show the range of performance and variability in performance these cement kilns actually experience, while the significantly more robust dataset submitted by commenters does illustrate this variability. Thus, we conclude the larger commenter-submitted dataset is superior to EPA's smaller testing dataset.

We note that our MACT floor analysis of the commenter-submitted dataset to determine which sources are the best performers and to identify a mercury standard for cement kilns is discussed in the background document.[38] Additional discussion of issues related to the mercury standard for cement kilns is found in Part Four, Section VI.B of the preamble.

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[34] For multi-constituent HAP (e.g. SVM) the emissions for a run could be comprised of fully detected values for some HAP and detection limits for other HAP that were nondetect.

[35] See docket item OAR–2004–0022–0049.

[36] Mercury is a volatile compound at the typical operating temperatures of the air pollution control devices used by cement kilns (i.e., baghouses and electrostatic precipitators). Most of the mercury exits the cement kiln system as volatile stack emissions, with a smaller fraction partitioning to the clinker product or cement kiln dust. Thus, in general, there is a proportional relationship between the mercury concentration in the hazardous waste and stack emissions of mercury (i.e., as the mercury concentration in hazardous waste increases (assuming mercury concentrations in other inputs such as raw materials and fossil fuels (coal) and other factors remain constant), emissions of mercury will correspondingly increase).

[37] EPA's dataset for mercury for cement kilns is not like the RCRA compliance test emission data for other HAPs where each source designs the compliance test such that the operating limits it establishes account for the variability it expects to encounter during its normal operations (e.g., semi- and low volatile metals). This is not necessarily true for mercury for cement kilns as shown in our analysis of our mercury dataset at proposal. See 69 FR at 21251.

[38] USEPA, ''Technical Support Document for HWC MACT Standards, Volume III: Selection of MACT Standards,'' Sections 7.5.3 and 11.0, September 2005.

E. Mercury Data for Lightweight Aggregate Kilns

Comment: One commenter, an owner and operator of seven of the nine operating lightweight aggregate kilns, states that the mercury dataset used by EPA at proposal is a limited and unrepresentative snapshot of performance of their seven kilns. To support their position that the snapshot emissions data are unrepresentative, the commenter submitted eight months of data documenting levels of mercury in hazardous waste fuels fired to their lightweight aggregate kilns.[39]

Response: We agree with the commenter that their mercury data submission is more representative than those used at proposal. As discussed in a notice for public comment sent directly to certain commenters,[40] the commenter-submitted dataset documents the day-to-day levels of mercury in hazardous waste fuels fired to Solite Corporation's Arvonia kilns between October 2003 and June 2004. The dataset consists of over 310 measurements of the concentration in mercury in hazardous waste. Each measurement represents the mercury concentration of the burn tank used to fire the kiln over the course of a day's operation (or longer period). In comparison, the data used to support the proposed floor level consisted of a smaller dataset of 15 test conditions.

The nature of the mercury data submitted by the commenter is the same as we received for the cement kiln category discussed in the preceding section. For similar reasons, we accept the more comprehensive commenter-submitted dataset as one that better shows the range of performance and variability in performance for these lightweight aggregate kilns. One notable difference, however, is that the commenter submitted mercury data only for its company (representing seven of nine lightweight aggregate kilns). Thus, we received no data documenting day-to-day levels of the concentration of mercury in hazardous waste fuels for the other two lightweight aggregate kilns owned by a different company. For these two lightweight aggregate kilns, we continue to use available data available in our database.[41]

Comment: One commenter opposes the use of the commenter-submitted mercury data because EPA would be uncritically accepting a limited and select data set from a commenter with a direct interest in the outcome of its use. Instead, the commenter suggests EPA use its section 114 authority to obtain all data that are available, not just the data selected by that commenter.

Response: We disagree that we uncritically accepted the commenter-submitted mercury data. The reason the commenter submitted data collected between October 2003 and June 2004 is that the facility was, prior to October 2003, in the process of upgrading its on-site analysis equipment. One outcome of this laboratory upgrade was its capability to detect mercury in hazardous waste at lower concentrations. Prior to the upgrade, the facility's on-site laboratory was capable of detecting mercury in the hazardous waste at a concentration of approximately 2 ppmw, which is a level such that the vast majority of measurements would neither be detected nor useful for identifying best performers and their level of performance.[42] The June 4, 2004 cutoff date represents a practicable date that measurements could still be incorporated into the commenter's public comments to the proposed rule, which were submitted on July 6, 2004. Finally, the commenter provided all waste fuel measurements during this period and states reliably that no measurements made during this period were selectively excluded.[43]

We also reject the commenter's suggestion that we use our authority under section 114 of the Clean Air Act to obtain additional hazardous waste mercury concentration data from the facility. There is no obligation for us to gather more performance data, given that the statute indicates that we are to base floor levels on performance of sources ''for which the Administrator has emissions information.'' Section 112(d)(3)(A); *CKRC*, 255 F. 3d at 867. In addition, given our concerns about the usefulness of measurements with high detection limits discussed above, the collection of additional data prior to the laboratory upgrade would not be productive. When balanced against the expenditure of significant resources, both in time and level of effort, to collect several more months of data, we conclude that obtaining additional mercury measurements is unnecessary because the available eight months of data—including over 310 individual measurements—represent a significant amount of data that we judge to be adequately reflective of the source's performance and variability in performance.

F. Incinerator Database

Comment: Commenters state that many of the top performers (e.g., 3011, 3015, 3022, 349) dilute emission concentrations in the stack by burning natural gas to initiate reactive waste (e.g., explosives, inorganic hydrides) or to decontaminate inert material. Commenters do not believe these units should be considered ''representative'' of the overall incinerator source category and should not be used to establish standards for incinerators combusting primarily organic wastes.

Response: Source 3022 has closed and has been removed from the database. Emission data from source #3015 (ICI explosives) has been excluded for purposes of calculating the particulate matter floor because the test report indicates this source was primarily feeding scrap metal, which we conclude to be an atypical waste stream from a particulate matter compliance perspective.[44]

The sources identified by the commenter are among the best performing sources in two instances. Source 3011 is the second ranked best performer for the particulate matter standard. This source is among the best performers for particulate matter because it uses a state-of-the art baghouse that is equipped with Teflon coated bags. There is no evidence to suggest that this source was diluting its particulate matter emissions. We acknowledge that we do not have ash feed data for the test conditions that were used in the particulate matter standard analysis. However, this source had the third and fourth highest metal feed control levels among all the sources used in the MACT analysis for the semivolatile and low volatile metal

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[39] See docket items OAR–2004–0022–0270 and OAR–2004–0022–0333.

[40] See docket item OAR–2004–0022–0370.

[41] Unlike that is available for the commenter's kilns, we note that we have compliance test emissions data, which is designed to maximize operating parameters (e.g., HAP feedrates) that affect emissions, for the other two kilns. For additional discussion on how these data were analyzed in conjunction with the commenter-submitted data, see the document ''Technical Support Document for HWC MACT Standards, Volume III: Selection of MACT Standards,'' Section 7.5.3 and 12.0, September 2005.

[42] A mercury concentration of 2 ppmw in the hazardous waste corresponds to a stack concentration of approximately 200 μg/dscm, which is well above the interim standard of 120 μg/dscm for mercury.

[43] See also docket items OAR–2004–0022–0233 and OAR–2004–0022–0367.

[44] We did not have ash feed data for source 3015. We acknowledge that ash feed control levels do not significantly affect particulate matter emissions from sources equipped with baghouses. However, in this instance, the particulate matter emissions from this source may not be representative because this source may not have been feeding any appreciable levels of ash given that scrap metal feeds generally would not contribute to the ash loading into the baghouse.

standards.[45] We therefore conclude that it is appropriate to include this source in the MACT analysis that determines the relevant best performers for particulate matter.

Source 349 is the eighth ranked (out of 11) best performer for the particulate matter standard. We acknowledge that the ash feed level for this source is lower than most incinerators equipped with baghouses. However, particulate matter emissions from sources equipped with baghouses are not significantly affected by the ash inlet loading to the baghouse.[46] This is further supported by the fact that this source is ranked eighth among the best performers. We conclude source 349 is a best performer not because of its relatively low ash feed level, but rather because it is equipped with a well designed and operated baghouse. It is therefore appropriate to include this source in the MACT analysis.

Comment: Commenters state that source 341 should not be considered in the MACT analysis because it is a small laboratory waste burner that processes only 900 lbs/hr of waste. Commenters claim that more than 80 percent of the waste profile is non-hazardous waste.

Response: We approached this comment by asking if it would be appropriate to create a separate subcategory for source 341. We conclude it is not necessary to subcategorize hazardous waste incinerators based on the size of combustion units. This is because the ranking factors used to identify the relevant best performing sources are normalized in order to remove the influence that combustion unit size would otherwise have when identifying best performing sources. See part 4 section III.D below. Air pollution control system types (a ranking factor for particulate matter) are generally sized to match the corresponding volumetric gas flow rate in order to achieve a given control efficiency. The size of the combustor therefore does not influence a source's ability to achieve a given control efficiency. System removal efficiency and hazardous waste feed control MTECs (ranking factors used by the SRE/Feed methodology as described in part 4 section III.B below) are also not influenced by the size of the combustor.[47]

Emission limitations are similarly normalized to remove the influence of combustion unit size by expressing the standards as emission concentration limits rather than as mass emission rate limits. See section III.D. This is illustrated in the following example. Assume there are two cement kilns side by side with similar designs, the only difference being one is twice the size of the other, producing twice as much clinker. They both have identical types of air pollution control systems (the larger source is equipped with a larger control device that is appropriately sized to accommodate the larger volumetric gas flow rates and achieves the same control efficiency as the smaller control device). If we were to assess performance based on HAP mass emission rates (e.g., pounds per hour), the smaller source would be the better performer because its mass emission rates would be half of the mass emission rate of the larger source, even though they both are achieving the same back-end control efficiency. Emission concentrations, on the other hand, are calculated by dividing the HAP mass emission rate (e.g., pounds per hour) by the volumetric gas flowrate (e.g., cubic feet per hour). In the above example, both sources would have identical HAP emission concentrations (the larger source has twice the mass emission rate, but twice the volumetric gas flow rate), accurately reflecting their identical control efficiency. Emission concentrations normalize the size of each source by accounting for volumetric gas flowate, which is directly tied to the amount of raw material each source processes (and subsequently the amount of product that is produced). This is a reason we point out that normalization eliminates the need to create subcategories based on unit size. See part four section III.D.

Further, it would be difficult to determine an appropriate minimum size cutoff in which to base such a subcategorization determination. Such a subcategorization scheme could also yield nonsensical floor results, as was the case when we assessed subcategorizing commercial incinerators and on-site incinerators.[48]

We have identified source 341 as the best performing source for particulate matter and low volatile metals. It is the single best performing source for these standards because it is equipped with a state-of-the-art baghouse.[49] This source, which simultaneously feeds hazardous and nonhazardous wastes, conducted several emission tests that reflected different modes of operation. The amount of nonhazardous waste that was processed in the combustion unit varied across test conditions. We could not ascertain the exact amount of hazardous waste processed in the test condition that was used in the MACT analysis for low volatile metals because the test report stated the wastes that were processed were a mixture of hazardous and nonhazardous wastes, although we estimate that at least 26% of the waste processed was nonhazardous.[50] We note that we are aware of several other incinerators that processed nonhazardous waste at levels greater than 26 percent during their emission tests. We therefore do not believe this to be atypical operation that warrants subcategoriztion.

Moreover, the fact that this source was feeding nonhazardous wastes does not result in atypically low hazardous waste low volatile metal feed control levels, as evidenced by the relative feed control ranking for this source of thirteenth among the 26 sources assessed in the MACT analysis. It also has the highest normalized hazardous waste feed control level among the best performing sources, and has the fifth best low volatile metal system removal efficiency among those same 26 sources. We repeat that this source is being identified as the best performing source primarily because it is equipped with a highly efficient baghouse, not because it is feeding low levels of HAP metals attributable to its hazardous waste.

Furthermore, this source is not the lowest emitting source in the database. There are two sources with similar, but slightly lower low volatile metal compliance test emissions (one commercial incinerator and one onsite, non-commercial incinerator). This provides further evidence that the

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[45] We note that feed control levels are normalized based on each source's gas flowrate. The feed control levels used to assess performance are therefore appropriate indicators that directly address whether emissions of these pollutants are in fact being diluted by the combustion of natural gas.

[46] See USEPA, ''Technical Support Document for the HWC MACT Standards, Vol I: Description of Source Categories,'' September 2005, Section 3.2.2, for further discussion.

[47] System removal efficiency is a measure of the amount of the pollutant that is removed from the flue combustion gas prior to being emitted and likewise is not influenced by the size of the combustor because back-end control systems are sized to achieve a given performance level. Hazardous waste feed control levels are normalized to remove the influence of combustor size by dividing each source's mass feed rate by its volumetric gas flowrate.

[48] See USEPA, ''Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards'', September 2005, Section 4.3.2 for further discussion.

[49] See USEPA, ''Final Technical Support Document for the HWC MACT Standards, Volume I: Description of Source Categories'', September 2005, Section 3.2.1, for further discussion.

[50] See USEPA, ''Final Technical Support Document for the HWC MACT Standards, Volume I: Description of Source Categories'', September 2005, Section 2.1 for further discussion.

emissions from this source appropriately represent emissions of a relevant best performing source.

Regarding the particulate matter standard, source 341 does not have atypically low ash feed rates as compared to other sources equipped with baghouses. Out of the nine best performing particulate matter sources for which we have ash feed information, this source ranks fourth (a ranking of one is indicative of the lowest ash feed rate). Nonetheless, as previously discussed, particulate matter emissions from sources equipped with baghouses are not significantly affected by the ash inlet loading to the baghouse. We note that particulate matter emissions from the second and third best performing source are not significantly different from this source, providing further evidence that this source is representative of the range of emissions exhibited by other well designed and operating incinerators equipped with baghouses.[51]

Comment: Commenters state that sources 3018 and 3019 are identified as best performers for mercury emissions for incinerators. After evaluating the trial burn plans for these sources, the commenter believes the data should not be used to calculate the MACT floor because the spiking rate for mercury was extremely low for a compliance test. The ranking for feedrate is therefore unrepresentative. The commenter suggests that these test results should be characterized as ''normal''.

Response: We have verified that the emission tests performed for sources 3018 and 3019 reflect the upper range of mercury emissions that are not to be exceeded by these sources, and that their spiked mercury feed rates were back-calculated from a risk assessment. We therefore conclude that we properly characterized these emissions as compliance test emissions data because they reflect the emissions resulting from the upper bound of hazardous waste mercury feedrates from these sources.[52] Consequently, these data are properly included with the other data used to calculate floor standards for mercury for incinerators.

Comment: Commenters state the trial burn plan for sources 3018 and 3019 describes these units to be of similar design. Thus the difference in results between these two similar sources is indicative of additional variability above and beyond the run-to-run variability and should be assessed if the data are deemed usable at all.

Response: We conclude both of these sources are in fact unique sources that should be assessed as individual sources for purposes of the MACT analysis. Although these sources are of similar design, we do not believe they are identical, in part because: (1) The facility itself conducted separate emission tests for the two units (rather than trying to avail itself of the 'data in lieu' option, which could save it the expense of a second compliance test, the obvious inference being that the source or regulatory official regards the two units as different); and (2) discussions with facility representatives indicated these units are similar, but not identical.[53] As a result, it would be inappropriate to assess emissions variability by combining the emissions of these two sources into one test condition given they are not identical units.

Comment: Commenters state that emissions data from source 327 should not be used to calculate dioxin/furan and mercury floors because they claim the carbon injection system did not appear to function properly during the test.

Response: We agree with the commenters. We have determined that this source encountered problems with its carbon injection system during the emissions test from which the data were obtained and subsequently used in EPA's proposed MACT analysis. We have also verified that this source did not establish operating parameter limits for the carbon injection system as a result of this test.[54] We therefore have excluded this mercury and dioxin data from the MACT analysis, and have instead used emissions data from an older test condition to represent this source's emissions.

Comment: Commenters state that the emissions data from source 3006 were based on a miniburn to determine how close the unit was to achieving the interim MACT standards. The commenter questions whether these data should be used for purposes of calculating MACT standards.

Response: The fact that a source conducts a voluntary emissions test (e.g., a miniburn) to determine how close it is operating to upcoming emission standards does not necessarily lead us to conclude that the emission data are inappropriate for purposes of calculating MACT standards. However, since proposal, we have determined that this source did not measure cadmium emissions during this emissions test. As a result, we conclude the semivolatile metal emissions data from this source should not be used in the MACT standard calculation for semivolatile metals because the data do not represent the source's combined emissions of lead and cadmium.

II. Affected Sources

A. Area Source Boilers and Hydrochloric Acid Production Furnaces

Comment: Five commenters state that the area sources subject to the proposed rule are negligible contributors to 112(c)(6) HAP emissions and should not be subject to major source standards for 112(c)(6) HAP. Commenters note that requiring compliance with MACT for 112(c)(6) HAP and RCRA for other toxic pollutants is more complicated and burdensome for sources than complying only with RCRA. Although an area source can choose to become regulated as a major source in order to reduce some RCRA requirements, they would become subject to more onerous emissions limits under Subpart EEE and the other MACT requirements.

One of these commenters states that subjecting an area source to major source standards under 112(c)(6) sends a negative message to industry that EPA does not value emissions reduction and/or chemical substitution, or other methods used by area sources to achieve that status. EPA is no longer providing any incentive for sources to take such difficult yet environmentally beneficial steps to become an area source. Imposing Title V permitting requirements on an entire facility that operates as an area source of hazardous air pollutants (HAPs) will impose an unfair and undue burden on the facility.

Another of these commenters states that section 112(c)(6) requires in pertinent part that EPA list categories and subcategories of sources assuring that sources accounting for not less than 90% of the aggregate emissions of each pollutant (specified in 112(c)(6)) are subject to standards under Section 112(d)(2) or (d)(4). In 1998, EPA published a notice identifying the list of source categories accounting for the section 112(c)(6) HAP emissions and to be regulated under section 112(d) to meet the 90% requirement. (63 FR 17838) At the time, EPA acknowledged that MACT standards for a number of the source categories had not yet been promulgated, and stated that when the

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[51] Source 341 particulate matter emissions, after accounting for variability, equated to 0.0015 gr/dscf. The second and third ranked particulate matter sources emissions, considering variability, equated to 0.0018 and 0.0023 gr/dscf, respectively.

[52] See February 11, 2005 memo to docket titled ''October 20 Conference Call with Squibb Manufacturing regarding Source # 3018 and 3019''.

[53] Also see February 11, 2005 memo to docket titled ''October 20 Conference Call with Squibb Manufacturing regarding Source # 3018 and 3019''.

[54] See July 15, 2005 memo to docket titled ''Telephone Conversation with Utah DEQ Regarding 2001 Clean Harbor Emission Test.''

regulations for each of those categories are developed, EPA will analyze the data specific to those sources and determine, under Section 112(d), in what manner requirements will be established. EPA also stated that:

> ''Some area categories may be negligible contributors to the 90% goal, and as such pose unwarranted burdens for subjecting to standards. These trivial source categories will be removed from the listing as they are evaluated since they will not contribute significantly to the 90% goal.'' (63 FR 17841)

The commenter believes the ''two or fewer'' area source boilers identified by EPA in the present rulemaking are ''negligible contributors'' to the 90% goal and therefore, should not be required to adopt the same MACT emission limitations and requirements as major sources of the 112(c)(6) pollutants. The commenter believes EPA's decision to subject area source boilers and hydrochloric acid production furnaces is incorrect, unsupported by the administrative record, and therefore arbitrary and capricious.

One commenter states that, if EPA regulates area sources, it should significantly reduce the administrative burden for area sources by: exempting them from Title V provisions for Subpart EEE requirements; exempting them from compliance with the General Provisions of 63 Subpart A; limiting them to a one-time comprehensive performance test; or limiting other applicable requirements.

Response: We continue to believe that boiler and hydrochloric acid furnace area sources warrant regulation under the major source MACT standards for mercury, dioxin/furan, carbon monoxide/hydrocarbons, and destruction and removal efficiency pursuant to section 112(c)(6).

As discussed at proposal (69 FR at 21212), section 112(c)(6) of the CAA requires EPA to list and promulgate section 112(d)(2) or (d)(4) standards (i.e., standards reflecting MACT) for categories and subcategories of sources emitting seven specific pollutants. Five of those listed pollutants are emitted by boilers and hydrochloric acid production furnaces: mercury, 2,3,7,8-tetrachlorodibenzofuran, 2,3,7,8-tetrachlorodibenzo-p-dioxin, polycyclic organic matter, and polychlorinated biphenyls.

As discussed below, EPA must assure that source categories accounting for not less than 90 percent of the aggregated emissions of each enumerated pollutant are subject to MACT standards (and of course is not prohibited from requiring more than 90 percent of aggregated emissions to be controlled by MACT standards). Congress singled out the pollutants in section 112(c)(6) as being of '''specific concern''' not just because of their toxicity but because of their propensity to cause substantial harm to human health and the environment via indirect exposure pathways (i.e., from the air through other media, such as water, soil, food uptake, etc.). Furthermore, these pollutants have exhibited special potential to bioaccumulate, causing pervasive environmental harm in biota and, ultimately, human health risks.

Section 112(c)(6) of the CAA requires EPA to list categories and subcategories of sources of seven specified pollutants to assure that sources accounting for not less than 90 percent of the aggregate emissions of each such pollutant are subject to standards under CAA section 112(d)(2) or 112(d)(4). In 1998, EPA issued the list of source categories pursuant to section 112(c)(6), and that list is published at 63 Fed. Reg. 17838, 17849, Table 2 (April 10, 1998).

In the 1998 listing, EPA identified the following three subcategories of the HWC source category that emit one or more of the seven section 112(c)(6) pollutants: (1) Hazardous waste incinerators—(emit mercury, dioxin, furans, polycyclic organic matter (POM) and polychlorinated biphenyls (PCBs)); (2) Portland cement manufacture: hazardous waste kilns—(emit mercury, dioxin, furans, and POM); and (3) lightweight aggregate kilns: hazardous waste kilns—(emit dioxin, furans, and mercury). These three subcategories are all subject to today's rule, which is issued pursuant to CAA section 112(d)(2). As explained below, the HWC NESHAP effectively controls emissions of the identified section 112(c)(6) pollutants from the identified subcategories. Accordingly, EPA considers the sources in these three subcategories as being ''subject to standards'' for purposes of section 112(c)(6).

Specifically, with regard to hazardous waste-burning incinerators, cement kilns, and lightweight aggregate kilns, EPA is adopting in this final rule MACT standards for mercury and dioxins/furans. EPA has already adopted MACT standards for control of POM and PCBs emitted by these sources in the 1999 rule, which standards were not reopened or reconsidered in this rulemaking. These standards are the CO/HC standards, which in combination with the Destruction Removal Efficiency (DRE) requirement, assure that these sources operate continuously under good combustion conditions which inhibit formation of POM and PCBs as combustion by-products, or destroy these HAP if they are present in the wastes being combusted.[55] See discussion in Part Four, Sections V.A and V.B of this preamble.

The HWC NESHAP also applies to hazardous waste-burning boilers and hydrochloric acid production furnaces. In particular, for these boilers and furnaces, this rule addresses emissions of dioxin/furan, mercury, POM and PCBs either through specific numeric standards for the identified HAP, or through standards for surrogate pollutants which control emissions of the identified HAP.

We estimate that approximately 620 pounds of mercury are emitted annually in aggregate from hazardous waste burning boilers in the United States.[56] Also, we estimate that hazardous waste burning boilers and hydrochloric acid production furnaces emit in aggregate approximately 2.3 and 0.2 grams TEQ per year of dioxin/furan, respectively. Controlling emissions of these HAP from area sources consequently reduces emissions of these HAP through application of MACT standards. We note that only major source boilers and hydrochloric acid furnaces are subject to the full suite of subpart EEE emission standards.[57] Section 112(c)(3) of the CAA requires us to subject area sources to the full suite of standards applicable to major sources if we find ''a threat of adverse effects to human health or the environment'' that warrants such action. We cannot make this finding for area source boilers and halogen acid production furnaces. 69 FR at 21212. Consequently, as proposed, area sources in these categories would be subject only to the MACT standards for mercury, dioxin/furan, and polycyclic

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[55] Courts have repeatedly upheld EPA's authority under CAA section 112(d) to use a surrogate to regulate hazardous pollutants if it is reasonable to do so. See, e.g., *National Lime*, 233 F. 3d at 637 (holding that EPA properly used particulate matter as a surrogate for HAP metals).

[56] See USEPA ''Technical Support Document for HWC MACT Standards, Volume V: Emission Estimates and Engineering Costs,'' September, 2005, Section 3.

[57] We note that as a practical matter, however, the same MACT standards apply to both major and area source HCl production furnaces. This is because major sources are subject to the following standards: CO/HC, DRE, and total chlorine. Because the CO/HC and DRE standards are surrogates to control dioxin/furan, and the total chlorine standard is a surrogate to control metal HAP, area sources are subject to the same standards that address dioxin/furan, polycyclic organic matter, polychlorinated biphenyls, and mercury. There is an enforcement difference between the requirements, however. For area sources, an exceedance of the total chlorine standard (or failure to ensure that compliance is maintained) relates to control of mercury only while for a major source, the same failure relates to control of mercury, other metal HAP, and HCl and chlorine.

organic matter and polychlorinated biphenyls (through the surrogate standards for carbon monoxide/hydrocarbons and destruction and removal efficiency) to control the HAP enumerated in section 112(c)(6). RCRA standards under Part 266, Subpart H for particulate matter, metals other than mercury, and hydrogen chloride and chlorine gas would continue to apply to these area sources unless an area source elects to comply with the major source standards in lieu of the RCRA standards. See § 266.100(b)(3) and the revisions to §§ 270.22 and 270.66.

Commenters refer to the ''two or fewer'' potential area source boilers we identified at proposal as ''negligible contributors'' and, therefore, conclude that these area sources should not be subject to major source standards for emission of these HAPs. Commenters did not quantify the amount of emissions from area sources, and did not even identify how many area sources are at issue. We do not know how many boilers and hydrochloric acid furnaces are area sources. We apparently underestimated the number given that four companies commented on the proposed rule saying that area sources should not be subject to major source standards for mercury, dioxin/furan, PCBs, and polycyclic organic matter, and one of those companies indicates it operates multiple area sources. Consequently, we continue to believe that area sources in these categories may have the potential to emit more than negligible levels of these HAP.

We also note that the major source standards are tailored to minimize the compliance burden for sources that emit low levels of HAP. Commenters raise concerns about applying the major source standards for HAP enumerated in section 112(c)(6) to liquid fuel boiler area sources. The emission standard compliance burden for liquid fuel boilers that have the potential to emit only low levels of mercury, dioxin/furan, and polycyclic organic matter is minimal. For example, sources that emit low levels of mercury because their feedstreams have low levels of mercury can elect to comply with the mercury emission standard by documenting that the mercury in feedstreams will not exceed the standard assuming zero removal by emission control equipment. We note that 75% of the liquid fuel boilers in our data base, and the two boilers cited by commenters, do not have emission control devices.

The compliance burden for the major source standards for dioxin/furan and for the surrogates to control other polycyclic organic matter—carbon monoxide/hydrocarbons and destruction and removal efficiency (DRE)—should also be minimal for area source liquid fuel boilers. The dioxin/furan standard applicable to the 90% of liquid fuel boilers with wet or no air pollution control equipment is compliance with the carbon monoxide/hydrocarbon standard and the DRE standard. Liquid fuel boilers already comply with these same standards under RCRA. The surrogate standards to control other polycyclic organic matter are also the carbon monoxide/hydrocarbon and DRE standards. Finally, we note that the DRE requirement under Subpart EEE is less burdensome than the DRE requirement under RCRA. Under Subpart EEE, a source needs to conduct a one-time only DRE test, provided that design and operation does not change in a manner than could adversely affect DRE. Under RCRA, the DRE test must be conducted each time the RCRA permit is renewed.

The incremental compliance burden associated with the other Subpart EEE major source requirements, such as the operations and maintenance plan, the startup, shutdown, and malfunction plan, operator training, and the automatic waste feed cutoff system should also be minimal for liquid fuel boilers without an emission control device. In addition, most of the requirements are either identical to or very similar to requirements under RCRA with which these area sources are already complying.[58]

B. Boilers Eligible for the RCRA Low Risk Waste Exemption

Comment: Several commenters state that EPA should exempt those boilers that qualify as Low Risk Waste Exemption (LRWE) burners under the RCRA Boiler and Industrial Furnace Rule at § 266.109 from the MACT particulate matter and destruction and removal efficiency (DRE) standards because EPA has not: (1) Made a demonstration that the data used to provide the exemption to low risk burners under RCRA is no longer valid; or (2) established in the affirmative that regulating these units will provide any benefit to human, health and the environment. Commenters believe that regulating LRWE units under Subpart EEE is unnecessary and inconsistent with RCRA subtitle C and more importantly, appears to be controlling LRWE units for control's sake.

Commenters also state that EPA has not properly addressed the requirements of CAA section 112(n)(7) regarding the inconsistency between the requirements for Low Risk Waste Exempt (LRWE) units under RCRA and those of Subpart EEE. The purported purpose of section 112(n)(7) is to allow EPA to avoid imposing additional emission limitations on a source category subcategory when such limitations would be unnecessary and duplicative.

In addition, commenters state that the costs associated with this MACT are much more than improved feed control or better back-end control. This proposed rule also requires substantial dollar investment in improved data acquisition, computer controls and recordkeeping systems, performance testing, training, development of plans, and other regulatory requirements.

Response: Boilers and hydrochloric acid production furnaces that currently qualify for the RCRA § 266.109 low risk waste exemption are not exempt from Subpart EEE under the final rule.

The Administrator does not have the authority under CAA section 112(d) to exempt sources that comply with RCRA § 266.109. Indeed, there is no necessary connection between the two provisions, since one is technology-based and the other is risk-based. CAA section 112(d)(2) requires the Administrator to establish technology-based emission standards, standards that require the maximum degree of reduction in emissions that is deemed achievable. Although section 112(d)(4) gives the Administrator the authority to establish health-based emission standards in lieu of the MACT standards for pollutants for which a health threshold has been established, we cannot use that authority to develop health-based standards for sources that comply with RCRA § 266.109 because those sources emit HAP for which a health threshold has not been established.

The final rule complies fully with CAA section 112(n)(7) by coordinating applicability of the RCRA and CAA requirements and precluding dual requirements. For example, RCRA requirements that are duplicative of MACT requirements will be removed from the RCRA operating permit when the permitting authority issues a certification of compliance after the source submits a Notification of Compliance.

We also note that the MACT standards are tailored to impose

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[58] RCRA, 40 CFR Part 264 requirements that are similar to MACT requirements include: the general inspection requirements and personnel training requirements of Subpart B; the preparedness and prevention requirements of Subpart C, including design and operation of facility, testing and maintenance of equipment, and access to communications or alarm system; the contingency plan and emergency procedures requirements of Subpart D; and the operating requirements and monitoring and inspection requirements of Subpart O.

minimal burden on sources that have low emissions of HAP. The particulate matter emission standard and associated testing can be waived (similar to the § 266.109 exemption) for boilers that elect to document that emissions of total metal HAP do not exceed the limits provided by § 63.1206(b)(14). Hydrochloric acid production furnaces are not subject to a particulate matter emission standard.

The compliance burden with the destruction and removal efficiency (DRE) standard is also minimal given that it is a one-time test, provided that the source does not change its design or operation in a manner that would adversely affect DRE. In addition, the compliance burden for sources with low levels of metals in their feedstreams is minimal. Sources can document compliance with the metals emission standards by assuming all metals in the feed are emitted (i.e., by assuming zero system removal efficiency). Under this procedure, boilers burning relatively clean wastes are not required to conduct a performance test to document compliance with the metals emission standards.

Further, we note that the MACT standard to control organic HAP emissions other than dioxin/furan is the same as the RCRA standard—demonstrating good combustion conditions by complying with a carbon monoxide standard of 100 ppmv.

Finally, we note that the ancillary requirements under MACT (e.g., personnel training; operating and maintenance plan; startup, shutdown, and malfunction plan) should not pose substantially higher costs than similar requirements under RCRA. See response to comment in Section A above. To the extent that compliance costs increase, we have accounted for those costs in our estimates of the cost of the final rule.[59]

C. Mobile Incinerators

Comment: A mobile incinerator used as a directly-fired thermal desorption unit at a Superfund remediation site should not be an affected source under this rule.

Response: EPA is not determining or changing the applicability of any hazardous waste burning unit under today's rule. A combustion unit that treats hazardous waste and meets the definition of incinerator at 40 CFR 260.10 is an affected source under this rule. 40 CFR part 63 also defines a source as any building, structure, facility, or installation which emits or may emit any air pollutant. A mobile incinerator at a remediation site meets this definition.

Comment: One commenter states that a subcategory with different standards must be created for mobile incinerators, or the standards for incinerators must be calculated using actual emissions data from mobile units.

Response: EPA did not have any emissions data from mobile incinerators in the database for the proposed rule. That data base was developed over many years with ample opportunity for public comment. We developed a data base for incinerators to support the 1996 proposed rule (61 FR 17358) and noticed that data base for public comment on January 7, 1997 (64 FR 52828). We updated that data base in July 2002, and noticed the revised data base for public comment (67 FR 44452). We used that revised data base to support the proposed rule. We did not receive comments providing data for mobile incinerators as a result of either public notice.

One commenter on the proposed rule provided a summary of emissions data from one test at a mobile incinerator. The commenter suggested that the data support its view that its mobile incinerator is unique and that EPA should consider subcategorizing incinerators according to mobile incinerators versus other incinerators. We analyzed these data and conclude that the final standards are readily achievable by this source. Moreover, as explained elsewhere, EPA's approach to assess the need for subcategorization is to apply a statistical test to determine whether the emissions data are statistically different from the remaining group. Given that owners and operators of mobile incinerators have not provided emissions data prior to proposal, and that the commenter provides summarized data for only one mobile incinerator (which also indicate that the source can achieve the emission standards in the final rule); we are not compelled to gather additional information, particularly given our time constraints to promulgate the final rule under a court-ordered deadline.

Comment: In support of subcategorizing mobile incinerators, commenters state that mobile thermal treatment systems are substantially different from hazardous waste incinerators. They are much smaller in size, firing capacity rate, refractory lining, and operating temperatures. Most of them treat contaminated soil, so have very high particulate feedrate loading with high ash content, rapid kiln rotation rate, and counter-current flow design like cement kilns. This results in high particulate matter emissions. They operate only for a short duration at a site (usually less than 6 months), and have no flexibility with regard to their waste feed.

Response: We recognize that there is variability between various sources' with regard to size, capacity, operating temperatures etc., and so we applied a statistical test to assess the need of subcategorization, as has been discussed above. The emissions data provided by the commenter also indicate the source can achieve the final standards. The soil entrained in desorber off-gases of mobile incinerators has a relatively large particle size, and is very easy to capture with conventional particulate control systems (such as a fabric filter) used by the incinerators.

Comment: Since mobile incinerators are relocated from site to site, the new source standard should not apply based on the erection date of the mobile unit.

Response: We are not changing the applicability of a new or reconstructed source designation in this rulemaking. The relocation issue is addressed in the definition of ''construction'' in 40 CFR Section 63.2, which states: ''Construction does not include the removal of all equipment comprising an *affected source* from an existing location and the reinstallation of such equipment at a new location * * *'' (emphasis added). Therefore, the relocation of an existing Subpart EEE affected source, such as a mobile incinerator, would not result in that mobile incinerator becoming a ''new'' source. Keep in mind also that the relocation exemption only applies to affected sources. If a mobile incinerator is relocated from an R&D facility (where the unit is not an affected source per Table 1 to Section 63.1200) to a location where the mobile incinerator would become an affected source, the relocation exemption within the definition of ''construction'' would not apply and the mobile incinerator would be a ''new'' source. Also, with regard to leased sources, the owner/operator of the facility is responsible for all affected sources operating at his/her facility regardless of whether the sources are owned or leased. The owner or operator should obtain from the leasing company all relevant information pertaining to the affected source in order to be able to demonstrate that the affected source is operating in compliance with the appropriate standards.

III. Floor Approaches

In this section we discuss comments addressing methodologies used in this rule for determining MACT floors. We address comments relating both to

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[59] USEPA ''Technical Support Document for HWC MACT Standards, Volume V: Emission Estimates and Engineering Costs,'' September, 2005.

general, overarching issues and to the specific methodologies used in the rule. Our most important point is that the methodologies EPA selected reasonably estimate the performance of the best performing sources by best accounting for these sources' total variability.

A. Variability

1. Authority To Consider Emissions Variability

Comment: Many commenters concur with our approach to account for emissions variability while several commenters believe that our approach does not adequately account for emissions variability. See discussions on separate topics below. One commenter, however, states that use of variability factors (however derived) is inherently unlawful and arbitrary and capricious. The commenter notes that, because floors for existing sources must reflect the ''average'' emission level achieved by the relevant best performing sources, they cannot reflect any worse levels of performance from the best performers. Indeed, the argument is that the Clean Air Act already accounts for variability by requiring EPA to base existing source floors on the average emission level achieved by the best performing sources.

The commenter continues by stating that EPA has added variability factors both to each individual source's performance and to the collective performance of the alleged best performers, in each case purporting to find an emission level that the individual or group would meet ninety-nine times out of 100 future emission tests. Thus, EPA ignores sources' measured performance in favor of the theoretical worst performance that might ever be expected from them. By looking to the best performers' worst performance rather than their average performance, EPA would set weaker floors than the Clean Air Act allows.

In addition, the commenter notes that EPA's approach to account for emissions variability is arbitrary and capricious because EPA never explains why it chose the 99th percentile for its variability adjustments rather than some other percentile.

Finally, the commenter notes that EPA appears to indicate that its variability analysis would either be applied to variation between sources or would affect EPA's statistical analysis of the variation between sources. The commenter states that any attempt by EPA to add a variability factor to adjust for intersource variability is unlawful and arbitrary and capricious.

Response: Our response explains our approach to estimating best performing sources' variability and addresses the following issues: (1) Considering the variability in each source's performance is necessary to identify the best performing sources and their level of performance; (2) EPA reasonably considered variability in ranking sources to identify the best performers and in considering the range of best performing sources' performance over time to identify an emission level that the average of those sources can achieve; (3) considering variability at the 99th percentile level is reasonable; (4) considering intersource variability by pooling run-to-run variability is appropriate; and (5) compliance test conditions do not fully reflect all of best performing sources' performance variability.

a. *Variability Must Be Considered.* Variability in each source's performance must be considered at the outset in identifying the best performing sources. This is simply another way of saying that best performers are those that perform best over time (i.e. day-in, day-out), a reasonable approach. This approach not only reasonably reflects the statutory language, but also furthers the ultimate objective of section 112 which is to reduce risk from exposure to HAP. Since most of the risk from exposure to emissions from this source category is associated with chronic exposure to HAP (see Part 1 section VI above), assessing a source's performance over time by accounting for variability is reasonable and appropriate.

For similar reasons, variability must be considered in ascertaining these sources' level of performance. Floors for existing sources must reflect ''the average emission limitation achieved by the best performing 12 percent'' of sources, and for new sources, must reflect ''the emission control that is achieved in practice by the best controlled source.'' Section 112 (d) (3). EPA construes these requirements as meaning achievable over time, since sources are required to achieve the standards at all times. This interpretation has strong support in the case law. See *Sierra Club* v. *EPA*, 167 F. 3d 658, 665 (D.C. Cir. 1999), stating that ''EPA would be justified in setting the floors at a level that is a reasonable estimate of the performance of the 'best controlled similar unit' under the worst reasonably foreseeable circumstances. It is reasonable to suppose that if an emissions standard is as stringent as 'the emissions control that is achieved in practice' by a particular unit, then that particular unit will not violate the standard. This only results if 'achieved in practice' is interpreted to mean 'achieved under the worst foreseeable circumstances'; see also *National Lime Ass'n* v. *EPA*, 627 F. 2d 416, 431 n. 46 (D.C. Cir. 1980) (where a statute requires that a standard be 'achievable,' it must be achievable under ''the most adverse circumstances which can reasonably be expected to recur'');

The court has further indicated that EPA is to account for variability in assessing sources' performance for purposes of establishing floors, and stated that this assessment may require EPA to make reasonable estimates of performance of best performing sources. *CKRC*, 255 F. 3d at 865–66; *Mossville Environmental Action Now* v. *EPA*, 370 F. 3d 1232, 1242 (D.C. Cir. 2004)(maximum daily variability must be accounted for when establishing MACT floors).[60] Indeed, EPA's error in *CKRC* was not in estimating best performing sources' variability, but in using an unreasonable means of doing so. *CKRC*, 255 F. 3d at 866; *Mossville*, 370 F. 3d at 1241.

Since the emission standards in today's rule must be met at all times, the standards need to account for performance variability that could occur on any single day of these sources' operation (assuming proper design and operation). See *Mossville*, 370 F. 3d at 1242 (upholding MACT floor because it was established at a level that took into account sources' long term performance, not just performance on individual days). Moreover, since EPA's database consists of single data points (because there are no continuous emission monitors for HAPs in stack emissions), EPA must of necessity estimate long-term performance, including daily maximum performance, from this limited set of short term data.

b. *EPA Reasonably Considered Variability in Ranking Sources to Identify the Best Performers and in Considering the Range of Best Performing Sources' Performance Over Time to Identify an Emission Level that the Average of Those Sources Can Achieve.* (1) *Selecting Best Performing Sources.* Each of the floor methodologies used in the rule considers various factors in ranking which sources are the best performing. For each methodology, we therefore consider the quantifiable variability of

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[60] See also *Chemical Manufacturers Ass'n* v. *EPA*, 870 F. 2d 177, 228 (5th Cir. 1989) (''The same plant using the same treatment method to remove the same toxic does not always achieve the same result. Tests conducted one day may show a different concentration of the same toxic than are shown by the same test the next day. This variability may be due to the inherent inaccuracy of analytical testing, (i.e. 'analytical variability,' or to routine fluctuations in a plant's treatment performance.'')

the ranking factors in determining which are the best performing sources. 69 FR at 21230–31. Specifically, we assess run-to-run variability (normally the only type of variability which we can quantify) of the factors used under each methodology to rank best performers. Where SRE/Feed is the ranking methodology, we thus assess run-to-run variability of hazardous waste HAP feedrate and of system removal efficiency. Where ranking is based on sources' emissions (the straight emissions methodology), we assess the run-to-run variability of emission levels. Where we use the air pollution control device methodology for ranking, we assess the run-to-run variability of emissions of the lowest-emitting sources (as we do for straight emissions) using the best air pollution control devices. For hydrochloric acid production furnaces, we assess the run-to-run variability of total chlorine system removal efficiency. *Id.*[61]

To account for run-to-run variability in these ranking factors, we rank sources by the 99th percentile upper prediction limit (UPL99). The UPL99 is an estimate of the value that the source would achieve in 99 of 100 future tests if it could replicate the operating conditions of the compliance test. *Id.* at 21231.

(2). *Assessing the Best Performers' Level of Performance Over Time.* Once we identify the best performing sources, we need to consider their emissions variability to establish a floor level that the average of the best performing sources can achieve day-in, day-out. There are two components of emissions variability that must be considered: run-to-run variability and test-to-test variability. Run-to-run emissions variability encompasses variability in individual runs comprising the compliance tests, and includes uncertainties in correlation of monitoring parameters and emissions, and imprecision of stack test methods and laboratory analyses. See 69 FR at 21232.[62] Test-to-test emissions variability is the variability that exists between multiple compliance tests conducted at different times and includes the variability in control device collection efficiency caused by testing at different points in the maintenance cycle of the emission control device[63], and the variability caused by other uncontrollable factors such as using a different stack testing crew or different analytical laboratory, and by different weather conditions (e.g., ambient moisture and temperature) that may affect measurements.

We are able to quantify run-to-run variability. We do so by applying a 99th percentile *modified* upper prediction limit to the averaged emissions of the best performing sources. *Id.* at 21233 and Technical Support Document Volume III section 7.2. The modified upper prediction limit accounts for run-to-run variability of the best performers by pooling their run variance (i.e., within-test condition variability).[64] See *Chemical Manufacturer's Ass'n* v *EPA*, 870 F. 2d 177, 228 (5th Cir. 1989) (upholding use of a variability factor derived, as here, by pooling the performance variability of the best performing plants). Using this approach, we ensure that the average of the best performing sources will be able to achieve the floor in 99 of 100 future performance tests, assuming these best performing sources could replicate their performance when attempting to operate under identical conditions to those used for the compliance test establishing the source as best performing. As just noted, we call this value the modified UPL 99.

The only instance in which we are able to quantify test-to-test variability (as noted above, the other significant component of total operating variability) is for fabric filters (baghouses) when used to control emissions of particulate matter. The modified UPL 99 in these instances reflects not only run-to-run variability, but test-to-test variability as well. That total variability is expressed by the Universal Variability Factor which is derived from analyzing long-term variability in particulate matter emissions for best performing sources across all of the source categories sources that are equipped with fabric filters. 69 FR at 21233. See also the discussion below in Section III.A.2.

Test-to-test variability must be accounted for in other instances as well, however. It follows that if the performance of most efficient fabric filters varies over time relative to particulate matter emissions, then so does their performance relative to the non-mercury metal HAP emissions. We also believe that particulate matter emissions variability from sources equipped with back-end controls other than fabric filters also exists, and is furthermore likely to be higher than what was calculated for fabric filters because there are more uncertainties associated with the correlations between operating parameter limits and control efficiency for these devices.[65] Again, it clearly follows that if the performance of these other control devices varies relative to particulate matter emissions (perhaps even more than what has already been quantified for fabric filters), then so does their performance relative to the non-mercury metal HAP emissions.

Although we cannot quantify this test-to-test variability, we can document its existence and its significance. We conducted two parallel analyses examining all situations where we had multiple test conditions for the sources ranked as best performing performing (examining separate pools for best performing sources under both the straight emissions and SRE/feed ranking methodologies). These analyses showed that these sources' emissions do in fact vary over time, sometimes significantly. In many instances sources had poorer system removal efficiencies and higher emission levels than those in the compliance test used to identify the source as best performing. We further projected that in many instances these best performing sources would not achieve their own UPL 99, the statistically determined prediction limit which captures 99 out of 100 future three-run test averages for the source, if they were to operate at the poorer system removal efficiency of its earlier test and used the federate of its later (best-performing) compliance test. This is significant because the UPL 99 reflects all of a source's run-to-run

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[61] These ranking methodologies are discussed later in this section of the preamble, and in USEPA, ''Technical Support Document for HWC MACT Standards, Volume III: Selection of MACT Standards,'' September 2005, Section 7.

[62] Analytic variability exists, and normally must be accounted for in establishing technology-based standards based on performance of the best-performing plants. *Chemical Manufacturers Ass'n* v. *EPA*, 870 F. 2d at 230.

[63] There are myriad factors that affect performance of an emissions control device. These factors change over time, including during the maintenance cycle of the device, such that it is virtually impossible to conduct future compliance tests under conditions that replicate the performance of the control device. See USEPA, ''Technical Support Document for HWC MACT Standards, Volume III: Selection of MACT Standards,'' September 2005, Section 5.3.

[64] We note that the Agency used a statistical approach when proposing the NESHAP for Electric Utility Steam Generating Units. See memo from William Maxwell, EPA, to Utility MACT Project Files, entitled, ''Analysis of variability in determining MACT floor for coal-fired electric utility steam generating units,'' dated Nov. 26, 2003, Docket A–92–55.

[65] For example, sources equipped with electrostatic precipitators generally establish multiple operating limits to best assure compliance with the emission standard (feed control limits, power input limits, etc.). There is not an exact correlation between emission levels and operating levels because there are several factors that can affect the control efficiency of these air pollution control systems, such as variations in inlet loads, power inputs, spark rates, humidity, as well as particle resistivity. See USEPA, ''Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards,'' September 2005, Sections 16 and 17.

variability. Failure to meet the UPL 99 thus shows both that further variability exists, namely test-to-test variability, and that it is a significant component of total variability. We obtained similar results when we projected best performing sources' performance based on each of these sources' overall system removal efficiency obtained by pooling the removal efficiencies of all of its tests. In many instances, moreover, these projected levels exceeded floor levels calculated by using the straight emissions approach, which ranks best performers as those with the lowest emission levels. This point is discussed further in Section III.B below. EPA's analysis is set out in detail in chapters 16 and 17 of Volume III of the Technical Support Document.[66]

EPA's conclusion is that total variability includes both run-to-run and test-to-test variability, and that both must be accounted for in determining which are the best performing sources and what are their levels of performance over time. As explained in the following Sections B and C, EPA has accordingly adopted floor methodologies which account for this total variability either quantitatively or qualitatively. The approach advocated by the commenter simply ignores that variability exists. Since this approach is contrary to both fact and law, EPA is not adopting it.

c. *Quantifying Run-to-Run Variability at the 99th Percentile Level Is Reasonable.* We selected the 99% prediction limit to ensure a reasonable level '' namely the 99th percentile—of achievability for sources designed and operated to achieve emission levels equal to or better than the average of the best performing sources.[67] Because of the randomness of the emission values, there is an associated probability of the average of the best performing sources, and similarly designed and operated sources, not passing the performance test conducted under the same conditions.[68] At a 99% confidence level, the average of the best performing sources could expect to achieve the floor in 99 of 100 future performance tests conducted under the same conditions as its performance test.. The commenter thus sharply mischaracterizes a 99% confidence level as the worst performance of a best performing source.: the level in fact assumes identical operating conditions as those of the performance test.

EPA routinely establishes not-to-exceed standards (daily maximum values which cannot be exceeded in any compliance test) using the 99% confidence level. *National Wildlife Federation* v. *EPA*, 286 F. 3d 554, 572 (D.C. Cir. 2002).[69] At a confidence level of only 97% for example, the average of the best performing sources could expect to achieve the floor in only 97 of 100 future performance tests.

We note that the choice of a confidence level is *not* a choice regarding the stringency of the emission standard. Although the numerical value of the floor increases with the confidence level selected it only appears to become less stringent. If EPA selected a lower confidence interval, we would necessarily adjust the standard downward due to the expectation that a source would not be expected to achieve the standard for uncontrollable reasons a larger per cent of the time. We would then have to account in some manner for this inability to achieve the standard. See *Weyerhaeuser* v. *Costle*, 590 F. 2d 1011, 1056–57 (D.C. Cir. 1978) (also upholding standards established at 99 % confidence level). The governing issue is what level of confidence should the average of the best performing sources, and similarly designed and operated sources, have of passing the performance test demonstrating compliance with the standard. We believe that the 99% confidence level is a confidence level within the range of values we could have reasonably selected.[70]

d. *Considering Intersource Variability by Pooling Run-to-Run Variability is Appropriate*. The commenter believes that any attempt by EPA to add a variability factor to adjust for intersource variability is unlawful and arbitrary and capricious. We see no statutory prohibition in considering intersource run-to-run variability of the best performing sources (which is all our floor calculation does, by considering the pooled run-to-run variability of the best performing sources). Section 112(d)(3) states that MACT floors are to reflect the ''*average* emission limitation achieved'' but does not specify any single method of ascertaining an average. Considering the average run-to-run variability among the group of best performing sources is well within the language of the provision (and was upheld in *CMA*, as noted above; see 870 F. 2d at 228). The commenter's further argument that 'average' can only mean average of emission levels achieved in performance tests is inconsistent with the holding in *Mossville*, 370 F. 3d at 1242, that EPA must account for variability in developing MACT floors and that individual performance tests do not by themselves account for such variability.

We believe that it is reasonable and necessary to account for intersource variability of the best performing sources by taking the pooled average of the best performing sources' run-to-run variability. This is an aspect of identifying the average performance of those sources. Emissions data for each best performing source are random in nature, and this random nature is characterized by a stochastic distribution. The stochastic distribution is defined by its central tendency (average value) and the amount of dispersion from the point of central tendency (variance or standard deviation). Consequently, to define the performance of the average of the best performing sources, we must consider the average of the average emissions for the best performing sources as well as the pooled variance for those sources. Hence, we must consider intersource variability to identify the floor—the average performance of the best performing sources.

The commenter further states that EPA's attempt to adjust for intersource variability is unlawful, arbitrary, and capricious. EPA set floors at the 99th percentile worst emission level that it believed any source within the group of best performers could achieve, according to the commenter. The 99th percentile worst performance that could be expected from a source within the best performers is, simply put, not the average performance of the sources in that group, according to the commenter.

The commenter misunderstands our approach to calculate the floor—the floor is not the 99th percentile highest emission level that any best performing source could achieve. The floor for

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[66] We explain in those sections that these projections assume that system removal efficiencies are constant across differing HAP federates and that the sources' historical (poorer) system removal efficiencies were not the primary result of operating at poorer ''controllable'' conditions relative to the most recent test condition. These are reasonable assumptions, as explained in section 17. 3 of Volume III of the Technical Support Document, although these assumptions also create a measure of uncertainty regarding the emissions projections.

[67] Note, again, that the variability we quantify by these analyses is within-test condition variability only. We cannot quantify test-to-test variability and thus cannot quantify sources' total variability.

[68] See Volume III of the Technical Support Document, Section 7.2 .

[69] The opinion notes further that percentiles for standards expressed as long-term average typically use a lower confidence level (usually 95 %c) due to the opportunity to lower the overall distribution with multiple measurements. 286 F. 3d at 573. The standards in this rule are necessarily daily maximum standards because continuous emissions monitors for HAP do not exist or have not been demonstrated on all types of Subpart EEE sources.

[70] See also *Chemical Mfrs. Ass'n* v. *EPA*, 870 F. 2d at 229 (99th percentile daily variability factor is reasonable); 227 (''the choice of statistical methods is committed to the sound discretion of the Administrator'').

existing sources is calculated as the 99th percentile modified upper prediction limit of the average of the best performing sources. It represents the average of the best performing sources' emissions levels plus the pooled within-test condition variance of the best performing sources. The floor for existing sources is not the highest 99th percentile upper prediction limit for any best performing source as the commenter states.

e. *Why isn't Total Variability Already Accounted for by Compliance Test Conditions?*

Comment: One commenter states that EPA's use of variability factors along with worst-case data is unlawful and arbitrary and capricious. EPA has stated that its use of worst case ''compliance'' data accounts for variability. EPA admits that compliance data reflect special worst case conditions created artificially for the purpose of obtaining lenient permit limits, according to the commenter. EPA provides no reason whatsoever to believe that a source would continue to operate under such conditions even one percent of the time. Thus, the commenter concludes, by applying a 99 percent variability factor to compliance test data, EPA ensures that the adjusted data do not accurately reflect the performance of any source. Accordingly, EPA's use of a variability factor is unlawful.

The commenter also states that, to increase compliance data with the reality that sources will not be operating under the worst case conditions except during permit setting tests, the Agency's use of a variability factor with compliance data is arbitrary and capricious.

Response: All but two standards in the final rule are based on compliance test data—when sources maximized operating parameters that affect emissions to reflect variability of those parameters and to achieve emissions at the upper end of the range of normal operations. Use of these data is appropriate both because they are data in EPA's possession for purposes of section 112(d)(3) and because these data help account for best performing sources' operating variability. *CKRC,* 255 F. 3d at 867.

The main thrust of the comment is that total variability is accounted for by the conditions of the performance test, so that making further adjustments to allow for additional variability is improper. The commenter believes that the floor should be calculated simply as the average emissions of the best performing sources and that this floor would encompass the range of operations of the average of the best performing sources. We disagree.

The compliance test is designed to mirror the outer end of the *controllable* variability occurring in normal operations. These controllable factors include the amount of HAP fed to a source in hazardous waste, and controllable operating parameters on pollution control equipment (such as power input to ESPs, or pressure drop across wet scrubbers, factors which are reflected in the parametric operating limits written into the source's permit and which are based on the results of the compliance testing). However, this is plainly not all of the variability a source experiences. Other components of run-to-run variability, including variability relating to measuring (both stack measurements and measurements at analytic laboratories) are not reflected, for example. Nor is test-to-test variability reflected, notably the point in the maintenance cycle that testing is conducted and the variability associated with those inherently differing test conditions even though the source attempts to replicate the test conditions (e.g., measurement variability attributable to use of a different test crew and analytical laboratory and different weather conditions such as ambient temperature and moisture). Other changes that occur over time are due to a wide variety of factors related to process operation, fossil fuels, raw materials, air pollution control equipment operation and design, and weather. Sampling and analysis variations can also occur from test to test (above and beyond those accounted for when assessing within-test variability) due to differences in emissions testing equipment, sampling crews, weather, and analytical laboratories or laboratory technicians.

Thus, there is some need for a standard to account for this additional variability, and not simply expect for a single performance test to account for it. The analyses in Sections 16 and 17 of Volume III of the Technical Support Document confirm these points.

Moreover, the best performing sources (and the average of the best performers) must be able to replicate the compliance test if they are to be able to continue operating under their full range of normal operations. It is thus no answer to say that the best performing sources could operate under a more restricted set of conditions in subsequent performance tests and still demonstrate compliance, so that there is no need to assure that results of initial performance tests can be replicated. To do so would no longer allow the best performing sources (and thus the average of the best performing sources) to operate under their full range of normal operations, and thus impermissibly would fail to account for their total variability.

As discussed throughout this preamble, emissions variability—run-to-run and test-to-test variability—is real and must be accounted for if a best performing source is to be able to replicate the emissions achieved during the initial compliance test. We consequently conclude that we must account for variability in establishing floor levels, and that merely considering the average of compliance test data fails to do so. We have therefore quantified run-to-run variability using standard statistical methodologies, and accounted for test-to-test variability either by quantifying it (in the case of fabric filter particulate matter removal performance) or accounting for it qualitatively (in the case of the SRE/feed ranking methodology).

Comment: The commenter notes that if EPA believes that single performance test results do not accurately capture source's variability, the solution is to gather more data, not to avoid using a straight emissions methodology. EPA cannot use this as an excuse for basing floor levels on a chosen technology rather than the performance of the best performing sources.

Response: There is no obligation for EPA to gather more performance data, since the statute indicates that EPA is to base floor levels on performance of sources ''for which the Administrator has emissions information.'' Section 112(d)(3)(A); *CKRC,* 255 F. 3d at 867 (upholding EPA's decision to use the compliance test data in its possession in establishing MACT standards). Indeed, the already-tight statutory deadlines for issuing MACT standards would be even less feasible if EPA took further time in data gathering. EPA notes further that because particulate matter continuous emission monitors are not widely used, even further data gathering would be limited to snapshot, single performance test results, still leaving the problem of estimating variability from a limited data set.[71] See also *Sierra Club* v. *EPA,* 167 F. 3d at 662 (''EPA typically has wide latitude in determining the extent of data-gathering necessary to solve a problem'').

Thus, EPA has no choice but to assess best performers and their level of performance on the basis of limited amounts of data per source. As explained in the previous response to

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[71] Performance tests take an average of 5–8 days to conduct, and cost approximately from $200,000—$500,000 per test. The commenter's off-hand suggestion appears to have ignored these realities.

comments, EPA has selected a methodology that reasonably do so.

EPA notes further that it has carefully examined those instances where there are multiple test conditions (usually compliance tests conducted at different times) for sources ranked as best performing. This analysis confirms EPA's engineering judgment that total variability is not fully encompassed in the single test condition results used to identify these sources as best performing, and that without taking this additional variability into account, best performing sources would be unable to achieve the floor standard reflecting their own performance in those single test conditions.[72]

2. Universal Variability Factor for Particulate Emissions Controlled with a Fabric Filter

Comment: One commenter states that, in calculating the universal variability factor (UVF) to account for total variability—test-to-test variability and within-test variability—for sources controlling particulate matter with a fabric filter, it appears that EPA considered the variability of sources that are not best performing sources. If so, EPA has contravened the law.

The commenter also states that EPA's attempt to use a variability factor derived from an analysis of variability of multiple sources is unlawful. If EPA considers variability at all, it must consider the relevant source's variability.

Response: We developed the particulate matter UVF for sources equipped with a fabric filter using data from best performing sources only.[73]

It is reasonable to aggregate particulate matter emissions data across source categories for all best performing sources equipped with a fabric filter because the relationship between standard deviation and emissions of particulate matter is not expected to be impacted by the source category type.[74] Rather, particulate emissions from fabric filters are a function of seepage (i.e., migration of particles through the filter cake) and leakage (i.e., particles leaking through pores, channels, or pinholes formed as the filter cake builds up). The effect of seepage and leakage on emissions variability should not vary across source categories.[75] Put another way, fabric filter particulate matter reduction is relatively independent of inlet loadings to the fabric filter. 69 FR 21233. This is confirmed by the fact that there are no operating parameters that can be readily changed to increase emissions from fabric filters, *id.,* so control efficiencies reflected in test conditions from different source types will still accurately reflect fabric filter control efficiency.

3. Test-to-Test Variability

Comment: Several commenters state that EPA seems to have ignored test-to-test variability resulting from changes that occur over time such as: normal and natural changes in a wide variety of factors related to process operation, fuels, raw materials, air pollution control equipment operation and design, and differences in emissions testing equipment, sampling crews, weather, analytical laboratories or laboratory technicians. All these sources of variation are expected in that they are typical and are not aberrations. In addition, there are unexpected sources of variability that occur in real-world operations, which also must be accommodated according to commenters.

Commenters state that using compliance test data and assessing within-test condition variability (i.e., run variance) do not fully account for test-to-test variability and thus understates total variability. Consequently, the average of the best performing sources may not be able to achieve the same emission level under a MACT performance test when attempting to operate under the same conditions as it did during the compliance test EPA used to establish the floor. Even though sources generally operated at the extreme high end of the range of normal operations during the compliance tests EPA uses to establish the standards, the average of the best performing sources would need to operate under those same compliance test conditions to establish the same operating envelope—the operating envelope needed to ensure the source can operate under the full range of normal emissions.

Response: We agree with commenters that we have not quantified test-to-test variability when establishing the floors for standards other than particulate matter where a best performing source uses a fabric filter. We are able to quantify only within-test variability (i.e., run-to-run variability) for the other floors, which is only one component of total variability. This is one reason we use the SRE/Feed approach wherever possible rather than a straight emissions approach to rank the best performing sources to calculate the floor—the SRE/Feed ranking approach derives floors that better estimate the levels of best performing sources' performance. See also discussion in Part Four, Section III.A, and the discussion below documenting that test-to-test variability can be substantial.

Comment: One commenter states that EPA should use the universal variability factor (UVF) that accounts for total variability for particulate matter controlled with a fabric filter to derive a correction factor to account for the missing test-to-test variability component of variability for semivolatile metals and low volatile metals. The commenter then suggests that the within-test variability for semivolatile and low volatile metals be adjusted upward by the correction factor to correct for the missing test-to-test variability component.

The commenter focused on cement kilns and compared the total variability imputed from the UVF for the three cement kiln facilities used to establish the UVF to the within-test variability (i.e., run variance) for each facility. The commenter determined that, on average for the three facilities, total variability was a factor of 4.2 higher than within-test variability. Because semivolatile and low volatile metals are also controlled with a fabric filter, the commenter suggested that the total variability of particulate matter could be used as an estimate of the total variability for semivolatile and low volatile metals. Thus, the commenter suggested that the within-test condition variability for semivolatile and low volatile metals be increased by a factor of 4.2 to account for total variability when calculating floors.

Response: As stated throughout this preamble, we believe that there is variability in addition to within-test condition (i.e., run-to-run) variability that we cannot quantify—that we refer to as test-to-test variability. We also do not believe this test-to-test variability is captured by compliance test operating conditions as discussed above, and thus establishing the floor using emissions data representing the extreme high end of the range of normal emissions does not account for test-to-test variability. We disagree, however, with the commenter's attempts to quantify the remaining test-to-test variability for floors other than particulate matter

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[72] USEPA, ''Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards,'', September 2005, Sections 16 and 17.

[73] USEPA, ''Draft Technical Support Document for HWC MACT Standards, Volume III: Selection of MACT Standards,'', March 2004, p. 5–4.

[74] In addition, emissions are not generally affected by particulate inlet loading.

[75] See USEPA, ''Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards,'' September 2005, Section 5.3.

where all best performing sources are equipped with fabric filters.

We generally agree with the commenter's approach for extracting the test-to-test component of variability using the UVF curve for particulate matter controlled with a fabric filter.[76] The commenter has documented that for cement kilns, test-to-test variability of particulate emissions controlled with a fabric filter is on average a factor of 4.2 higher than within-test variability.

We believe the commenter's suggestion to adopt this correction factor to semivolatile and low volatile metals is technically flawed and for several reasons would present statistical difficulties. First, total variability for semivolatile metals and low volatile metals controlled with a fabric filter can be different from the total variability of particulate matter controlled with a fabric filter because: (1) The test methods are different (i.e., Method 5 for particulate matter and Method 29 for metals) and thus sample extraction and analysis methods differ; (2) the factors that affect partitioning of particulate matter to combustion gas (i.e., entrainment) are different from the factors that affect semivolatile metal partitioning to the combustion gas (i.e., metal volatility); and (3) the volatility of semivolatile metals is affected by chlorine feedrates.

Second, adopting a variability factor applicable to fabric filters for use on electrostatic precipitators[77] is problematic because both test-to-test and within-test variability of these emission control devices can be vastly different. Factors that affect emissions variability for sources equipped with a fabric filter include: (1) Bag wear and tear due to thermal degradation and chemical attack; and (2) variability in flue gas flowrate. Factors that affect emissions variability for sources equipped with an electrostatic precipitator are different (see discussion in Section III.B above) and include: variations in particle loading and particle size distribution, erosion of collection plates, and variation in fly ash resistivity due to changes atmospheric moisture and in sulfur feedrate (e.g. different type of coal).

Finally, the approach raises several difficult statistical questions including: (1) What is the appropriate number of runs to use to identify the degrees of freedom and the t-statistic in the floor calculations (e.g., should we use the number of runs available for metals emissions for the source or the number of runs available for particulate matter emissions from which the correction factor is derived); and (2) should we use a generic correction factor for all source categories or calculate source category-specific or source-specific correction factors.

For these reasons, we believe the approach we use for quantifying baghouse particulate matter collection variability is not readily transferable to other types of control devices and other HAP. We therefore are not applying a quantified correction factor in the final rule but rather are using a MACT ranking methodology that qualitatively accounts for total emission variability, notably test-to-test variability.

B. SRE/Feed Methdology

1. Description of the Methodology

As proposed, we are using the System Removal Efficiency (SRE)/Feed approach to determine the pool of best performing sources for those HAP whose emissions can be controlled in part by controlling the hazardous waste feed of the HAP—that is, controlling the amount of HAP in the hazardous waste fed to the source. These are HAP metals and chlorine. Our basic approach is to determine the sources in our database with the lowest hazardous waste feedrate of the HAP in question (semi-volatile metals, low volatile metals, mercury, or chlorine), and the sources with the best system removal efficiency for the same HAP. The system removal efficiency is a measure of the percentage of HAP that is removed prior to being emitted relative to the amount fed to the unit from all inputs (hazardous waste, fossil fuels, raw materials, and any other input). The pool of best performing sources are those with the best combination of hazardous waste feedrate and system removal efficiency as determined by our ranking procedure, separate best performer pools being determined for each HAP in question (SVM, LVM, mercury, and chlorine), reflecting the variability inherent in each of these ranking factors (see A.2.a.(1) above). We then use the emission levels from these sources to calculate the emission level achieved by the average of the best performing sources, as also explained in the previous section. This is the MACT floor for the HAP from the source type. For new sources, we use the same methodology but select the emission level (adjusted statistically to account for quantifiable variability) of the source with the best combined ranking. A more detailed description of the methodology is found in Volume III of the Technical Support Document, section 7.3.

This methodology provides a reasonable estimate of the best performing sources and their level of performance for HAP susceptible to hazardous waste feed control. As required by section 112(d)(2), EPA has considered measures that reduce the volume of emissions through process changes, or that prevent pollutant release through capture at the stack, and assessed how these control measures are used in combination. Section 112(d)(2)(A), (C) and (E). Hazardous waste feed control is clearly a process change that reduces HAP emissions; air pollution control systems collect pollutants at the stack. These are the best systems and measures for controlling HAP emissions from hazardous waste combustors. 69 FR at 21226. In considering these factors, EPA has necessarily considered such factors as design of different air pollution control devices, waste composition, pollution control operator training and behavior, and use of pollution control devices and methodologies in combination. *CKRC*, 255 F. 3d at 864–65 (noting these as factors, in addition to a particular type of air pollution control device, that can influence pollution control performance); 69 FR at 21223 n. 47 (system removal efficiency measures all internal control mechanisms as well as back-end emission control device performance).

EPA also believes that this methodology reasonably estimates the best performing sources' level of performance by accounting for these sources' total variability, including their performance over time. The methodology quantifies run-to-run variability. See 69 FR at 21232–33. It does not quantify test-to-test variability because we are unable to do so for these pollutants. (See sections A. 2.a.(2) and 3 above.) Although all variability must be accounted for when calculating floors, the only definitive way to accurately quantify this test-to-test emissions variability is through evaluation of long-term continuous emissions monitoring data, which do not presently exist. We believe, however, that SRE/Feed methodology provides some margin for estimating this additional, non-quantifiable variability. This is illustrated in the technical support document (volume III section 17), which clearly shows that the straight emissions approach underestimates (indeed, fails to account

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[76] We note, however, that an argument could be made for using a source or condition-specific correction factor rather than averaging the correction factors for all sources within a source category.

[77] We infer that the commenter suggests that we use this correction factor for semivolatile and low volatile metals controlled by both electrostatic precipitators and fabric filters since the majority of cement kilns are equipped with electrostatic precipitators.

for) lower emitting sources' long-term emissions variability. These lower emitting sources that would otherwise not meet the floor levels on individual days under the straight emission approach would be able (or otherwise are more capable) to do so under the SRE/feed approach.

EPA further believes that the SRE/Feed methodology appropriately accounts for design variability that exists across sources for categories, like those here, which consist of a diverse and heterogeneous mixture of sources. This is especially true of incinerators and boilers, for which there are smaller on-site units that are located at widely varying industrial sectors that essentially combust single, or multiple wastestreams that are specific to their industrial process, and off-site commercial units dealing with many different wastes of different origins and HAP metal and chlorine composition. EPA believes that these variations are best encompassed in the SRE/Feed approach, rather than with a subcategorization scheme that could result in anomalous floor levels because there are fewer sources in each source subcategory from which to assess relative performance.[78] See *Mossville*, 370 F. 3d at 1240 (upholding floor methodology involving reasonable estimation, rather than use of emissions data, when sources in the category have heterogeneous emission characteristics due to highly variable HAP concentrations in feedstocks).

Use of the SRE/Feed approach also avoids basing the floor standards on a combination of the lowest emitting low feeding sources and the lowest emitting high feeding sources. For example, the five lowest emitting incinerators for semivolatile metals that would comprise the MACT pool using a straight emissions methodology include three sources that are the first, second, and fourth lowest feeding sources among all the incinerators.[79] The other two best performing incinerators have the first and second best system removal efficiencies (and the highest two metal feedrates). It is noteworthy that the highest feed control level among these best performing sources is over three orders of magnitude higher than the feed control level of the lowest feeding best performing source.[80] Establishing limits dominated by both superior feed control sources and back-end controlled sources would result in floor levels that are not reflective of the range of emissions exhibited by either low feeding sources or high feeding sources and would more resemble new source standards for both of these different types of combustors. Such floors could lead to situations, for example, where commercial sources could find it impracticable to achieve the standards without reducing the overall scope of their operations (since the standard could operate as a direct constraint on the amount of hazardous waste that could be fed to the device, in effect depriving a combustion source of its raw material). Similarly, low feeding sources that cannot achieve this floor level may be required to add expensive back-end control equipment that would result in minimal emission reductions, likely forcing the smaller on-site source to cease hazardous waste treatment operations and to instead send the waste to a commercial treatment unit.

The inappropriateness of a straight emissions-based approach for feed controlled pollutants for commercial hazardous waste combustors is further highlighted by the fact that several commercial hazardous waste combustors that are achieving the design level of the particulate matter standard are not achieving the semivolatile and/or low volatile metals straight emissions based design level, and, in some instances, floor level.[81] This provides further evidence that low feeding sources are in fact biasing some of the straight emissions-based floors to the extent that even the sources with the most efficient back-end control devices would be incapable of achieving the emission standards calculated on a straight emission basis.

These results are inconsistent with the intent of the section 112 (d) (see 2 Legislative History at 3352 (House Report) stating that MACT is not intended to drive sources out of business). Standards that could force commercial sources to reduce the overall scope of their operations are also inconsistent with requirements and objectives of the Resource Conservation and Recovery Act to require treatment of hazardous wastes before the wastes can be land disposed, and to encourage hazardous waste treatment. RCRA sections 3004 (d), (e), (g) and 1003 (a) (6); see also section 112 (n) (7) of the CAA, stating that section 112 (d) MACT standards are to be consistent with RCRA subtitle C emission standards for the same sources to the maximum extent practicable (consistent with the requirements of section 112 (d)); moreover, EPA doubts that a standard which precludes effective treatment mandated by a sister environmental statute must be viewed as a type of best performance under section 112 (d). The SRE/Feed methodology avoids this result by always considering hazardous waste feed control in combination with system removal efficiency and according equal weight to both means of control in the ranking process.

It is also important to emphasize what the SRE/Feed methodology does not evaluate: Feed control of HAP in fossil fuel or raw material inputs to these devices. Emission reduction of these HAP are controllable by back-end pollution control devices which remove a given percentage of pollutants irrespective of their origin and is assured by the system removal efficiency portion of the methodology, as well as through the particulate matter standard (see section IV.A below). Feed control of these inputs is not a feasible means of control, however. HAP content in raw materials and fossil fuel can be highly variable, and so cannot even be replicated by a single source. Raw material and fossil fuel sources are also normally proprietary, so other sources would not have access to raw material and fossil fuel available (in its performance test) to a source with low HAP fossil fuel and raw material inputs. Such sources would thus be unable to duplicate these results. Moreover, there are no commercial-scale pretreatment processes available for removing or reducing HAP content in raw materials or fossil fuels to these units. See technical support document volume III section 17.5 and 25; see also 69 FR at 21224 and n. 48.

2. Why Aren't the Lowest Emitters the Best Performers?

Some commenters nonetheless argue that best performing sources can only mean sources with the lowest HAP

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[78] At proposal, we conducted a technical analysis to determine potential subcategorization options. We then conducted an analysis to determine if these different types of sources exhibited statistically different emissions. Although EPA in the end determined that these source categories should not be subcategorized further, this decision was based in part because the SRE/Feed methodology better accounts for the range of emissions from the best performing sources for these diverse combustion types. See USEPA, "Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards," September 2005, Section 4, for an explanation of the subcategorization assessment, which includes examples of anomalous floor results for certain subcategorization approaches.

[79] See USEPA, "Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards," September 2005, Appendix C, Table "E_INC_SVMCT" and, to determine relative feed control and SRE rankings for these sources, Appendix E Table "SF_INC_SVMCT".

[80] Source 340 had a semivolatile metal feed control MTEC of 892 μg/dscm, whereas source 327 had a semivolatile metal feed control MTEC of 3,080,571 μg/dscm.

[81] See USEPA, "Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards," September 2005, Section 17.4

emissions, and that the SRE/Feed methodology is therefore flawed because it does not invariably select lowest emitters as best performers.[82] The statute does not compel this result. There is no language stating that lowest emitting sources are by definition the best performers. The floor for existing sources is to be based on the average emission limitation achieved by the ''best performing'' 12 per cent of sources. Section 112(d)(3)(A). This language does not specify how ''best performing'' is to be determined: by means of emission level, emission control efficiency, measured over what period of time, etc. See *Sierra Club* v. *EPA*, 167 F. 3d at 661 (language of floor requirement for existing sources ''on its own says nothing about how the performance of the best units is to be calculated''). Put another way, this language does not answer the question of which source is the better performing: one that emits 100 units of HAP but also feeds 100 units of that HAP, or one that emits 101 units of the HAP but feeds 10,000 units. See 69 FR at 21223. Moreover, new source floors are to be based on the performance of the ''best controlled'' similar source achieved in practice. Section 112(d)(3). ''Best controlled'' can naturally be read to refer to some means of control such as system removal efficiency as well as to emission level.

Use of a straight emissions approach to identify floor levels can lead to arbitrary results. Most important, as explained above, it leads to standards which cannot be achieved consistently even by the best performing sources because operating variability is not accounted for. This is shown in section 17 of volume III of the technical support document. These analyses show that (a) emissions from these sources do in fact vary from test-to-test, and that no two snapshot emission test results are identical; (b) our statistical approach that quantifies within test, run-to-run variability underestimates the best performing sources' long term, test-to-test variability;[83] (c) best performing sources under the straight emissions approach advocated by the commenter (i.e. the lowest emitting sources) had other test conditions that did not achieve straight emission floor levels; (d) best performing sources under the straight emissions approach are projected, based on two separate analyses using reasonable assumptions, not to achieve the straight emissions floor standard based on these sources' demonstrated variations in system removal efficiencies over time (i.e., from test-to-test); and (e) SRE/feed methodology yields floor levels (i.e. the floor standards in the rule) that better estimate the emission levels reflecting the performance over time of the best performing sources. See *Mossville,* 370 F. 3d at 1242 (floor standard is reasonable because it accommodated best performing source's highest level of performance (i.e. its total variability), even though the level of the standard was higher than any individual measurement from that source).

As noted earlier, the straight emissions methodology can also limit operation of commercial units because the standard reflects a level of hazardous waste feed control which could force commercial units to burn less hazardous waste because such standards more resemble new source standards. The straight emissions methodology also arbitrarily reflects HAP levels in raw materials and fossil fuels, an infeasible means of control for any source.

Another arbitrary, and indeed impermissible, result of the straight emissions methodology is that in some instances (noted in responses below) the methodology results in standards which would force sources identified as best performing to install upgraded air pollution control equipment. This result undermines section 112 (d) (2) of the statute, by imposing what amounts to a beyond the floor standard without consideration of the beyond the floor factors: the cost of achieving those reductions, as well as energy and nonair environmental impacts.

Comment: The commenter states that because MACT floors must reflect the ''actual performance'' of the relevant best performing hazardous waste combusters, this means that the lowest emitters must be the best performers. The commenter cites *CKRC* v. *EPA*, 255 F. 3d at 862 and other cases in support.

Response: As explained in the introduction above, the statute does not specify that lowest emitters are invariably best performers. Nor does the caselaw cited by the commenter support this position. The D.C. Circuit has held repeatedly that EPA may determine which sources are best performing and may ''reasonably estimate'' the performance of the top 12 percent of these sources by means other than use of actual data. *Mossville,* 370 F. 3d at 1240–41 (collecting cases). In *Mossville,* sources had varying levels of vinyl chloride emissions due to varying concentrations of vinyl chloride in their feedstock. Individual measurements consequently did not adequately represent these sources' performance over time. Not-to-exceed permit limits thus reasonably estimated sources' performance, corroboration being that individual sources with the lowest long-term average performance occasionally came close to exceeding those permit limits. *Id.* at 1241–42. The facts are similar here, since our examination of best performing sources with multiple test conditions likewise shows instances where these sources would be unable to meet floors established based solely on lowest emissions (including their own). As here, EPA was not compelled to base the floor levels on the lowest measured emission levels.

Comment: The same commenter maintains that it is clear from the caselaw that MACT floors must reflect the relevant best performing sources' ''actual performance'', and that this must refer to the emissions level it achieves.

Response: As just stated, the D.C. Circuit has repeatedly stated that EPA may make reasonable estimates of sources' performance in assessing both which sources are best performing and the level of their performance. The court has further indicated that EPA is to account for variability in assessing sources' performance for purposes of establishing floors, and this assessment may require that EPA make reasonable estimates of performance of best performing sources. *CKRC,* 255 F. 3d at 865–66; *Mossville,* 370 F. 3d at 1241–42. See discussion in A.1.a above.

Comment: The commenter generally maintains that EPA's floor approaches consider only the performance of back-end pollution control technology and so fail to capture other means of HAP emission control that otherwise would be captured if EPA were to assess performance based on the emission levels each source achieved.

Response: EPA agrees that factors other than end-of-stack pollution control can affect metal HAP and chlorine emissions. This is why EPA assesses performance for these HAP by considering combinations of system removal efficiency (which measures every element in a control system resulting in HAP reduction, not limited to efficiency of a control device), and hazardous waste HAP feed control. Standards for dioxins and other organic HAP (which have no hazardous waste feed control component) likewise assess every element of control.

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[82] In fact, many of the sources identified as best performing under the SRE/Feed methodology are also the lowest emitting, although this is not invariably the case.

[83] Best performing sources pursuant to the straight emissions methodology are projected to be unable to achieve the levl of their of their performance test emissions even after they are adjusted upward to account for run-to-run variability.

EPA also accounts for the variability of HAP levels in the (essential) use of raw materials and fossil fuels by assessing performance of back-end control but not evaluating fuel/raw material substitution, which, as discussed later in the response to comments section, are infeasible means of control. *Mossville,* 370 F. 3d at 1241–42, is instructive on this point. The court held that the constant change in raw materials justified EPA's use of a regulatory limit to estimate a floor level. The reasonableness of this level was confirmed by showing that the highest individual data point of a best performing source was nearly at the level of the regulatory limit. Under the commenter's approach, the court would have had no choice but to hold that the level the source achieved in a single test result using 'clean' raw materials—i.e. the 'level achieved' in the commenter's language—dictated the floor level.

See part four, section III.C for EPA's response to this comment as it relates to the methodologies for the particulate matter standard and total chlorine standard for hydrochloric acid production furnaces.

Comment: The commenter notes that the SRE/Feed methodology does not account for all HAP emissions, failing to account for metal and chlorine feedrates in raw materials and fossil fuels.

Response: The methodology does not assess the effect of feed ''control'' of HAP levels in raw materials or fossil fuels which may be inputs to the combustion units. This is because such control may not be replicable by an individual source, or duplicable by any other source. See 69 FR at 21224 and n. 48; *Sierra Club* v. *EPA*, 353 F. 3d 976, 988 (''substitution of cleaner ore stocks was not * * * a feasible basis on which to set emission standards. Metallic impurity levels are variable and unpredictable both from mine to mine and within specific ore deposits, thereby precluding ore-switching as a predictable and consistent control strategy'').[84] EPA's methodology does account for HAP control of all inputs by assessing system removal efficiency, which measures reductions of HAPs in all inputs (including fossil fuel and raw materials) to a hazardous waste combustion unit. Further, nonmercury metal HAP emissions attributable to raw materials and fossil fuels are effectively controlled with the particulate matter standard, a standard that is based on the sources with best back-end control devices. The only element which is not controlled is what cannot be: HAP levels in feeds for which fuel or raw material switching is simply not an available option.

Comment: The commenter further maintains, however, that the means by which sources may be achieving levels of performance are legally irrelevant (citing *National Lime Ass'n* v. *EPA*, 233 F. 3d 625 , 634 and 640 (D.C. Cir. 2000)). The fact that sources with ''cleaner'' raw material and fossil fuel inputs may not intend to have resulting lower HAP emissions is therefore without legal bearing.

Response: The issue here is not one of intent. The Court, in *National Lime,* rejected the argument that sources' lack of intent to control a HAP did not preclude EPA from establishing a section 112(d) standard for that HAP. See 233 F. 3d at 640, rejecting the argument that HAP metal control achieved by use of back-end control devices (baghouses) could not be assessed by EPA because the sources used the back-end control devices to control emissions of particulate matter. The case did not consider the facts present here, where the issue is not a source's intent, but rather a means of control which involves happenstance (composition of HAP in raw materials and fossil fuel used the day the test was conducted) and so is neither replicable nor duplicable.

National Lime also held that EPA must establish a section 112(d) emission standard for every HAP emitted by a major source. 233 F. 3d at 634. EPA is establishing emission standards for all HAP emitted by these sources. In establishing these standards, EPA is not evaluating emission reductions attributable to the type of fossil fuel and raw material used in the performance tests, because this is not a ''feasible basis on which to set emission standards.'' *Sierra Club,* 353 F. 3d at 988.

EPA thus does not agree with this comment because the issue is not a source's intent but rather whether or not to assess emission reductions from individual test results which reflect an infeasible means of control.

Comment: The commenter maintains, however, that even if individual sources (including those in the pool of best performing sources) cannot reduce HAP concentrations in raw materials and fossil fuels, they may achieve the same reductions by adding back-end pollution control. Nothing in section 112(d)(3) says that sources have to use the means of achieving a level of performance that other best performing sources used.

Response: The thrust of this comment is essentially to impermissibly bypass the beyond-the-floor factors set out in section 112(d)(2) under the guise of adopting a floor standard. Suppose that EPA were to adopt a floor standard dominated by emission levels reflecting HAP concentrations present in a few sources' raw materials and fossil fuels during their test conditions. Suppose further that some sources have to upgrade their back-end control equipment to operate at efficiencies better than the average level demonstrated by the best performing sources, because test results based on fossil fuel and raw material levels are neither replicable nor duplicable. In this situation, EPA believes that it would have improperly adopted a beyond-the-floor standard because EPA would have failed to consider the beyond-the-floor factors (cost, energy, and nonair environmental impacts) set out in section 112(d)(2).[85]

Comment: EPA has not substantiated its claim that sources cannot switch fossil fuels or raw materials.

Response: At proposal we evaluated fuel switching and raw material substitution as beyond-the-floor technologies for cement kilns and lightweight aggregate kilns and stated these technologies would not be cost effective.[86] We also discussed why fuel switching is not an appropriate floor control technology for solid fuel-fired boilers. 69 FR at 21273. Upon further evaluation, we again conclude that fuel switching and raw material substitution are not floor control technologies and are not cost effective beyond-the-floor technologies for cement kilns, lightweight aggregate kilns, and solid fuel-fired boilers.[87]

Comment: EPA has failed to document the basis for its SRE ranking.

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[84] Although this language arose in the context of a potential beyond-the-floor standard, EPA believes that the principle stated is generally applicable. MACT standards, after all, are technology-based, and if there is no technology (i.e. no avaialble means) to achieve a standard—i.e. for a soruce to achieve a standard whenever it is tested (as the rules require)—then the standard is not an achieveable one.

[85] Analysis of the levels of HAP in raw matrial and nonhazardous waste fuels suggests that this is a realistic outcome. Our analysis shows that emissions attributable to raw material and fossil fuel can be significant relative to the level of the straight emissions-based floor design level and floor (the methodology advocated by the commenter), and therefore could inappropriately impact a sournce's ability to comply with such a floor standard. See USEPA, ''Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards,'' September 2005, Section 17.6.

[86] See, for example, 69 FR at 21252, where we discuss the use of fuel-switching or raw material substitution as a possible beyond-the-floor control for mercury at cement kilns.

[87] See USEPA, ''Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards, September 2005, Sections 11 and 25, for further discussion.

Specifically, EPA has not stated how it measured sources' SREs, or how it knows those rankings are accurate.

Response: System removal efficiency is a parameter that is included in our database that is calculated by the following formula:

$$\text{SRE} = 100 \times \frac{\left[(\text{total HAP mass feedrate}) - (\text{stack gas HAP mass emission rate})\right]}{\text{total HAP mass feedrate}}$$

The HAP feedrate and emission data are components of the database that were extracted from emission test reports for each source. We use system removal efficiency for each relevant pollutant or pollutant group (e.g., semivolatile metals, low volatile metals, mercury, total chlorine) whenever the data allows us to calculate a reliable system removal efficiency. For example, we generally do not use system removal efficiencies that are based on normal emissions data because of the concern that normal feed data are too sensitive to sampling and measurement error. See 69 FR at 21224.[88]

The system removal efficiencies used in our ranking process are reliable and accurate because the feed and emissions data originate from compliance tests that demonstrate compliance with existing emission standards (primarily RCRA requirements). As such, the data are considered to have excellent accuracy and quality. RCRA trial burn and certification of compliance reports are typically reviewed in detail by the permitting authority. The compliance tests and test reports generally contain the use of various quality assurance procedures, including laboratory, method, and field blanks, spikes, and surrogate samples, all of which are designed to minimize sampling and analytical inaccuracies. EPA also noticed the data base for this rule for multiple rounds of comment and has made numerous changes in response to comment to assure accuracy of the underlying data. Thus, EPA concludes the calculated system removal efficiencies used in the ranking process are both reliable and accurate.

Comment: EPA's approach with regard to use of stack data is internally contradictory. EPA uses stack data in establishing floors, but does not use stack data to determine which performers are best. EPA has failed to explain this contradiction.

Response: Emission levels are used to calculate system removal efficiencies in order to assess each source's relative back-end control efficiency. Also, as explained in the introduction to this comment response section, the SRE/Feed methodology uses the stack emission levels of the sources using the best combinations of hazardous waste feed control and system-wide air pollution control (expressed as HAP percent removal over the entire system) to calculate the floors. The data are adjusted statistically to account for quantifiable forms of variability (run-to-run variability). This methodology reasonably selects best performing sources (for HAP amenable to these means of control), and reasonably estimates these sources' performance over time. As further stated in section B.2 above, using a straight emissions approach to identify best performers and their level of performance can lead to standards for these HAP that do not fully account for variability (including variability resulting from varying and/or uncontrollable amounts of HAP in raw materials and fossil fuels) and could force installation of *de facto* beyond-the-floor controls without consideration of the section 112(d)(2) beyond-the-floor factors.

EPA thus does not see the contradiction expressed by the commenter. Use of the straight emissions approach as advocated by the commenter would lead to standards that do not reasonably estimate sources' performance and which could not be achieved even by the best performers with individual test conditions below the average of the 12 percent of best performing sources. These problems would be compounded many-fold if the data were not normalized and adjusted to at least account for quantifiable variability, steps the commenter also opposes. EPA's use of emissions data (suitably adjusted) after identifying best performers through the ranking methodology avoids these problems and reasonably estimates best performers' level of performance.

Comment: The commenter rejects EPA's finding (69 FR at 21226) that individual test results in the data base do not fully express the best performing sources' performance. The commenter gives a number of reasons for its criticisms, which we answer in the following sequence of comments listed a though f.

a. *Comment:* The commenter states that EPA claims emission levels do not fully reflect variability in part because they are sometimes based on tests where the source was feeding low levels of HAP during the test. The commenter claims this is inconsistent with the fact that EPA preferentially uses worst-case emissions obtained from tests where the sources spiked their feedstreams with metals, and that the mere possibility that these emissions do not reflect test data from conditions where variability was not maximized does not mean those data fail to represent a source's actual performance. The commenter also states that ''EPA's apparent suggestion that the best performing sources could not replicate the average performance of the sources with the lowest emissions is unsubstantiated and unexplained. Assuming that EPA accurately assesses a source's actual performance, the source can replicate that performance.''

Response: HAPs in raw materials and fossil fuels contribute to a source's emissions. EPA has concerns that a straight emissions approach to setting floors may not be replicable by the best performing sources nor duplicable by other non-best performing sources because of varying concentration levels of HAP in raw material and nonhazardous waste fuels. The best performing sources operated under compliance test conditions as the commenter suggests. However, raw material and nonhazardous fuel HAP concentrations for the best performing sources will change over time, perhaps due to a different source of fuel or raw material quarry location, which could affect their ability to achieve the floor level that was based on emissions obtained while processing different fossil fuel or raw materials. EPA takes sharp issue with the commenter's statement that a single performance test result is automatically replicable so long as it is measured properly in the first instance. This statement is incorrect even disregarding HAP contributions in raw materials and fossil fuels since, as noted previously in section A.2.e, there are many other sources of variability

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[88] See USEPA, ''Technical Support Document for the HWC MACT Standards, Volume II: Database,'' September 2005, Section 2, for further discussion on system removal efficiencies, which includes sample calculations and references to the database that contain the calculated system removal efficiencies for each source and each HAP or HAP group.

which will influence sources' performance over time (i.e., in subsequent performance tests).

A straight emissions approach for establishing semivolatile and low volatile metal floors may result in instances where the best performing sources would not be capable of achieving the standards if their raw material and nonhazardous waste fuel HAP levels change over time. For each cement kiln and lightweight aggregate kiln, we estimated the emissions attributable to these raw materials and fossil fuels assuming each source was operating with hazardous waste HAP feed and back-end control levels equivalent to the average of the best performing sources (the difference in emissions across sources only being the result of the differing HAP levels in the nonhazardous waste feeds). The analysis shows that emissions attributable to these nonhazarous waste feedstreams (raw materials and fossil fuels) varies across sources, and can be significant relative to the level of the straight emissions-based floor design level and floor, and therefore could inappropriately impact a source's ability to comply with the floor standard.[89]

b. *Comment:* The commenter states that EPA must consider contributions to emissions from raw materials and fossil fuels, that it is irrelevant if sources from outside the pool of best performing sources can duplicate emission levels reflecting ''cleaner'' raw materials and fossil fuels used by the best performing sources, and that sources unable to obtain such ''cleaner'' inputs may always upgrade other parts of their systems to achieve that level of performance.

Response: As previously discussed, EPA's methodology does account for HAP control of all inputs by assessing system removal efficiency, which measures reductions of HAPs from all inputs. Further, nonmercury metal HAP emissions attributable to raw materials and fossil fuels are effectively controlled with the particulate matter standard, a standard that is based on the sources with lowest emissions from best back-end control devices. We are not basing any standards on performance of sources not ranked as among the best performing.

c. *Comment:* The commenter disputes EPA's conclusions that failure of sources to meet all of the standards based on a straight emissions methodology at once shows that the methodology is flawed. The standards are not mutually dependent, so the fact that they are not achieved simultaneously is irrelevant. There is no reason a best performer for one HAP should be a best performer for other HAP.

Response: EPA agrees with this comment. On reflection, EPA believes that because all our standards are not technically interdependent (i.e., implementation of one emission control technology does not prevent the source from implementing another control technology), the fact that sources are not achieving all the standards simultaneously does not indicate a flaw in a straight emissions approach. See *Chemical Manufacturers Ass'n*, 870 F. 2d at 239 (best performing sources can be determined on a pollutant-by-pollutant basis so that different plants can be best performers for different pollutants).

d. *Comment:* Several commenters took the opposite position that EPA must assure that all existing source standards must be achievable by at least 6 percent of the sources, and that all new source standards must be achievable by at least one existing source.

Response: As discussed above, we are not obligated to establish a suite of floors that are simultaneously achievable by at least six percent of the sources because the standards are not technically interdependent. Nonetheless, the SRE/Feed methodology does result in existing floor levels (when combined with the other floor levels for sources in the source category) that are simultaneously achievable by at least six percent of the sources (or, for source categories that have fewer than 30 sources, by at least two or three sources).[90] However, for the new source standards, three of the source categories do not include any sources that are simultaneously achieving all the standards (incinerators, cement kilns, and lightweight aggregate kilns). Again, similar to existing sources, EPA is not obligated to establish a suite of new source floors that are simultaneously achievable by at least one existing source because these standards are not technically interdependent. We conclude that a new source can be designed (from a back-end control perspective) to achieve all the new source standards.[91]

e. *Comment:* The commenter criticizes EPA's discussion at 69 FR 21227–228 indicating that both hazardous waste feed control and back-end pollution control are superior means of HAP emission control and treatment standards should be structured to allow either method to be the dominant control mechanism.

Response: EPA is not relying on this part of the proposed preamble discussion as justification for the final rule, with the one exception noted in the response to the following comment.

f. *Comment:* Considerations of proper waste disposal policy are not relevant to MACT floor determinations. In any case, the possibility that some commercial waste combustors may upgrade their back-end pollution control systems to meet standards reflecting low hazardous waste HAP feedrates, or divert wastes to better-controlled units, is positive, not negative.

Response: As discussed in section B.1 above, there are instances where standards derived by using a straight emissions approach are based on a combination of lowest emitting low feeding sources and lowest emitting higher feeding sources. Resulting floor standards would thus reflect these low hazardous waste feedrates and could put some well-controlled commercial incinerators in the untenable situation of having to reduce the amount of hazardous waste that is treated at their source. Our database verifies that such an outcome is in fact realistic.[92]

This type of standard would operate as a direct constraint on the amount of hazardous waste that could be fed to the device, in effect depriving a combustion source of its raw material. In this instance, hazardous wastes could not be readily diverted to other units because the low feeding hazardous waste sources tend not to be commercial units. In these circumstances, there would be a significant adverse nonair environmental impact. Hazardous waste is required to be treated by Best Demonstrated Available Technology (BDAT) before it can be land disposed. RCRA sections 3004 (d), (e), (g), and (m); *Hazardous Waste Treatment Council* v. *EPA*, 866 F. 2d 355, 361 (D.C.Cir. 1990) (upholding Best Demonstrated Available Technology treatment requirement). Most treatment standards for organic pollutants in hazardous waste can only be achieved by combustion. Leaving some hazardous wastes without a

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[89] See USEPA, ''Final Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards,'' September 2005, Section 17.6. .

[90] These achievability analyses did not account for the additional test-to-test variability that we cannot quantify.

[91] See USEPA, ''Technical Support Document for the HWC MACT Standards, Volume V: Emission Estimates and Engineering Costs,'' September 2005, Section 4.2.3 for a discussion that explains how such a new source could be designed to achieve the new source standards.

[92] See USEPA, ''Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards'', September 2005, Section 17.4.

treatment option is in derogation of these statutory requirements and goals, and calls into question whether a treatment standard that has significant adverse nonair environmental impacts must be viewed as best performing. See *Portland Cement Ass'n* v. *Ruckelshaus, 486 F. 2d 375 , 386 (D.C. Cir. 1973); Essex Chemical Co.* v. *EPAEPA*, 486 F. 2d 427, 439 (D.C. Cir. 1973). The commenter's statement that waste disposal policy is not relevant to the MACT standard-setting process is not completely correct, since section 112 (n)(7) of the Clean Air Act directs some accommodation between MACT and RCRA standards for sources combusting hazardous waste. Part of this accommodation is using a methodology to evaluate best performing sources that evaluates as best performers those using the best combination of hazardous waste feed control (among other things, an existing control measure under RCRA rules) and system-wide removal.

We assessed whether we could address this issue by subcategorizing commercial incinerators and on-site incinerators. Applying the straight emission approach to such a subcategorization scheme, however, yields anomalous results due to the scarcity of available and complete compliance test data from commercial incinerators. Calculated floor levels for semivolatile metals and low volatile metals for the commercial incinerator subcategory equate to 2,023 and 111 µg/dscm, respectively (both higher than the current interim standards).[93] We conclude that the SRE/Feed methodology better addresses this issue because it yields floor levels that better represent the performance of the best performing commercial incinerators and onsite incinerators alike by applying equal weights to hazardous waste feed control and back-end control in the ranking process.

EPA notes, however, that its choice of the SRE/Feed methodology is justified independent of considerations of adverse impact on hazardous waste treatment and disposal.

Comment: The commenter reiterates its comments with respect to floor levels for new sources.

Response: EPA's previous responses to comments apply to both new and existing source standards.

Comment: Two commenters recommend that EPA define the single best performing source as that source with the lowest aggregated SRE/Feed aggregated score (as proposed), as opposed to the source with the lowest emissions among the best performing existing sources (an approach on which we requested comment).

Response: We agree with the commenters because this is consistent with our methodology for defining best performers for existing sources and assessing their level of performance. We note, however, that with respect to the new source standards, we encountered two instances where the SRE/Feed methodology identified multiple sources with identical single best aggregated scores, resulting in a tie for the best performing source. This occurred for the mercury and low volatile metal new source standards for incinerators. In these instances, EPA applied a tie breaking procedure that resulted in selecting as the single best performing source as that source (of the tied sources) with the lowest emissions. We believe this is a reasonable interpretation of section112(d)(3), which states the new source standard shall not be less stringent than the emission control that is achieved in practice by the best controlled similar *source* (''source'' being singular, not plural). Moreover, we believe use of the emission level as the tie-breaking criteria is reasonable, not only because it is a measure of control, but because we have already fully accounted for hazardous waste feedrate control and system removal efficiency in the ranking methodology. To choose either of these factors to break the tie would give that factor disproportionate weight.

C. Air Pollution Control Technology Methodologies for the Particulate Matter Standard and for the Total Chlorine Standard for Hydrochloric Acid Production Furnaces

At proposal, EPA used what we termed ''air pollution control technology'' methodologies to estimate floor levels for particulate matter from all source categories as a surrogate for non-mercury HAP metals, and for total chlorine from hydrochloric acid furnace production furnaces. 69 FR at 21225–226. Under this approach, we do not estimate emission reductions attributable to feed control, but instead assess the performance of back-end control technologies.[94] We are adopting the same methodologies for these HAP in the final rule. Because the details of the approaches differ for particulate matter and for total chlorine, we discuss the approaches separately below.

1. Air Pollution Control Device Methodology for Particulate Matter

Our approach to establishing floor standards for particulate matter raises three major issues.

The first issue is whether particulate matter is an appropriate surrogate for non-enumerated HAP metals from all inputs, and for all non-mercury HAP metals in raw material and fossil fuel inputs. This issue is discussed at section IV.A of this part, where we conclude that particulate matter is indeed a reasonable surrogate for these metal HAP.

The second issue is why EPA is not evaluating some type of feed control for the particulate matter floor. There are two potential types of feed control at issue: hazardous waste feed control of nonenumerated metals, and feed control of non-mercury HAP metals in raw material and fossil fuel inputs. With respect to feed control of non-enumerated metals in hazardous waste, as discussed in more detail in section IV.A of this part, we lack sufficient reliable data on non-enumerated metals to assess their feedrates in hazardous waste. In addition, there are significant questions about whether feedrates of the non-enumerated metals can be optimized along with SVM and LVM feedrates. We also have explained elsewhere why control of hazardous waste ash feedrate would be technically inappropriate, since it would not properly assess feed control of nonenumerated metals in hazardous waste. See also 69 FR at 21225.

We have also explained why we are not evaluating control of feedrates of HAP metals in raw materials and fossil fuels to hazardous waste combusters: it is an infeasible means of control. See section B of this part. We consequently are not evaluating raw material and fossil fuel ash feed control in determining the level of the various floors for particulate matter.

a. *The methodology.* The final issue is the means by which EPA is evaluating back-end control. Essentially, after determining (as just explained) that back-end control is the means of controlling non-mercury metal HAP and that particulate matter is a proper surrogate for these metals, EPA is using its engineering judgment to determine what the best type of air pollution control device (i.e., back-end control) is to control particulate matter (and, of course, the contained HAP metals). We then ascertain the level of performance by taking the average of the requisite number of sources (either 12 % or five,

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[93] See USEPA, ''Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards'', September 2005, Section 4. and Appendix C, Table ''E–INC–SVM–CT–COM'' and Table ''E–INC–LVM–CT-COM''

[94] See generally USEPA, ''Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards'', September 2005, Section 7.4 and 7.5.

depending on the size of the source category) equipped with the best back-end control with the lowest emissions.[95] These floor standards are therefore essentially established using a straight emissions methodology. We have determined that baghouses (also termed fabric filters) are generally the best air pollution control technology for control of particulate matter, and that electrostatic precipitators are the next best.

b. *Why not select the lowest emitters?* Although sources with baghouses tended to have the lowest emission levels for particulate matter, this was not invariably the case. There are certain instances when sources controlled with electrostatic precipitators (or, in one instance, a venturi scrubber) had lower emissions in individual test conditions than sources we identified as best performing which were equipped with baghouses.[96] Under the commenter's approach, we must always use these lowest emitting sources as the best performers.

We again disagree. We do not know if these sources equipped with control devices other than baghouses with lower emissions in single test conditions would actually have lower emissions over time than sources equipped with baghouses because we cannot assess their uncontrollable emissions variability over time. Our data suggests that they likely are not better performing sources. We further conclude that our statistical procedures that account for these sources' within test, run-to-run emissions variability underestimates these sources long-term emissions variability. This is not the case for sources equipped with baghouses, where we have completely assessed, quantified, and accounted for long-term, test-to-test emissions variability through application of the universal variability factor.[97] The sources equipped with control devices other than baghouses with lower snapshot emissions data could therefore have low emissions in part because they were operating at the low end of the ''uncontrollable'' emissions variability profile for that particular snapshot in time. The basis for these conclusions, all of which are supported by our data, are found in section 16 of volume III of the technical support document.

We therefore conclude sources equipped with baghouses are the best performers for particulate matter control not only based on engineering judgment, but because we are able to reliably quantify their likely performance over time. The straight emissions methodology ignores the presence of long-term emissions variability from sources not equipped with baghouses, and assumes without basis that these sources are always better performing sources in instances where they achieved lower snapshot emissions relative to the emissions from baghouses, emissions that have notably already been adjusted to account for long-term emissions variability.

A straight emissions approach also results in inappropriate floor levels for particulate matter because it improperly reflects/includes low ash feed when identifying best performing sources for particulate matter. 69 FR at 21228. For example, the MACT pool of best performing liquid fuel boilers for particulate matter under the straight emissions approach includes eight sources, only one of which is equipped with a back-end control device. These sources have low particulate matter emissions solely because they feed low levels of ash. The average ash inlet loadings for these sources are well over two orders of magnitude lower than the average ash inlet loading for the best performing sources that we identify with the Air Pollution Control Technology approach. (Of course, since ash loadings are not a proper surrogate for HAP metals, these sources' emissions are lowest for particulate matter but not necessarily for HAP metals.) The straight emissions approach would yield a particulate matter floor level of 0.0025 gr/dscf (with a corresponding design level of 0.0015 gr/dscf). There is not one liquid fuel boiler that is equipped with a back-end control that achieved this floor level, much less the design level. The best performing source under the air pollution control technology approach, which is equipped with both a fabric filter and HEPA filter, did not even make the pool of best performing sources for the straight emissions approach. Yet this unit has an excellent ash removal efficiency of 99.8% and the lower emitting devices' removal efficiencies are, for the most part, 0% because they do not have any back-end controls. EPA believes that it is arbitrary to say that these essentially uncontrolled devices must be regarded as ''best performing'' for purposes of section 112(d)(3). We therefore conclude that a straight emissions floor would not be achievable for any source feeding appreciable levels of ash, even if they all were to upgrade with baghouses, or baghouses in combination with HEPA filters, and that a rote selection of lowest emitters as best performers can lead to the nonsensical result of uncontrolled units being classified as best performers.

Comment: Commenter claims end-of-stack control technology is not the only factor affecting emissions of particulate matter, stating that EPA admits that particulate matter emission levels are affected by the feedrate of ash. Accordingly, the performance of a source's end-of-stack control technology is not a reasonable estimate of that source's total performance.

Response: The particulate matter standard serves as a surrogate control for the non-enumerated metals in the hazardous waste streams (for all source categories), and all nonmercury metal HAP in the nonhazardous waste process streams (essentially, raw materials and fossil fuels) for cement kilns, lightweight aggregate kilns, and liquid fuel boilers. The commenter suggests that the APCD approach inappropriately ignores HAP feed control in the assessment of best performing sources. We conclude that it would not be appropriate to use a methodology that directly assesses feed control, such as the SRE/Feed methodology, to determine particulate matter floors. First, direct assessment of total ash feed control would inappropriately assess and seek to control (even though variability of raw material and fossil fuel inputs are uncontrollable) raw material and fossil fuel HAP input, as well as raw material and fossil fuel input. Controlling raw material and fossil fuel HAP input is infeasible, as previously discussed. It also inappropriately limits theses sources' feedstocks that are necessary for their associated production process.

Second, we do not believe that developing a floor standard based on hazardous waste feed control of nonenumerated metals (as opposed to feed control of these metals in raw material and fossil fuels) is appropriate or feasible. In part four, section IV.A, we explain that we lack the data to reliably assess direct feedrate of these metals in hazardous waste. In addition, we also discuss that it is unclear (the lack of certainty resulting from the sparse available data) that hazardous waste feed control of the nonenumerated metals is feasible. The majority of these metals are not directly regulated under existing RCRA requirements, so sources have optimized control of the other HAP

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[95] As explained in the responses below, the approach varies slightly if the requisite number of sources do not all use the best back-end pollution control technology. In that case, EPA includes in its pool of best performers the lowest emission levels from sources using the next best pollution control technology.

[96] See USEPA, ''Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards,'' September 2005, Section 22.

[97] See USEPA, ''Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards,'' September 2005, Section 5.3.

metals, raising issues of whether simultaneous optimization of feed control of the remaining metals is feasible. Moreover, even if one were to conclude that hazardous waste feed control is feasible for the nonenumerated metal HAPs, hazardous waste ash feedrates are not reliable indicators of nonmercury metal HAP feed control levels and are therefore inappropriate parameters to assess in the MACT evaluation process. For example, a source could reduce its ash feed input by reducing the amount of silica in its feedstreams. This would not result in feed control or emission reductions of metal HAP.[98]

Finally, hazardous waste ash feed control levels do not significantly affect particulate matter emissions from cement kilns, lightweight aggregate kilns, and solid fuel-fired boilers because the majority of particulate matter that is emitted originates from the raw material and nonhazardous fuel. Hazardous waste ash feed control levels also do not significantly affect particulate matter emissions from sources equipped with baghouses because these control devices are not sensitive to particulate matter inlet loadings.[99]

Thus, even if one were to conclude that the nonenumerated metal HAPs are amenable to hazardous waste feed control, explicit use of ash feed control in a MACT methodology would not assure that each source's ability to control either nonmercury metal HAP or surrogate particulate matter emissions is assessed. The Air Pollution Control Device methodology identifies and assesses (with the surrogate particulate matter standard) the known technology that always assures metal HAP emissions are being controlled to MACT levels—that technology being back-end control.

Comment: Commenter claims the Air Pollution Control Device approach to calculate particulate matter floors is flawed because the performance of back-end control technology alone does not reflect the performance of the relevant best sources that otherwise would be reflected if EPA were to assess performance based on the emission levels each source achieved because, as EPA admits, it fails to account for the effect of ash feed rate.

Response: We explain above why the Air Pollution Control Technology approach properly identifies the relevant best performing sources for purposes of controlling non-mercury metal HAP (measured as particulate matter), irrespective of ash feed rates. Typically, this results in selecting the sources with the lowest particulate matter emission rates, the result the commenter advocates. This is because we evaluate sources with the best-performing (*e.g.* lowest emitting) baghouses, and particulate matter emissions from baghouses are not significantly affected by inlet particulate matter loadings. Where the pool of best performing sources includes sources operating some other type of back-end control device (because insufficient numbers of sources are equipped with baghouses to comprise 12% of sources, or five sources (depending on the size of the source category)), we again use the lowest particulate matter emission level from the sources equipped with second best technology. Although these data do not reflect test-to-test variability, they are the best remaining data in EPA's possession to estimate performance and EPA is therefore, as required by section 112 (d) (3) (A) and (B), using the data to fill out the requisite percentage of sources for calculating floors.

Comment: Commenter states that EPA has failed to demonstrate how it reasonably estimated the actual performance of each source's end-of-stack control technology because: (1) It failed to acknowledge that there can be substantial differences between the performance of different models of the same type of technology; and (2) it did not explain or support its rankings of pollution control devices.

Response: As discussed in sections 7.4 and 16.2 of volume III of the technical support document and C.1 of this comment response section, we rank associated back-end air pollution control device classes (e.g., baghouses, electrostatic precipitators, etc.), after assessing particulate matter control efficiencies from hazardous waste combustors that are equipped with the associated back-end control class. The data used to make this assessment are included in our database. We also evaluated particulate matter control efficiencies from other similar source categories that also use these types of control systems, such as municipal waste combustors, medical waste incinerators, sewage sludge combustors, coal-fired boilers, oil fired boilers, non-hazardous industrial waste combustors, and non-hazardous waste Portland cement kilns.[100]

After we assign a ranking score to each back-end control class, we determine the number of sources that are using each of these control technology classes. We then identify the MACT control technology or technologies to be those best ranked back-end controls that are being used by 12 percent of the sources (or used by five sources in instances where there are fewer than 30 sources). We then look only at those sources using MACT back-end control and rank order all these sources first by back-end control type, and second by emissions. For example, in instances where there is more than one MACT back-end control, we array the emissions from the sources equipped with the top ranked back-end controls from best to worst (i.e., lowest to highest), followed by the emissions from sources equipped with the second ranked back-end controls from best to worst, and so on. We then determine the appropriate number of sources to represent 12 percent of the source category (5 in instances where there are fewer than 30 sources). If 10 sources represented 12% of the sources in the source category, we would then select the emissions from best ranked 10 sources in accordance with this ranking procedure to calculate the MACT floor. This methodology results in selection of lowest emitters using best back-end air pollution control as pool of the best performing sources.

The commenter is correct that there can be differences between the performance of different models of the same type of technology. We are not capable of thoroughly assessing differences in designs of each air pollution control device in a manner that could be used in the MACT evaluation process, so that we would only select, for example, baghouses of a certain type. Each baghouse, for example, will be designed differently and thus will have different combinations of design aspects that may or may not make that baghouse better than other baghouses (e.g., bag types, air to cloth ratios, control mechanisms to collect accumulated filter cake and maintain optimum pressure drops). We also do not have detailed design information for each source's air pollution control system; such an assessment would therefore not be

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[98] For the same reason, even if feed control of total inputs (i.e. raw material and fossil fuel as well as hazardous waste fuel) were feasible, it would be technically inappropriate to use ash feedrates as a surrogate: ash feed control allows sources to selectively reduce the ash feeds without reducing the metal HAP portion of that feed. Back-end control, in contrast, unselectively removes a percentage of everything that is fed to the combustor.

[99] See USEPA, ''Technical Support Document for the HWC MACT Standards, Volume III: Selection of Mact Standards,'' September 2005, Section 3.1.

[100] See USEPA, ''Technical Support Document for th HWC MACT Standards, Volume III: Selection of MACT Standards,'' September 2005, Section 5.3 and 16.2, for further discussion.

possible even if the information could be used to assess relative performance.

We instead account for this difference by selecting sources with the lowest emissions that are using the defined MACT back-end controls to differentiate the performance among those sources that are using that technology (the best performer being the source with the lowest emissions, as just explained). For example, in situations where more than 12% of the sources are using the single best control technology (e.g., more than 12% of incinerators use baghouses to control particulate matter), we use the emissions from the lowest emitting sources equipped with baghouses to calculate the MACT floor. In instances where there are two defined MACT technologies (i.e., 12% of sources do not use the single best control technology), we use all the emissions data from sources equipped with the best ranked control class, and then subsequently use only the lowest emissions from the sources equipped with the second ranked back-end controls.

Comment: EPA did not say how it picked the best performers if more than twelve percent used the chosen technologies. If EPA used emissions data to differentiate performance, the Agency is necessarily acknowledging that emissions data are a valid measure of sources' performance—in which case the Agency's claims to the contrary are arbitrary and capricious.

Response: We did use emissions data to select the pool of best performers where over 12% use the best type of emissions control technology, as explained in the previous response. Emissions data is obviously one means of measuring performance. EPA's position is that it need not be the exclusive means, in part because doing so leads to arbitrary results in certain situations. Our use of emission levels to rank sources that use the best particulate matter control (i.e., baghouses) does not lead to arbitrary results, however. First, we are assessing emission levels here as a means of differentiating sources using a known type of pollution control technology. More importantly, the adjusted emission levels from sources equipped with baghouses are the most accurate measures of performance because these emissions have been statistically adjusted to accurately account for long-term variability through application of the universal variability factor.

Comment: Commenter states that EPA, in its support for its Air Pollution Control Technology Approach used to calculate particulate matter floors, claims that an emissions-based approach would result in floor levels that ''could not necessarily be achieved by sources using the chosen end-of-stack technology,'' citing 69 FR at 21228. Commenter claims that it is settled law that standards do not have to be achievable through the use of any given control technology, and that it is also erroneous to establish floors at levels thought to be achievable rather than levels sources actually achieve.

Response: EPA is not establishing floor levels based on assuring the standards are achievable by a particular type of end-of-stack technology (or, for that matter, any end-of-stack technology). The floor levels in today's final rule reasonably estimate average performance of the requisite percent of best performing sources without regard for whether the levels themselves can be achieved by a particular means. Floor standards for particulate matter are based on the performance of those sources with the lowest emissions using the best back-end control technology (most often baghouses, and sometimes electrostatic precipitators). EPA uses this approach not to assure that the floors are achievable by sources using these control devices, but to best estimate performance of the best performing sources, including these sources' variability.

2. Total Chlorine Standard for Hydrochloric Acid Production Furnaces

We are adopting the methodology we proposed to estimate floor levels for total chlorine from hydrochloric acid production furnaces. 69 FR at 21225–226. As stated there, we are defining best performers as those sources with the best total chlorine system removal efficiency. We are not assessing a level of control attributable to control of chlorine in feedstocks because this would simply prevent these furnaces from producing their ultimate product. Further details are presented in responses below.

Comment: Basing the standard for hydrochloric acid production furnaces on the basis of system removal efficiency rather than chlorine emission reduction is impermissible. Even though these devices' purpose is to produce chlorinated product, the furnaces can use less chlorinated inputs. EPA's proposed approach is surreptitious, an impermissible attempt to assure that the standards are achievable by all sources using EPA's chosen technology, the approach already rejected in *CKRC*.

Response: EPA disagrees. There is nothing in the text of the statute that compels an approach that forces sources to produce less product to achieve a MACT floor standard. Yet this is the consequence of the comment. If standards were based on levels of chlorine in feedstock to these units, less product would be produced since there would be less chlorine to recover. EPA has instead reasonably chosen to evaluate best performing/best controlled sources for this source category by measuring the efficiency of the entire chlorine emission reduction system. Indeed, the situation here is similar to that in *Mossville*, where polyvinyl chloride production units fed raw materials containing varying amounts of vinyl chloride depending on the product being produced. This led to variable levels of vinyl chloride in plant emissions. Rather than holding that EPA must base a floor standard reflecting the lowest amount of vinyl chloride being fed to these units, the court upheld a standard estimating the amount of pollution control achievable with back-end control. 370 F. 3d at 1240, 1243. In the present case, as in *Mossville*, the standard is based on actual performance of back-end pollution control (although here EPA is assessing actual performance of the control technology rather than estimating performance by use of a regulatory limit, making the situation here *a fortiorari* from that in *Mossville*), and does not reflect ''emission variations not related to technological performance''. 370 F. 3d at 1240.

It also should be evident that EPA is not establishing a standard to assure its achievability by a type of pollution control technology, as the commenter mistakenly asserts. The standard for total chlorine is based on the average of the best five sources '' best meaning those sources with greatest (most efficient) system removal efficiencies. EPA did not, as in *CKRC*, establish the standard using the highest emission limit achieved by a source operating a particular type of control.

Comment: The commenter generally maintains that EPA's methodology to determine total chlorine floors for hydrochloric acid production furnaces fails to capture other means of HAP emission control that otherwise would be captured if EPA were assess performance based on the emission levels each source achieved.

Response: As discussed above, the standard for total chlorine is based on the sources with the best system removal efficiencies. System removal efficiency encompasses all means of MACT floor control when assessing relative performance because: (1) Chlorine feed control is not a MACT floor technology for these sources; and (2) the measure of system removal efficiency accounts for every other controllable factor that can affect emissions (e.g., operating practices, worker training, proper maintenance, pollution control device type, etc).

D. Format of Standards

1. Thermal Emissions

EPA proposed, and is finalizing standards for HAP metals and chlorine (the HAPs amenable to hazardous waste feed control) emitted by energy recovery units (cement kilns, lightweight aggregate kilns, and liquid fuel boilers) expressed in terms of pounds of HAP attributable to the hazardous waste fuel per million british thermal units (BTUs) of hazardous waste fired. 69 FR at 21219–20. EPA received many comments on this issue to which we respond below and in the Response to Comment Document. Some initial discussion of the issue is appropriate, however.

a. *Expressing Standards in Terms of a Normalizing Parameter is Reasonable.* First, using a thermal emissions form of a standard is an example of expressing standards in terms of a normalizing parameter. EPA routinely normalizes emission standards either by expressing them as stack HAP concentrations or by expressing the standards in units of allowable mass emissions per amount of production or raw material processed. Emission concentration-based standards normalize the size of each source by accounting for volumetric gas flowrate, which is directly tied to the amount of raw material each source processes (and subsequently the amount of product that is produced). Metal and particulate matter emission standards for commercial and industrial solid waste incinerators are expressed in emission concentration format. See § 60.2105. The particulate matter standard for Portland cement kilns is expressed as mass of allowable emissions per mass of raw material processed. See § 63.1342. The particulate matter, mercury, and hydrogen chloride standards for nonhazardous waste industrial boilers are expressed as pounds of allowable emissions per million British thermal units (BTUs). See § 63.7500.

Technology-based standards typically normalize emissions because such a format assures equal levels of control across sources per amount of raw material that is processed, and allows EPA to equally assess source categories that comprise units that differ in size. By normalizing the emissions standard we better ensure the same percentage of emission reduction per unit of raw material processed by each source.[101] See *Weyerhaeuser* v. *Costle,* 590 F. 2d 1011, 1059 (D.C. Cir. 1978) (technology-based standards are typically expressed in terms of volume of pollutants emitted per volume of some type of unit of production).

There is no legal bar to this approach since the statute does not directly address the question of whether a source emitting 100 units of HAP per unit of production but 100 units of HAP overall is a better performer (or, for new sources, better controlled) than a source emitting 10 units of HAP per unit of production but emitting 101 units overall.[102] One commenter appeared to suggest that we should assess performance on mass feedrates and mass emission rates, without normalizing. Such an approach would yield nonsensical results because the best performing sources would more likely be the smallest sources in the source category (smaller sources generally have lower mass emission rates because they process less hazardous waste). This would likely yield emission standards that would not be achievable by the larger sources that more likely are better controlled sources based on a HAP removal efficiency basis.[103] Normalization by unit of production is another way of expressing unit size, so that normalizing on this basis is a reasonable alternative to subcategorization on a plant size-by-plant size basis. See section 112(d)(1) (size is an enumerated basis for subcategorizing).

b. *Using Hazardous Waste Thermal Input as the Normalizing Parameter is Permissible and Reasonable.* Normalization of standards based on thermal input is analogous. For energy recovery units (in this rule, kilns and most liquid fuel boilers), normalizing on the basis of thermal input uses a key feed input as the normalizing parameter, allowing comparison of units with different inputs rather than separately evaluating these units by size and type (see section 112(d)(1)). Again, this approach is legally permissible. The statute does not answer the question of which source is better performing, the source emitting 100 pounds of HAP per million BTUs hazardous waste but 100 pounds of HAP overall or the source emitting 10 pounds of HAP per million BTUs hazardous waste but emitting 101 pounds overall.

The approach also is reasonable. First, as with other standards expressed in normalized terms, by normalizing the emissions standard we ensure the same percentage of emission reduction per unit of raw material processed by each source, thus allowing meaningful comparison among sources. For example, emission concentration-based standards normalize the size of each source by accounting for volumetric gas flowrate, which is directly tied to the amount of raw material each source processes (and subsequently to the amount of product that is produced), and assures equal levels of control per amount of product. Normalization on the basis of HAP amount in hazardous waste per BTU level in the hazardous waste similarly assures equal levels of control across sources per amount of raw material that is processed. Here, the raw material is the hazardous waste fuel, expressed as units of energy. It is reasonable to regard a hazardous waste fuel as a raw material to an energy recovery device. Indeed, fuels are the only input to boilers, so fuels are necessarily such units' sole raw material.[104] [105] Hazardous waste burning cement kilns and lightweight aggregate kilns produce a product in addition to recovered energy and so process other raw materials. However, the reason these units use hazardous waste as inputs is typically to recover usable energy from the wastes. Hence, the hazardous waste fuel is reasonably viewed as a raw material to these devices.

In this regard, we note that our choice of normalizing parameter essentially says that best performers with respect to hazardous waste fuel burned in energy recovery units are those using the lowest HAP feedrate (for metals and chlorine) per amount of energy

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[101] A more familiar example of normalization is the Earned Run Average (ERA), which normalizes a baseball pitchers' earned runs on the basis of nine innings pitched in order to make comparisons among pitchers possible.

[102] Or, put another way, the statute does not directly address the question of whether a small source that emits 10 units of HAP is better than a much larger source with better back-end control (but feeding the same raw material at a higher mass feedrates) that emits 100 units of HAP.

[103] See USEPA, ''Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards,'' September 2005, Section 6.0.

[104] EPA thus has expressed the MACT standards for particulate matter, mercury, and hydrogen chloride standards for nonhazardous waste industrial boilers as pounds of allowable emissions per million BTUs. § See 63.7500. This normalization considers the total heat input into the combustion device. Normalizing by total heat input would not be appropriate for hazardous waste combustors for metals and chlorine because this would implicitly account for, and in turn require the use of, feed control of HAP in non hazardous waste fuels. This is inappropriate for the reasons discussed in Section III.B of this Part.

[105] We distinguish (i.e., subcategorize) liquid fuel boilers that process hazardous waste with heating values less than 10,000 BTU/lb from those processing hazardous wastes with heating content greater than 10,000 BTU/lb. Although boilers that process hazardous waste with heating values less than 10,000 BTU/lb are still considered to be energy recovery units, we conclude a thermal emissions normalization approach for these sources is not appropriate. See Part Four, Section VI.D.

recovered.[106] This approach accords well with the requirement in section 112(d)(2) that EPA take energy considerations into account in developing MACT, and also that the Agency consider front-end means of control such as input substitution (section 112(d)(2)(A)). In addition, our choice furthers the RCRA goal of encouraging properly conducted recycling and reuse (RCRA section 1003(b)(6)), which is of relevance here in that Congress directed EPA to consider the RCRA emission controls for hazardous waste combustion units in developing MACT standards for these units, and to ensure ''to the maximum extent possible, and consistent with [section 112]'' that section 112 standards are ''consistent'' with the RCRA scheme. CAA section 112(n)(7).[107] Conversely, emission concentration-based standards, the methodology that otherwise would be used to calculate emission concentration-based standards, may result in standards that are biased against sources that recover more energy from hazardous waste. This may discourage sources from recovering energy from hazardous waste because such standards do not normalize each source's allowable emissions based on the amount of hazardous waste it processes for energy recovery purposes. See 69 FR at 21219 and responses below.

Second, use of this normalizing parameter makes it much more likely that hazardous waste feed controls will be utilized by these devices as an aspect of emissions control. See section 112(d)(2)(A) (use of measures reducing the volume of pollutants emitted through ''substitution of materials''); *CKRC,* 255 F. 3d at 865 (EPA to consider means of control in addition to back-end pollution control technology when establishing MACT floors). As explained in our discussion of the SRE/Feed methodology, the MACT floor level for metals and chlorine reflects the best combination of hazardous waste feedrate, and total HAP removal efficiency. See section III.B. However, if standards for energy recovery units are expressed in terms of mass of HAP per volume of stack gas, then it would be relatively easy for these energy recovery devices to achieve a standard, without decreasing concentrations of HAP in their hazardous waste fuels, by diluting the HAP contribution of hazardous waste with emissions from fossil fuel. A thermal emissions format prevents this type of dilution from happening because it ignores additions of stack gases attributable to burning fossil fuels. *Weyerhaeuser,* 590 F. 2d at 1059 (use of production of a unit as a normalizing parameter serves ''the commendable purpose'' of preventing plants from achieving emission limitations via dilution).

For example, assume there are two identical energy recovery units with identical back-end control devices (that reflect the performance of the average of the best performing sources). Source A fulfills 25% of its energy demand from the combustion of hazardous waste; source B fulfills 50% of its energy demand from the combustion of hazardous waste. Also assume that the hazardous waste for these two sources have equivalent energy contents. If these sources were required to comply with an emission concentration based-standard (e.g., µg/dscm), source A would be allowed to feed hazardous waste containing twice the metal content (on a mass concentration basis, e.g., ppm), and would be allowed to emit metal HAP at the same mass emission rate relative to source B. This is because this source is effectively diluting its emissions with the emissions that are being generated by the fossil fuels.[108] A thermal emissions standard format does not allow sources to dilute their emissions with the emissions from fossil fuel inputs because it directly regulates the emissions and feeds associated with the hazardous waste fuel. Under a thermal emissions format both sources would be required to feed hazardous waste with the same thermal feed concentrations (on a lb HAP per million BTU hazardous waste basis), and source A would be required to process hazardous waste with an equivalent concentration of metal HAP (on a mass basis) and also be required to emit half as much metal HAP (on a mass emission rate basis) relative to source B, because source A is processing half as much hazardous waste fuel, thus vindicating the hazardous waste feed control aspect of the standard (see also note below regarding the likelihood of sources using hazardous waste feed control). Further, the thermal feed concentration with which these sources must comply reflects the feed control of the average performance of the best performing sources (on a mass of HAP per million BTU basis). Such a requirement assures that these sources are processing the cleanest hazardous waste fuels to recover energy and are reducing HAP emissions to MACT levels.

We note that it would not be appropriate to express the emission standards for incinerators, hydrochloric acid production furnaces, and solid fuel boilers in terms of thermal emissions. As just explained, the choice of a normalizing parameter is fitted to the nature of the device to which it is applied in order to allow the most meaningful comparisons between devices of like type. We therefore conclude that a thermal emissions format (i.e., normalizing parameter) for incinerators is not appropriate because the primary function of incinerators is to thermally treat hazardous waste (as opposed to recovering energy from the hazardous waste). See 67 FR at 17362 (April 19, 1996). Our database indicates that most incinerators processed hazardous waste during their emissions tests that had, on average, heating values below 10,000 BTU/lb.[109] We have emission test hazardous waste heating value information for 62 incinerators in our database. Of these 62 sources, 40 sources processed hazardous waste with an average heating value of less than 10,000 BTU/lb. The other 22 sources processed hazardous waste with heating values greater than 10,000 BTU/lb in at least one test condition, although we note that 14 of these 22 sources also processed hazardous waste in different test conditions with heating values lower than 10,000 BTU/lb.[110]

We assessed whether we should subcategorize incinerators, similar to how we subcategorize liquid fuel boilers, based on the BTU content of the hazardous waste. Incinerators do recover energy from processing high BTU wastes. Some incinerators are equipped with waste heat boilers, and high BTU hazardous waste can displace fossil fuels that otherwise would have to be burned to thermally treat low BTU wastestreams. However, such energy recovery is considered to be a secondary product because their primary function is to thermally treat hazardous waste. A

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[106] As explained earlier, the ultimate ranking of best performers then further evaluates system removal efficiency, best performers then being defined in terms of the combination of hazardous waste thermal feed and system removal efficiency. See USEPA, ''Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards'', September 2005, Section 7.3.

[107] EPA would adopt the thermal format for the standards, however, whether or not the approach furthered RCRA objectives.

[108] This example assumes there are no HAP emissions attributable to the fossil fuels.

[109] As discussed later, the heating values of hazardous wastes processed at cement kiln and lightweight aggregate kilns are primarily 10,000 BTU/lb or greater.

[110] These data are based on a compilation of heating contents for every incinerator test condition in the database where the source reported such heating content, and include both the most recent test conditions as well as older test conditions. Incinerator test condition heating values range from a low of 790 to a high of 19,800 BTU/lb, with a median value of 7800 BTU/lb.

thermal emissions normalization approach for incinerators that combust hazardous wastes with heating values greater than 10,000 BTU/lb would therefore not be appropriate because the normalized parameter would not be tied to the primary production output that results from the processing of hazardous waste (i.e., treated hazardous waste). In confirmation, no commenters suggested that we apply a thermal emissions format to incinerators.

We also conclude that a thermal emission format is inappropriate for hydrochloric acid production furnaces. These devices recover chlorine, an essential raw material in the process, from hazardous waste. The classic normalizing parameter of amount of product (HCl) produced is therefore the obvious normalizing parameter for these sources. It is true that some hydrochloric acid production furnaces recover energy from high BTU hazardous wastes. See 56 FR at 7141/1 and 7141–42 (Feb. 21, 1991). Some sources are equipped with waste heat boilers, and high BTU wastes help sustain the combustion process, which is necessary to liberate the chlorine from the wastestreams prior to recovering the chlorine in the scrubbing systems. Again, energy recovery is not the primary function of these types of sources.[111] Hydrochloric acid production furnace hazardous waste heating values range from 1,100 to 11,000 BTU/lb (the median energy content for these sources is slightly above 6,000 BTU/lb). The range of hazardous waste heating contents from these sources is much lower than the ranges for cement kilns, lightweight aggregate kilns, and liquid fuel boilers, supporting the premise that energy recovery is of secondary importance. In addition, and critically, the hazardous waste that is processed in these units contains high concentrations of chlorine, confirming that the wastes serve as feedstock for hydrochloric acid production, even if the wastes also have energy value.[112] No commenters suggested that we apply a thermal emissions format to hydrochloric acid production furnaces.

We consider the processing of hazardous waste in solid fuel boilers to be more reflective of energy recovery (relative to incinerators and hydrochloric acid production furnaces) because these sources directly recover the heat that is released from the combustion of the waste streams. However, as stated at proposal, not all these sources are processing hazardous wastes for energy recovery. 69 FR at 21220. These boilers are generally not commercial units, and so tend to burn whatever hazardous wastes are generated at the facility where they are located. Heating values for this source category range from 1,300 to 10,500 BTU/lb, with a median value of 8,000 BTU/lb. We therefore conclude that thermal emission standards for these sources are not appropriate because most of these sources are processing hazardous waste with energy content lower than 10,000 BTU/lb. As discussed in section VI.D, we conclude that 10,000 BTU/lb is an appropriate level that distinguishes whether thermal emission standards or mass emission concentration-based standards are appropriate. We also note that no commenters suggested that we apply a thermal emissions format to solid fuel boilers.

Comment: Commenters state that thermal emission standards are inappropriate because sources burning hazardous waste with a higher energy content or higher percent hazardous waste firing rate (i.e., one that fulfills a greater percentage of its total energy demand from the hazardous waste) would be allowed to emit more HAP.

Response: Part of this comment would apply regardless of what normalizing parameter is used. Technology-based standards (including MACT standards) are almost always expressed in terms of some type of normalizing parameter, i.e., ‘‘X’’ amount of HAP may be emitted per unit of normalizing parameter. This allows a meaningful comparison between units of different size and production capacity. A consequence is that the overall mass of HAP emissions varies, but the rate of control remains constant per the normalizing unit. As explained in the introduction to this section, this approach is both routine and permissible.

Cement kilns, lightweight aggregate kilns, and liquid fuel boilers combust hazardous waste to recover valuable energy. Recovering energy is an integral part of their production process. As discussed at proposal, emission concentration-based standards (and the methodology that otherwise would be used to calculate emission concentration-based standards) may result in standards that are biased against sources that recover more energy from hazardous waste. 69 FR at 21219. This may discourage sources from recovering energy from hazardous waste because such standards do not normalize each source’s allowable emissions based on the amount of hazardous waste it processes for energy recovery purposes. A source that fulfills 100 percent of its energy demand from hazardous waste would be required to limit its mass HAP emissions to the same levels as an identical source that satisfies, for example, only 10 percent of its energy demand from hazardous waste and 90% from coal. This would inappropriately discourage the safe recovery of energy from hazardous waste, and could in turn result in greater consumption of valuable fossil fuels that otherwise would be consumed.

Sources which fulfill a greater percentage of their energy demand from hazardous waste (either by processing hazardous wastes that are higher in energy content, or by simply processing more hazardous waste) will be allowed to emit more HAP (on a mass emission rate basis) than an identical source that satisfies less of its total energy demand from hazardous waste. This is appropriate because: (1) The source fulfilling a greater percentage of its energy demand from hazardous waste is processing more raw material than the other source (the raw material being the energy content of the waste); and (2) The source fulfilling a lower percentage of its energy demand requirements from hazardous waste would not be allowed to dilute its emissions with nonhazardous waste fuels, and we would thus assure that all sources implement hazardous waste feed control to levels consistent with MACT.[113] This

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[111] EPA notes that when first adopting RCRA air emission standards for hydrochloric acid recovery furnaces (then called ‘halogen acid furnaces’), EPA indicated that those furnaces designed as boilers would be subject to the emission standards for boilers. 56 FR at 7040. This determination did not have regulatory consequence, since all hydrochloric acid production furnaces were subject to the same emission standards whether they were classified as boilers or as industrial furnaces. Thus, EPA was not concluding that some hydrochloric acid furnaces existed for the primary purpose of recovering energy in the 1991 rulemaking. 56 FR at 7139 (‘‘[Hydrochloric acid recovery furnaces] are typically modified firetube boilers that process secondary waste streams containing 20 to 70 per cent chlorine or bromine to produce a halogen acid product by scrubbing acid from the combustion gases’’).

[112] Hazardous waste chlorine feedrates that are included in our database (expressed as MTECs) range from a low of 46,000,000 µg/dscm to a high of 294,000,000 µg/dscm. On a mass chlorine percentage basis, these wastes range from 17% to 82%, noting that these percentages did not include the chlorine that was also spiked during the emissions tests). See USEPA, ‘‘Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards’’, September 2005, Section 15.

[113] Although the rule does not require use of feed control (or any particular means of control to achieve a standard), the rule assures that all sources’ emissions will reflect the emissions of the sources with the best hazardous waste federates expressed in terms of amount of HAP per BTU of hazardous waste. Because this format eliminates

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was illustrated in the example provided in the introduction to this comment response section.

Similarly, two sources that combust hazardous waste with the same energy content and the same metal concentrations (on both a thermal concentration and mass-based concentration basis), but at different hazardous waste firing rates, would be required to achieve identical back-end control device operating efficiencies to comply with a thermal emissions-based standard. Holding these factors constant, thermal emission standards require sources to achieve identical percent reductions of the HAP that is processed within the combustor via removal with an air pollution control device. A thermal emission standard format is thus equally stringent for these sources on a percent HAP removal basis, irrespective of the amount of hazardous waste it processes for energy recovery, and better assures that sources burning smaller amounts of hazardous waste (from an energy recovery perspective) are also controlling emissions as well as the average of the best performing sources.

Sources processing higher energy content hazardous wastes would be allowed to feed hazardous wastes with higher metal and chlorine mass-based concentrations relative to other sources combusting lower energy content wastes. To illustrate this, assume there are two sources (named C and D) with identical back-end control systems and identical mass feedrates of hazardous waste. Also assume the hazardous waste of source C has twice the energy content as compared to the hazardous waste processed by source D. A thermal emission standard will allow Source C to feed a hazardous waste that has twice the metals concentration (as measured on a mass basis) as compared to source D, even though both sources would be required to comply with equivalent thermal feed rates limitations. Notably, however: (1) Source C is displacing (*i.e.*, not using) twice as much valuable fossil fuel as the source with the lower energy content hazardous waste, and is feeding twice as much raw material—the raw material being energy content contained in the hazardous waste; (2) source C cannot exceed the feed control levels (expressed on a lbs of HAP per million BTU basis) that was achieved by the average of the best performing sources (assuming its back-end control efficiency is equivalent to the average performance demonstrated by the best performing sources); and (3) source D is required to have lower mass concentrations of metals in its hazardous waste because it is firing poorer quality hazardous waste fuel (from an energy recovery perspective) and because it is feeding less of the same raw material (measured by energy content). Thus, the thermal emissions format appropriately encourages and promotes the processing of clean, high energy content hazardous waste fuels (consistent with evaluating hazardous waste feed control as an aspect of MACT, and not just relying on control solely through use of back end technology), and does so equally for all sources because it normalizes the allowable emissions based on the amount of energy each source recovers from the hazardous waste. Put another way, source C in the above example is controlling HAP emissions to the same extent as the average of the best performing sources per every BTU of hazardous waste fuel it processes (as is source D).

We note that this is a hypothetical example. In practice the average energy content of hazardous waste processed at cement kilns does not vary significantly across sources. Cement kilns burn hazardous wastes with relatively consistent energy contents because that is what their production process necessitates. This is supported by our database and by comments received from the Cement Kiln Recycling Coalition.[114] Heating values of hazardous wastes processed at cement kilns during compliance tests (information which is included in our database) range from 10,300 to 17,600 BTU/lb, with a median value of 12,400 BTU/lb. We note that these are snapshot representations of hazardous waste heating content from these sources that originate from compliance tests. We also have long term average hazardous waste heating measurements from cement kilns indicating that the heating content of the hazardous wastes on average range from 9,900 to 12,200 BTU/lb, with a median value of 11, 500 BTU/lb. We thus conclude that the commenter's concern regarding sources being allowed to emit more HAP if they process hazardous waste with higher energy content is overstated for these sources.

Energy content of hazardous wastes processed in liquid fuel boilers and lightweight aggregate kilns varies more than energy content of hazardous wastes processed by cement kilns, and sources with higher energy content wastes would be allowed to emit more metals than identical sources burning identical volumes of lower energy content wastes (although the degree of control is identical per BTU of hazardous waste fuel processed).[115] Again, these are hypothetical examples. Each energy recovery unit will have an upper bound on the amount of energy it can process from the hazardous waste. Sources that process higher energy content hazardous wastes would not necessarily feed the same volume of hazardous waste as compared to sources processing lower energy content hazardous wastes because they cannot exceed the thermal capacity of their combustion unit. Under a thermal emission standard format, the mass emission rates that would be allowed for identical sources that fulfill 100 percent of their energy demand from hazardous waste and that have differing hazardous waste energy contents would be identical. Although the source with the higher energy content hazardous waste would have a higher allowable mass-based hazardous waste feed concentration, this source would have to process less hazardous waste (on a mass basis) to remain within its thermal capacity. This helps to ensure that its mass HAP emission rate is similar to other sources that process lower energy content hazardous waste.

One commenter's apparent concern with thermal emissions seems to center on an assertion that sources will intentionally blend nonhazardous, high heating value wastes or fuels with low energy, high metal bearing hazardous wastes in order to increase the energy content of these metal bearing wastes so that they will be subject to higher allowable emissions via thermal emission standards. We specifically address that comment later as it relates to commercial energy recovery units (lightweight aggregate kilns and cement kilns). We note here, however, that we do not consider that comment to be of practical concern for liquid fuel boilers

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consideration of stack gas attributable to fossil fuel emissions, and thus eliminates the dilutive effect of these emissions, the likelihood that sources will in fact use hazardous waste feed control as part of their control strategy is great.

[114] See comment submitted by the Cement Kiln Recycling Coalition, USEPA, "Comment Response Document to the Proposed HWC MACT Standards, Volume 1: MACT Standards," September 2005, Section 3.3. Also see USEPA, "Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards," September 2005, Section 23.

[115] The hazardous waste heating values of liquid fuel boilers range from 2,200 to 21,000 BTU/lb, with a median value of 14,800. Heating values of lightweight aggregate kilns range from 4,900 to 16,900 BTU/lb, with a median value of 14,800. We note that the low end heating value for lightweight aggregate kilns reflects one source and is not typical of heating values used by the other commercial lightweight aggregate kiln facilities, and are similar to the heating values of cement kilns.

because they do not engage in commercial fuel blending practices.

Comment: A commenter states that EPA's assessment of thermal emissions to identify the relevant best sources is inappropriate because thermal emissions are not emission levels, but rather a ratio of emissions to the heat content in a source's hazardous waste.

Response: This comment challenges the basic idea of normalization, since the comment would be the same regardless of the normalizing parameter being used. Thermal emissions are emission levels that are normalized to account for the amount of energy (*i.e.*, raw material) these sources recover by processing hazardous waste. Similarly, a mass emission concentration (*i.e.*, µg/dscm) is a ratio of the emissions to the volume of combustion gas that is generated, which normalize emissions to account for differences in the size of the combustion units (as well as differences in production capacity). This rulemaking assesses performance and expresses emission standards in both of these formats; both formats normalize the emissions so that we may better assess emission control efficiencies equally across sources based on the percent of HAP in the feed (whether thermal feed or feed normalized based on combustor size)[116] that is controlled or removed from the stack gas prior to being emitted into the atmosphere. As discussed above, technology-based standards have historically assessed performance after normalizing emissions based on the amount of raw material processed by the given industry sector. Thermal emissions normalize each source's emissions based on the amount of raw material (hazardous waste fuel) it processes, and are therefore appropriate to assess and identify the relevant best performers. Finally, as previously explained, this approach is consistent with both the language of section 112 (d) (2) and (3), and the purpose of these provisions.

Comment: A commenter states that EPA's assessment of thermal emissions to identify the relevant best sources is inappropriate because it ignores HAP emissions attributable to the nonhazardous fuel and raw material.

Response: Thermal emission standards do not directly control HAP emissions attributable to the fossil fuels and raw material, in the sense that we did not assess feed control of fossil fuels or raw materials. However, this issue is not related to our choice to use thermal content of hazardous waste as a normalizing parameter. Rather, the issue is whether feed control of fossil fuels and raw materials is a feasible means of control at all. We have determined that it is not, and that only back-end control (expressed as system removal efficiency) is feasible. Moreover, today's rule controls emissions from HAP in raw material and fossil fuels. All non-mercury metal HAP emissions attributable to fossil fuels or raw material are effectively and efficiently controlled to the level of the average of the best performing sources with the surrogate particulate matter standard, as well as the system removal efficiency component of the SRE/Feed methodology.

Comment: EPA has failed to document sources' actual feedrates. Feedrates are presented either as MTECs (where hazardous waste HAP feedrates are divided by gas flow rates) or as thermal feedrates, (where feedrate is expressed as the mass of HAP per million BTUs of hazardous waste fired). This is impermissible, since it does not measure actual feed levels.

Response: This comment essentially takes the position that it is legally impermissible to normalize standards, *i.e.*, express standards on a common basis. EPA rejects this comment for the reasons stated in the introduction to this section.

Comment: A commenter states that an increasing number of fuel blenders are producing fuels with a minimum heating content and maximum metals content in order to maximize revenues because high metal bearing wastes command a higher revenue on the commercial waste market. The commenter states that thermal emission standards are not appropriate because they are based on the implicit assumption that energy recovery entails metals feed.

Response: Contrary to what the commenter suggests, the thermal emissions format will more likely discourage the alleged practice of fuel blenders producing fuels with a minimum heat content and maximum metals content because the standard limits the allowable metal emissions based on the amount of energy contained in the hazardous waste. Thus, a source with a lower energy waste would have to ensure that the mass concentration of metals is also lower to comply with the thermal emission formatted standard. The source would consequently emit less metals (on a mass basis) because of the lower metal mass concentration in the waste fuel. Thermal emission standards reflect the reality that the hazardous waste fuels that are currently processed safely and efficiently in energy recovery units to displace valuable fossil fuel do in fact contain metal HAP. From a feed control perspective, the thermal emissions format appropriately requires sources to process high energy content hazardous waste fuels that reflect the thermal feed control levels achieved by the average of the best performing sources, and does so equally for all sources because it normalizes the allowable emissions based on the amount of energy each source recovers from the hazardous waste.

Comment: A commenter states that EPA should be concerned that fuel blenders and kilns will use the thermal emission standard format to increase the allowable metals feedrates for their units. The commenter claims that sources could inappropriately convert non-hazardous waste fuel to hazardous waste fuel by simply putting coal in a bunker in which hazardous waste was once stored, or mixing nonhazardous waste fuel oil with hazardous waste. The commenter states that a facility with a low hazardous waste firing rate, and relatively low allowable emissions can become a facility with a high hazardous waste percent firing rate, with higher allowable emissions, simply by 'creative' use of the hazardous waste mixture rule. The commenter suggests that EPA clearly state that the hazardous waste thermal emission standards apply only to the hazardous waste portion of the fuel blend mixture. The commenter further suggests that EPA require fuel blenders to report the amount of nonhazardous waste fuel that is contained in the fuel blend, and that cement kilns use this to determine allowable metal feed rates based on the original hazardous waste energy content.

Response: We do not believe hazardous waste combustors will engage in the practice of redesignating their fossil fuels, *i.e.*, coal, as hazardous wastes with creative use of the mixture rule in order to increase their allowable metal HAP emission rate. That would require large quantities of coal to be newly classified as hazardous waste. The coal, and the unit where the coal is stored, would subsequently become subject to all applicable subtitle C requirements, which include storage and closure/post closure requirements. We believe this disincentive will discourage this hypothetical practice.

Moreover, as previously discussed, today's rule does not allow cement kiln or lightweight aggregate kiln emissions to exceed the interim standards. The fact that we are issuing emission

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[116] For emission concentration-based standards we normalize hazardous waste feed control levels by calculating what we call maximum theoretical emission concentrations, which are equivalent to the HAP mass feed rate divided by gas flow rate.

standards for some pollutants in the thermal emissions standard format will not encourage fuel blenders to send more metals to these commercial energy recovery sources because their allowable emission concentrations are, by definition, either equivalent to or more stringent than the current limitations with which they are complying. Thus, even if the fuel blenders and energy recovery units engaged in this practice, they could not emit more metals than they are currently allowed to emit. We therefore conclude that it is not necessary to promulgate complicated regulatory provisions that would increase the reporting and recordkeeping requirements of fuel blenders and energy recovery units in order to address a hypothetical scenario that likely would never occur.

Finally, we note that combustion of certain high HAP metal content wastes is already prohibited under RCRA rules. See 40 CFR 268.3. Such wastes remain prohibited from combustion even if they are mixed with fossil fuel so that the mixture has a higher energy content. *U.S.* v. *Marine Shale Processors*, 81 F. 3d 1361, 1366 (5th Cir. 1996) (an unrecyclable hazardous waste is not recycled when it is mixed with a usable non-waste and the mixture is processed). Thus, the dilution prohibition in § 268.3 serves as a further guard against the commenter's concern.

Comment: A commenter states that the thermal emissions format may be problematic because it is based on a flawed assumption that metal HAP from the cement kiln raw material and hazardous waste partition in equal proportions to the total stack gas emissions. The commenter believes that metal retention in the raw materials is higher than the hazardous waste, suggesting that thermal emission standards allow an arbitrary increase in allowable hazardous waste metals emissions. The commenter suggests that EPA require that compliance demonstrations be conducted only under conditions where the metals content in the hazardous waste is significantly higher than the metal content in the raw material to minimize this bias.

Response: The commenter has not provided any emissions data to support this claim, nor does the EPA know of data available that reaches this conclusion. We do not believe there is a significant difference in the partitioning rates of these metals in a cement kiln.[117] Even if there is a difference, this would not result in an arbitrary increase of allowable hazardous waste metals emissions. The thermal emission standards were calculated using thermal emissions data that are based on each source's compliance test. These tests were conducted at hazardous waste feed control levels that represented the upper bound of feed control levels these sources see on a day-to-day basis. To accomplish this, sources spiked metals into the hazardous waste prior to combusting the wastes. The amount of metals that were contained in the hazardous waste streams, after accounting for these spiked metals, far exceeded the metal levels that were contained in the raw material. Thus the differences in partitioning, if any, would likely be overshadowed by the fact that the majority of the metals were contained in the hazardous waste.

Notably, any partitioning bias that that may be present would also have been present during these compliance tests. As a result, this potential bias would be built into the emission standard and thus would not result in an arbitrary increase in allowable hazardous waste metals emissions because these sources will again demonstrate compliance under testing conditions similar to those used to generate the data used to calculate the MACT floors. We conclude that it is not necessary to provide additional prescriptive regulatory language that would require sources to demonstrate system removal efficiencies under testing conditions that exhibit a high ratio of hazardous waste metal content to raw material metal content because the regulations implicitly require sources to demonstrate hazardous waste metal feed control levels that represent the upper range of their allowable feed control levels.[118]

Comment: A commenter states that compliance with standards expressed in a thermal emissions format is problematic because the measurement of energy content of hazardous waste fuel blends is subject to significant variability due to the nature of the test. The commenter also claims that heating value measurements of waste streams that are mixtures of solids and liquids tend be biased high, which would inappropriately give these sources higher allowable metal emission limitation.

Response: There are standard ASTM procedures that reliably measure the energy content of the hazardous waste. Any parameter that is measured for compliance purposes is subject to method imprecision and variability. We do not believe that hazardous waste energy content measurements result in imprecision and variability above and beyond the measurement methods that are currently used to assure compliance with emission concentration-based standards.

The commenter did not provide evidence that supports the claim that energy content measurement and/or sampling methods consistently result in a positive bias. If a bias were consistently present for these types of wastes, then one would expect it to be also reflected in the measured data for which we based the emission standards, which would fully address the commenter's concern. Nonetheless, we note that all hazardous waste sampling and analysis procedures must be prescribed in each source's feedstream analysis plan, which can be reviewed by the permitting authority upon request. These feedstream analysis plans must ensure that sampling and analysis procedures are unbiased, precise, and that the results are representative of the feedstream. See § 63.1208(b)(8). More information on obtaining a representative samples can be found in EPA's SW–846 publication.[119] These procedures involve acquiring several sub-samples that provide integration over the breadth, depth and surface area of the waste container and obtaining replicate samples (see Ch. 13.3.1 of SW–846).

Comment: A commenter states that BTU measurements can be reported as either a higher heating value or a lower heating value, and suggests that EPA require sources to use the lower heating value calculation when determining allowable hazardous waste feed control levels. The commenter seems to imply that use of higher heating values will inappropriately result in higher allowable metal feed rates for fuel blends that contain aqueous waste.

Response: The BTU data in our database that we use to calculate the emission standards reflect higher heating values. It is standard practice in the incineration/combustion industry to report the gross heat of combustion (or

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[117] We reference comments submitted by the cement kiln recycling coalition that address this very point. See USEPA, "Comment Response Document to the Proposed HWC MACT Standards, Volume 1: MACT Standards," September 2005, Section 3.3. We have evaluated these comments and find them persuasive on this issue.

[118] Although today's final rule allows sources to extrapolate their allowable hazardous waste feed control levels to levels that are higher than the level demonstrated in the comprehensive performance test, sources must still spike metals into the hazardous waste during the test in order to assure that the system removal efficiency used for the extrapolation procedure is reliable and accurate.

[119] SW–846, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods."

higher heating value). We conclude that sources should use the higher heating value rather than the lower heating value for all compliance determinations because these are method-based emission standards. Fuel blends that contain aqueous wastes will not be inappropriately rewarded with higher allowable feed rates because any fuel mixture that contain aqueous mixtures will have lower reported heating values, irrespective of whether they are reported as higher heating values or lower heating values.[120]

E. Standards Can Be No Less Stringent Than the Interim Standards

Comment: Several commenters oppose EPA's position in the proposed rule that the replacement standards can be promulgated at a level no less stringent than the interim standards for incinerators, cement kilns, and lightweight aggregate kilns. In instances where the calculated replacement standard is less stringent than the interim standard, the commenters oppose EPA's position of ''capping'' the replacement standard at the level of the interim standard to prevent backsliding from those levels. Instead, commenters recommend that EPA calculate and finalize the existing and new source floor levels without regard to the interim standards. One commenter also notes that the interim standards are simply a placeholder without the necessary statutory basis to qualify as emission limitations for purposes of establishing MACT floors. Another commenter, however, supports EPA's position to prevent backsliding to levels less stringent than the interim standards.

Response: We maintain that the replacement standards can be no less stringent than existing standards, including the interim standards under §§ 63.1203–1205, for incinerators, cement kilns, and lightweight aggregate kilns. These standards were promulgated on February 13, 2002, and sources were required to comply with them no later than September 30, 2003, unless granted a one-year extension (see § 63.1206(a)). Thus, all hazardous waste combustors are currently complying with the interim standards. The comment that the standards lack some type of requisite statutory pedigree misses the central point of our interpretation of the statute: motivation for achieving a standard (be it regulatory compulsion, statutory requirement, or some other reason) is irrelevant in determining levels of MACT floors. *National Lime* v. *EPA,* 233 F. 3d at 640. What matters is the level of performance, not what motivated that level.

As a result, the replacement standards promulgated today ensure that sources will emit HAP at levels no higher than levels achieved under current regulations. We do this in this rule, when necessary, by either capping a calculated floor level by the interim standard (when both the calculated floor level and interim standard are expressed in the same format of the standard) or by adopting dual standards in cases where formats of the standard vary (so that comparison of stringency cannot be uniformly determined (as for cement kilns and lightweight aggregate kilns, as explained in the preceding section above and in the following response). In this case, the sources are subject to both the replacement and interim standards.

Comment: One commenter states that some proposed standards expressed in a thermal emissions format would allow some sources to emit semivolatile metals at levels higher than the interim standard. The commenter states that EPA reached incorrect conclusions when making relative stringency comparisons between standards expressed in a thermal emissions and mass concentrations format because, in part, EPA assumed an average F-factor (e.g., semivolatile metals for cement kilns).[121] In addition, the commenter notes that the actual relationship between standards expressed in terms of thermal emissions and mass concentrations is complex and depends on a number of factors. As a result, the commenter urges EPA to adopt dual standards (*i.e.*, promulgate the MACT standard as both the standard expressed in a thermal emissions format and also the interim standard expressed in a mass concentration format) to prevent backsliding.

Response: Even though a source may operate in compliance with a standard expressed in a thermal emission format, a source may or may not also be in compliance with the corresponding mass concentration interim standard (e.g., the semi- and low volatile metal emission standards for cement and lightweight aggregate kilns of §§ 63.1204 and 63.1205, respectively). As reflected in the comment, making a judgment as to whether a replacement standard is more stringent than the interim standard for the HAP is not always a straightforward calculation. As we discussed in the proposed rule[122] and echoed by the commenter, comparing standards in the thermal emissions format to those in a mass concentration format involves assumptions that vary on a site-specific basis and can vary over time, including the hazardous waste fuel replacement rate, contributions to emissions from nonhazardous waste inputs such as raw materials and nonhazardous waste fuels such as coal, how close to the standard a source elects to comply, the system removal efficiency demonstrated during testing, and the type and composition, including heating value, of fuels burned.

To ensure that sources operating under standards expressed in a thermal emissions format will not emit HAP metals at levels higher than currently achieved under the interim standards, we adopt a dual standard to prevent emissions increasing to levels higher than the interim standards. The dual standard structure includes both the standard expressed in a thermal emissions format and the interim standard, which is expressed in a mass concentration format. We apply this concept to several standards including semivolatile metals, low volatile metals, and mercury[123] for cement kilns and semivolatile metals and low volatile metals for lightweight aggregate kilns. This approach ensures that sources are not emitting HAP metals above the levels of the interim standards because we cannot reliably determine that emissions under a standard expressed in a thermal emissions format would not exceed the interim standard for all sources in the category. See §§ 63.1220(a)(2)–(a)(4), and (b)(2)–(b)(4) and 63.1221(a)(3)–(a)(4) and (b)(3)–(b)(4).

We evaluated the relative stringency of the standards expressed in the thermal emissions format compared to the interim standards for the entire source category in order to determine if the dual standard scheme could be avoided. We determined that we could not. For some HAP groups we found that many sources in the category would have the potential to exceed the interim

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[120] The difference between the higher heating value and lower heating value of an aqueous waste is insignificant relative to the difference in heating value between an aqueous waste and an organic liquid waste fuel.

[121] An F-factor is an estimate of the amount of combustion gas volume that is generated per fuel heat input for a given type of fuel, expressed in units, for example, cubic feet of combustion gas per million British thermal units (BTU) of fuel burned. In the proposal, EPA used F-factors to convert the emission standards expressed on a thermal basis to mass concentrations in order to make a judgment as to the relative stringency of the proposed MACT standards relative to the interim standards.

[122] For example, see 69 FR at 21255–258, 267–271.

[123] Although the mercury standard promulgated for cement kilns is not expressed using a thermal emission format basis, the same concept applies because the mercury standard is a hazardous waste feed concentration standard, which is a different format than the interim standard.

standards for that HAP.[124] In this case, we considered simply ''capping'' the standard expressed in the thermal emission format by the interim standard (*i.e.*, the promulgated standard would only be expressed in a mass concentration format). However, we conclude that this approach would not be appropriate because the standard expressed in a thermal emission format would likely be more stringent than the mass concentration for some sources, and the statute requires that MACT floors reflect this superior level of performance.

In other cases we found that the standards expressed in the thermal emissions format would not likely exceed the interim standards by the majority of sources operating under typical conditions.[125] While our analysis (based on information in our data base) shows in these cases that the emission standard expressed in a thermal emission format would not likely result in an exceedance of the interim standard, this conclusion may not be true because the assumptions may not be valid for a particular source or site-specific factors may change in future operations. For example, HAP metal emissions could increase over time due to increases in HAP contributions from raw materials or alternative raw materials. Given this potential, we adopt dual standards for the HAP metal standards in order to ensure that standards expressed in a thermal emissions format will not exceed emission levels achieved under the interim standards.[126]

Comment: Several commenters state that the interim standards do not reflect the average performance of the best sources, and so cannot be the basis for floor levels.

Response: In those few situations where we have established floor levels at the level of the interim standards, we have done so as the best means of estimating performance of the best performing sources. Based on the available data to us, the average of the best performing sources exceeds the level of the interim standards in a few instances. Under these circumstances, the binding regulatory limit becomes the best means available to us to estimate performance. See *Mossville,* 370 F. 3d at 1241–42 (accepting regulatory level as a floor standard where sources' measured performance is not a valid means of determining floor levels, and where such data contains results as high as those regulatory levels).

F. How Can EPA's Approach to Assessing Variability and its Ranking Methodologies Be Reasonable When They Result in Standards Higher Than the Interim Standards?

A commenter argued that EPA's floor methodologies, in particular its consideration of variability beyond that demonstrated in single test conditions, the SRE/feed and Air Pollution Control Device methodologies, must be arbitrary because in a few instances projected standards using these approaches were higher than the current interim standards, a level every source (not just the best performers) are achieving. Commenters also noted that one of the new source standards calculated under these approaches was higher than an existing source standard, another arbitrary result.

EPA believes that these seeming anomalies (which are infrequent) result from the database used to calculate performance and standards, rather than from the approaches to assessing variability or the two questioned floor methodologies. The data base is from test results which preceded EPA's adoption of the interim standards. Thus, the level of performance required by the later rule is not necessarily reflected in pre-rule test data. In confirmation, some of the standards computed using straight emission approaches also are higher than the interim standards. Other anomalies arise simply due to scarcity of data (floor levels for certain HAP emitted by lightweight aggregate kilns especially, where there are only nine sources total). In these situations there is a greater likelihood that one or more of the best performing sources will have relatively high emissions because we are required to use data from five sources to comprise the MACT pool whenever we have data from fewer than 30 sources, and a small amount of data can skew the result. See § 112(d)(3)(B).[127]

For example, many of the calculated new source chlorine floors were slightly higher than the calculated existing source standards because we assumed all sources with measured emissions below 20 ppmv were in fact emitting at 20 ppmv (see part four, section I.C). We generally are unable to differentiate a single best performing source among these best performers because many/all of the best performing sources emissions are adjusted to the same emission level. The calculated new source floor can be slightly higher than the existing source floor because the variability factor that is applied to the single best performing source is based on only one test condition (with three emission test runs). This results in a higher level of uncertainty relative to the existing source standard, which is based on a compilation of emissions data from several sources that have essentially the same projected emissions as a result of the method bias correction factor. The variability factor that is applied to the emissions of the single best performing source is therefore higher than the variability factor for the existing source floor because there are fewer degrees of freedom in the statistical analysis.[128] Likewise, many of the calculated solid fuel boiler new source standards were slightly higher than the calculated existing source standards because, as discussed above, there are fewer degrees of freedom when assessing the variability from a single best performing source. The solid fuel boiler ''anomalies'' also occur using a straight emissions methodology. See USEPA, ''Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards,'' September, 2005, Section 19, for further discussion that summarizes and explains these so-called anomalies.

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[124] An example for each category is semivolatile metals thermal emissions standard for existing cement and lightweight aggregate kilns. See USEPA, ''Final Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards,'' Section 23.1, September 2005.

[125] An example is the emission standards for low volatile metals for existing and new cement kilns and new lightweight aggregate kilns. See USEPA, ''Final Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards,'' Section 23.1, September 2005.

[126] In response to a comment regarding the implementation of dual standards, we note the promulgation of a new provision allowing sources to petition the Administrator to waive the HAP metal feedrate operating parameter limits for either the emissions standards expressed in a thermal emissions format (or the mercury feed concentration standard for cement kilns) or the interim standards based on documentation that the feedrate operating parameter limit is not needed to ensure compliance with the relevant standard on a continuous basis. See new § 63.1209(g)(1)(iv) and Comment Response Document, Volume I, Section 3.5.

[127] See USEPA, ''Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards,'' September 2005, Section 19, for further discussion.

[128] For a single test condition the t factor used in variability factor calculation has n–1 degrees of freedom where n is the number of runs for that condition. For the MACT floor calculation the t factor has X–N degrees of freedom where X is the total number of runs from all sources in the MACT pool and N is the number of sources in the pool. See USEPA, ''Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards,'' September, 2005, Section 7.1 for more information on the floor calculation procedure.

IV. Use of Surrogates

A. Particulate Matter as Surrogate for Metal HAP

Comment: A commenter states that EPA's use of particulate matter as a surrogate for nonenumerated metals is unlawful and arbitrary and capricious because although particulate matter emissions may provide some indication of how good a source's end-of stack control of such metals is, it does not indicate what its actual metal emission levels are.[129] The commenter states that emissions of these metals can vary based on metal feed rate without having any appreciable effect on particulate matter emission levels. Thus a particulate matter standard does not necessarily ensure that metal emissions are reduced to the metal emission levels achieved by the relevant best performing sources. To support this assertion, the commenter states that EPA is on record saying ''low particulate matter emissions do not necessarily guarantee low metal HAP emissions, especially in instances where the hazardous waste feeds are highly concentrated with metal HAP.'' 69 FR at 21221.

Response: The final rule uses a particulate matter standard as a surrogate to control: (1) Emissions of nonenumerated metals that are attributable to all feedstreams (both hazardous waste and remaining inputs); and (2) all nonmercury metal HAP emissions (both enumerated and nonenumerated metal HAP) from the nonhazardous waste process feeds at cement kilns, lightweight aggregate kilns, and liquid fuel boilers (e.g., emissions attributable to coal and raw material at a cement kiln, and emissions attributable to fuel oil for liquid fuel boilers). Incinerators, liquid and solid fuel boilers may elect to comply with an alternative to the particulate matter standard that would limit emissions of all the semivolatile metal HAPs and low volatile metal HAPs. See § 63.1219(e).

The particulate matter standard is a necessary, effective, and appropriate surrogate to control nonmercury metal HAPs. The record demonstrates overwhelmingly that when a hazardous waste combustor emits particulate matter, it also emits nonmercury HAP metals as part of that particulate matter, and that when particulate matter is removed from emissions the nonmercury HAP metals are removed with it.[130] Nonmercury metal HAP emissions are therefore reduced whenever particulate matter emissions are reduced. The particulate matter standard thus is an effective and appropriate surrogate that assures sources are controlling these metal HAP with an appropriate back-end control technology. *National Lime* v. *EPA*, 233 F. 3d at 639. The nonenumerated metal HAP are no different than other semivolatile or low volatile metals in that they also will be effectively controlled with a back-end particulate matter air pollution control device.

We also considered the possibility of developing a standard for nonenumerated HAP metals instead of a PM standard (*i.e.*, regulating these metals directly, rather than through use of a surrogate). We conclude for several reasons, however, that issuing emission standards for these nonenumerated metals in lieu of a particulate matter standard would not adequately control nonmercury metal HAPs to levels achieved by the relevant best performing sources.

We generally lack sufficient compliance test emissions data for the noneneumerated metals to assess the relevant best performing sources, because, as discussed below, most of these metals were not directly regulated pursuant to RCRA air emission standards.[131] Although we have more emissions data for these metals that are based on (so called) normal operations, we still lack sufficient emissions data to establish nonenumerated metal standards for all the source categories. Use of normal data may also be problematic because of the concern raised by the cement kiln and lightweight aggregate kiln stakeholders that our normal metals emissions data obtained from compliance tests are not representative of the range of actual emissions at their sources. Cement kiln and lightweight aggregate kiln stakeholders submitted long-term hazardous waste mercury feed control data that support their assertion. Although these stakeholders did not submit long-term normal hazardous waste feed control data for the nonenumerated metals, we can still see that use of the normal nonenumerated metal snapshot emissions in our database to determine MACT floors could raise similar concerns with respect to whether the normal data in fact represents average emissions at these sources, and their level of performance.

Use of particulate matter emissions data to assess the relevant best performers for nonenumerated metal HAP is therefore more appropriate for two reasons. Compliance test data better account for emissions variability and avoid the normal emissions bias discussed above. We also have much more particulate matter emissions data from more sources, which better allows us to evaluate the true range of emissions from all the sources within the source category and to assess and identify the relevant top performing 12 percent of the sources.

It would be inappropriate to assess total stack gas emissions of nonenumerated metals for cement kiln and lightweight aggregate kilns when determining the relevant best performers because these emissions would, in part, reflect the metal feed levels in these sources' nonhazardous waste process feedstreams. This is not appropriate because nonhazardous process feedstream control is not a feasible means of control. See part four, section III.B.1. A potential solution to this problem would be to identify the relevant best performers by assessing each source's hazardous waste thermal emissions for these nonenumerated metals (given that hazardous waste thermal emissions exclude by definition emissions attributable to inputs other than hazardous waste, *i.e.* raw materials and fossil fuels). This, however, would be problematic because, aside from the data limitation issues, the majority of the nonenumerated metals data reflect normal emissions which often do not contain the highest feed rates used by the source. As a result, we cannot assess performance on a thermal emissions basis because of the uncertainty associated with system removal efficiencies at such low metal feedrates. Furthermore, even if we could issue hazardous waste thermal emissions standards for these metals, a particulate matter emission standard would still be necessary to control nonmercury metal HAP emissions from the nonhazardous waste process feedstreams.

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[129] ''Enumerated'' metals are those HAP metals directly controlled with an emission limit, *i.e.*, lead, cadmium, chromium, arsenic and beryllium. The remaining nonmercury metal HAP (*i.e.*, antimony, cobalt, manganese, nickel, and selenium) are called ''nonenumerated'' metal HAP (note that arsenic and berrylium are nonenumerated metals for liquid fuel boilers because the low volatile metal emission standard applies only to chrome).

[130] This statement is equally true for any emitting source, not just hazardous waste combustors. It is well established that semivolatile and low volatile metals exist in solid particulate form at typical air pollution control device operating temperatures. This is supported by (1) known operating temperature ranges of air pollution control devices used by hazardous waste combustors; (2) known metal volatility equilibrium relationships; and (3) extensive technical literature. See USEPA, ''Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards,'' September 2005, Section 3.1.

[131] At best, we may have enough compliance test data for antimony and selenium to adequately assess relevant best performers for only incinerators and lightweight aggregate kilns.

Emission standards for these nonenumerated metals could require sources to implement hazardous waste feed control (for these metals) to comply with the standard.[132] We are less assured that these sources were implementing hazardous waste feed control for these nonenumerated metals at the time they conducted the emissions tests (which serve as the basis for floor calculations) because most of these metals were never directly regulated pursuant to the RCRA emission standards.[133] This means that sources tended to optimize (or at least concentrate their efforts on) control of the metals that are regulated. Although these metals were being controlled with each source's back-end control device, sources may not have been controlling these metal feedrates because they probably were not subject to specific feedrate limitations (feed control of the enumerated metal HAP does not ensure feed control of these nonenumerated metal HAP). Furthermore, simultaneous feed control of all these metals, when combined with enumerated semivolatile and low volatile metals, may not be possible because the best performing sources for all these metals may collectively represent a hazardous waste feedstream that does not exist in practice (from a combined metal concentration perspective) because there likely would be different best performers for each of the metal HAP or metal HAP groups.[134] We thus conclude that back-end control as measured and assessed by each source's particulate matter emissions is the appropriate floor technology to assess when identifying the relevant best performers for nonenumerated HAP metals and estimating these sources' level of performance.

Comment: A commenter states that EPA's rationale for use of particulate matter as a surrogate for nonenumerated metals is flawed because EPA has provided no data in the proposal to justify its hypothesis that particulate matter is an appropriate surrogate for non-enumerated metal HAP. The commenter also states that the proposed emission standards for particulate matter for existing sources discriminate against boilers and process heaters that burn clean (*i.e.*, little or very low concentrations of HAP metals) hazardous waste fuels. The commenter suggests that if there are sufficient data, EPA should consider developing an alternative emission standard for total HAP metals for new and existing liquid fuel boilers, as was done for the Subpart DDDDD National Emission Standards for Hazardous Air Pollutants for Industrial/Commercial/Institutional Boilers and Process Heaters.

Response: As previously discussed in this section, particulate matter reflects emissions of nonmercury metal HAPs because these compounds comprise a percentage of the particulate matter (provided these metals are fed into the combustion unit). The technologies that have been developed and implemented to control particulate matter also control nonmercury metal HAP. Since non-mercury metal HAP is a component of particulate matter, we can use particulate matter as a surrogate for these metals. Further justification for the use of particulate matter as a surrogate to control metal HAP is included in the technical support document.[135]

We conclude that we do not have enough nonenumerated metal emissions data to calculate alternative total metal emission floors for liquid fuel boilers. The most problematic of these metals are manganese and cobalt, where we have emission data from only three sources. We have much more compliance test particulate matter emissions data from liquid fuel boilers, and thus conclude that the particulate matter standard best reflects the emission levels achieved by the relevant best performers.

Similar to the above discussion, calculating an alternative total metal emissions floor raises questions regarding the method used to calculate such floors. Hazardous waste combustor metal emissions have traditionally been regulated in volatility groupings because the volatility of the metal affects the efficiency of back-end control (*i.e.*, semivolatile metals are more difficult to control than low volatile metals because they volatilize in the combustor and then condense as small particulates prior to or in the emission control device). When identifying the best performing sources, we previously have, in general, only evaluated sources that have metal emissions information for every metal in the volatility grouping. This approach could prove to be problematic since it is not likely many sources will have emissions data for all the metals.

Although we could not calculate alternative total metal emission floor standards based on the available emissions data we have, we agree with the commenters' view that sources that burn hazardous waste fuels with low levels of nonenumerated metals should be allowed to comply with a metals standard rather than the particulate matter standard. We proposed an alternative to the particulate matter standard (see 69 FR at 21331) for incinerators, liquid, and solid fuel boilers that was a simplified version of the alternative particulate matter standard that is currently in effect for incinerators pursuant to the interim standards (see § 63.1206(b)(14)). We received no adverse comment and are promulgating this alternative as proposed. The alternative metal standards apply to both enumerated and nonenumerated metal HAP, excluding mercury. For purposes of these alternative requirements, each nonenumerated metal is classified as either a semivolatile or a low volatile metal and subsequently grouped with the associated semivolatile and low volatile enumerated metals. The semivolatile and low volatile metals standards under this alternative are the same as those that apply to other liquid fuel boilers, but the standard would apply to all metal HAP, not just those enumerated in the generic low volatile metal and semivolatile metal standards. See §§ § 63.1216(e), 63.1217(e) and 63.1219(e).

B. Carbon Monoxide/Hydrocarbons and DRE as Surrogates for Dioxin/Furan

Comment: One commenter states that the dioxin/furan floors for new and existing solid fuel boilers is unlawful and arbitrary and capricious. EPA established the floor for dioxin/furan for these sources as compliance with the carbon monoxide or hydrocarbon standard and the destruction and removal efficiency (DRE) standard. The

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[132] Sources that otherwise would be equipped with what is considered to be a MACT back-end control devices (*i.e.*, a control device achieving the final rule particulate matter standard) may not be able to achieve these metal emissions standards due to varying metal feed levels (both within sources and across sources). Such an outcome may require a source to limit the amount of metal that is fed into the combustion unit to achieve the standard.

[133] Antimony is the only nonenumerated metal that is directly regulated pursuant to the boilers and industrial furnace regulations. See § 266.106.

[134] We generally cannot combine these nonenumerated metals into the associated semivoltile or low volatile metal volatility groupings promulgated in this final rule for purposes of establishing ''grouped'' emission standards because we cannot mix compliance test data with normal emissions data when calculating floors (the majority of the standards included in this final rule are based on compliance test data, and the majority of the data we have for nonenumerated metals being normal). Furthermore, if we were to separately group the normal nonenumerated metal emission data into their associated semivolatile or low volatile metal group, we may encounter data limitation issues because each source would need to have measured each of the nonenumerated metals in that associated metal volatility group in order for us to conclude that the emission data adequately represents the sources combined emissions of semivolatile or low volatile metals.

[135] See USEPA, ''Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards,'' September 2005, Section 3.1.

commenter states that EPA has not shown that carbon monoxide or hydrocarbon emissions correlate to dioxin/furan emissions, and, accordingly, has not shown that the carbon monoxide or hydrocarbon standard, together with the DRE standard, are valid surrogates.

This commenter also states that it is inappropriate for EPA to use carbon monoxide or hydrocarbons and DRE as surrogates to establish dioxin/furan floors for liquid fuel boilers with wet or no air pollution control devices and for hydrochloric acid production furnaces. The commenter believes EPA inappropriately justifies these surrogates by claiming that a numerical dioxin/furan floor would not be replicable by the best sources or duplicable by the others. The commenter states that EPA has no discretion to avoid setting floors for a HAP just because it believes that HAP is not controlled with a technology. Rather, EPA must set floors reflecting the relevant best sources' actual performance. Such floors necessarily will be duplicable by the relevant best sources themselves. That they cannot be replicated by other sources is irrelevant according to the commenter.

In addition, the commenter states that EPA does not claim or demonstrate that the carbon monoxide and hydrocarbon floors for solid fuel boilers reflect the average emission levels achieved by the relevant best sources.

Finally, the commenter also notes that EPA appears to argue that its carbon monoxide or hydrocarbon standard and DRE standard could be viewed as work practice standards under section 112(h) which allows EPA to establish work practice standards in lieu of emission standards only if it is not be feasible to set the former. Because EPA has made no such demonstration, setting work practice standards to control dioxin/furan emissions from boilers would be unlawful according to the commenter.

Response: The commenter raises four issues: (1) Are the carbon monoxide/hydrocarbon standard and the DRE standard adequate surrogate floors to control dioxin/furan; (2) floors for existing sources must be established as the average emission limitation achieved by the best performing sources irrespective of whether the limitation is duplicable by the best performing sources or replicable by other sources; (3) EPA has not explained how the carbon monoxide and hydrocarbon floors reflect the average emission limitation achieved by the relevant best sources; and (4) EPA cannot establish work practice standards for dioxin/furan under section 112(h) because it has not demonstrated that setting an emission standard is infeasible under section 112(h)(1).

Carbon Monoxide and Hydrocarbons Are Adequate Surrogates to Control Dioxin/Furan when Other Controls Are Not Effective or Achievable. Carbon monoxide and hydrocarbons (coupled with the DRE standard) are the best available surrogates to control dioxin/furan emissions when a numerical floor would not be achievable and when other indirect controls, such as control of the gas temperature at the inlet of a dry particulate matter control device to 400F, are not applicable or effective.[136]

As we explained at proposal, operating under good combustion conditions to minimize emissions of organic compounds such as polychlorinated biphenyls, benzene, and phenol that can be precursors to dioxin/furan formation is an important requisite to control dioxin/furan emissions.[137] See 69 FR at 21274. Minimizing dioxin/furan precursors by operating under good combustion practices plays a part in controlling dioxin/furan emissions, and that role is substantially enhanced when there are no other dominant factors that relate to dioxin/furan formation and emission (e.g., operating a dry particulate matter control device at temperatures above 400F).

Carbon monoxide and hydrocarbons are widely accepted indicators of combustion conditions. The current RCRA regulations for boilers and hydrochloric acid production furnaces use emissions limits on carbon monoxide and hydrocarbons to control emissions of toxic organic compounds. See 56 FR 7150 (February 21, 1991) documenting the relationship between carbon monoxide, combustion efficiency, and emissions of organic compounds. In addition, carbon monoxide and hydrocarbons are used by many CAA standards for combustion sources to control emissions of organic HAP, including: MACT standards for hazardous waste burning incinerators, hazardous waste burning cement kilns, hazardous waste burning lightweight aggregate kilns, Portland cement plants, and industrial boilers; and section 129 standards for commercial and industrial waste incinerators, municipal waste combustors, and medical waste incinerators. Finally, hydrocarbon emissions are an indicator of organic hazardous air pollutants because hydrocarbons are a direct measure of organic compounds.

Commenters on our proposed MACT standards for hazardous waste incinerators, cement kilns, and lightweight aggregate kilns stated that EPA's own surrogate evaluation[138] did not demonstrate a relationship between carbon monoxide or hydrocarbons and organic HAP at the carbon monoxide and hydrocarbon levels evaluated. See 64 FR at 52847 (September 30, 1999). Several commenters on that proposed rule noted that this should not have been a surprise given that the carbon monoxide and hydrocarbon emissions data evaluated were generally from hazardous waste combustors operating under good combustion conditions (and thus, relatively low carbon monoxide and hydrocarbon levels). Under these conditions, emissions of HAP were generally low, which made the demonstration of a relationship more difficult. These commenters noted that there may be a correlation between carbon monoxide and hydrocarbons and organic HAP, but it would be evident primarily when actual carbon monoxide and hydrocarbon levels are higher than the regulatory levels. We agreed with those commenters, and concluded that carbon monoxide and hydrocarbon levels higher than those we established as emission standards for hazardous waste burning incinerators, cement kilns, and lightweight aggregate kilns are indicative of poor combustion conditions and the potential for increased emissions organic HAP. We continue to believe that carbon monoxide and hydrocarbons are adequate surrogates for organic HAP which may be precursors for dioxin/furan formation and note that the commenter did not explain why our technical analysis is problematic.

Emissions that Are Not Replicable or Duplicable Are Not Being "Achieved". The commenter believes that floors must be established as the average emission limitation of the best performing sources irrespective of whether they are replicable by the best performing sources or duplicable by other sources. To the contrary, emission

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[136] As discussed in Part Two, Section V, we view the carbon monoxide, hydrocarbon, and destruction removal efficiency standards as unaffected by the Court's vacature of the September 1999 challenged regulations for incinerators, cement kilns, and lightweight aggregate kilns. We are therefore not re-promulgating and reopening consideration of these standards in today's final rule for these source categories.

[137] Operating under good combustion conditions also helps minimize soot formation on boiler tubes. Research has shown that operating under conditions that can form soot followed by operating under good combustion conditions can lead to dioxin/furan formation. See Section 2.4 of Volume III of the Technical Support Document.

[138] See Energy and Environmental Research Corporation, "'Surrogate Evaluation of Thermal Treatment Systems,'" Draft Report, October 17, 1994.

levels that are not replicable by the best performing sources are not being ''achieved'' by those sources and cannot be used to establish the floor.

For solid fuel boilers, we explained at proposal why dioxin/furan emissions are not replicable by the best performing sources (or duplicable by other sources): there is no dominant, controllable means that sources are using that can control dioxin/furan emissions to a particular level. See 69 FR at 21274–75. We explained that data and information lead us to conclude that rapid quench of post-combustion gas temperatures to below 400 °F—the control technique that is the basis for the MACT standards for dioxin/furan for hazardous waste burning incinerators, and cement and lightweight aggregate kilns—is not the dominant dioxin/furan control mechanism for coal-fired boilers. We believe that sulfur contributed by the coal fuel is a dominant control mechanism by inhibiting formation of dioxin/furan. Nonetheless, we do not know what minimum level of sulfur provides significant control. Moreover, sulfur in coal causes emissions of sulfur oxides, a criteria pollutant, and particulate sulfates. For this reason, as well as reasons stated at 69 FR 21275, we are not specifying a level of sulfur in coal for these sources as a means of dioxin/furan control.

The same rationale applies to liquid fuel boilers with no air pollution controls or wet air pollution control systems and to hydrochloric acid production furnaces—there is no dominant, controllable means that sources are using that can control dioxin/furan emissions to a particular emission level.[139] Thus, best performer dioxin/furan emissions are not replicable by the best performing sources (or duplicable by other sources). For these sources, the predominant dioxin/furan formation mechanism for other source categories—operating a fabric filter or electrostatic precipitator above 400F—is not a factor.

Given that these sources are not using controllable means to control dioxin/furan to a particular emission level, there is no assurance that the best performers can achieve in the future the emission level reported in the compliance test in our data base. Put another way, the test data do not reflect these sources' variability, and the variability is largely unquantifiable given the uncertainties regarding control mechanisms plus the environmental counter-productiveness of encouraging use of higher sulfur coal. Hence, that reported emission level is not being ''achieved'' for the purpose of establishing a floor.

Finally, we note that beyond-the-floor controls such as activated carbon can control dioxin/furan to a particular emission level. If a source were to install activated carbon, it could achieve the level demonstrated in a compliance test, after adjusting the level to account for emissions variability to ensure the measurement was replicable. The commenter argues that such a result is mandatory under the straight emissions approach (the only way the commenter believes best performers can be determined). Doing so, however, would amount to a surreptitious beyond-the-floor standard (forcing adoption of a control technology not used by any existing source), without considering the beyond-the-floor factors set out in section 112(d)(2). In fact, we considered beyond-the-floor standards based on use of activated carbon for these sources—solid fuel boilers, liquid fuel boilers with wet or no emission control device, and hydrochloric acid production furnaces—but rejected them for reasons of cost. The cost-effectiveness ranged from $2.5 million to $4.9 million per gram TEQ of dioxin/furan removed. In contrast, the cost-effectiveness of the beyond-the-floor standard we promulgate for liquid fuel boilers equipped with dry emission control devices is $0.63 million per gram TEQ of dioxin/furan removed.[140]

Consequently, we are not promulgating a beyond-the-floor standard for dioxin/furan for these sources, and do not believe we should adopt such a standard under the guise of determining floor levels.

The Carbon Monoxide and Hydrocarbon Floors Are Appropriate MACT Floors. We explained at proposal why the carbon monoxide standard of 100 ppmv and the hydrocarbon standard of 10 ppmv are appropriate floors. See 69 FR at 21282. The floor level for carbon monoxide of 100 ppmv is a currently enforceable Federal standard. Although some sources are achieving carbon monoxide levels below 100 ppmv, it is not appropriate to establish a lower floor level because carbon monoxide is a conservative surrogate for organic HAP. Organic HAP emissions may or may not be substantial at carbon monoxide levels greater than 100 ppmv, and are extremely low when sources operate under the good combustion conditions required to achieve carbon monoxide levels in the range of zero to 100 ppmv.[141] (See also the discussion below regarding the progression of hydrocarbon oxidation to carbon dioxide and water). As such, lowering the carbon monoxide floor below 100 ppmv may not provide significant reductions in organic HAP emissions. Moreover, it would be inappropriate to establish the floor blindly using a mathematical approach—the average emissions for the best performing sources—because the best performing sources may not be able to replicate their emission levels (and other sources may not be able to duplicate those emission levels) using the exact types of good combustion practices they used during the compliance test documented in our data base. This is because there are myriad factors that affect combustion efficiency and, subsequently, carbon monoxide emissions. Extremely low carbon monoxide emissions cannot be assured by controlling only one or two operating parameters.

We proposed a floor level for hydrocarbons of 10 ppmv even though the currently enforceable standard for boilers and hydrochloric acid production furnaces is 20 ppmv because: (1) Although very few sources elect to comply with the RCRA standard for hydrocarbons rather than the standard for carbon monoxide, those that comply with the hydrocarbon standard have hydrocarbon levels well below 10 ppmv; and (2) reducing hydrocarbon emissions within the range of 20 ppmv to 10 ppmv may reduce emissions of organic HAP.

Although all sources are likely to be achieving hydrocarbon levels below 10 ppmv, it is not appropriate to establish a lower floor level because hydrocarbons are a surrogate for organic HAP. Although total hydrocarbons would be reduced at a floor level below 10 ppmv, we do not know whether

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[139] We note that the same rationale also applies to incinerators with wet or no air pollution control equipment and that are not equipped with a waste heat boiler.

[140] See USEPA, ''Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards,'' September 2005, Sections 12, 13, and 15.

[141] We note, however, that this general principle may not always apply. There are data that indicate that even though carbon monoxide levels are below 100 ppmv, hydrocarbon levels may not always be below 10 ppmv. See 64 FR at 52851 and Part Four, Section IV B. and C. of this preamble. An example of how this might occur, although not a likely practical scenario, is if combustion is quenched before substantial carbon monoxide can be generated, leaving unburned hydrocarbons in the stack gas. Because of this potential (although unlikely) concern, the rule requires sources that elect to monitor carbon monoxide rather than hydrocarbons to conduct a one-time test to document that hydrocarbons are below 10 ppmv and to establish operating limits on parameters that affect combustion conditions (i.e., the same operating parameters that we use for compliance assurance with the DRE standard). See § 63.1206(b)(6).

organic HAP would be reduced substantially. As combustion conditions improve and hydrocarbon levels decrease, the larger and easier to combust compounds are oxidized to form smaller compounds that are, in turn, oxidized to form carbon monoxide and water. As combustion continues, carbon monoxide is then oxidized to form carbon dioxide and water. Because carbon monoxide is a difficult-to-destroy refractory compound (*i.e.*, oxidation of carbon monoxide to carbon dioxide is the slowest and last step in the oxidation of hydrocarbons), it is a conservative surrogate for destruction of hydrocarbons, including organic HAP, as discussed above. As oxidation progresses and hydrocarbon levels decrease, the larger, heavier compounds are destroyed to form smaller, lighter compounds until ideally all hydrocarbons are oxidized to carbon monoxide (and then carbon dioxide) and water. Consequently, the relationship between total hydrocarbons and organic HAP becomes weaker as total hydrocarbon levels decrease to form compounds that are not organic HAP, such as methane and acetylene.[142]

Moreover, as discussed above for carbon monoxide, it would be inappropriate to establish the floor blindly using a mathematical approach—the average emissions for the best performing sources—because the best performing sources may not be able to replicate their emission levels (and other sources may not be able to duplicate those emission levels) using the exact types of good combustion practices they used during the compliance test documented in our data base. This is because there are myriad factors that affect combustion efficiency and, subsequently, hydrocarbon (and carbon monoxide) emissions. Extremely low hydrocarbon emissions cannot be assured by controlling only one or two operating parameters.

The Standards for CO and HC Are Not Work Practice Standards. The floor standards for CO or HC for boilers and hydrochloric acid production furnaces are quantified emission limits. The standards consequently are not work practice standards (even though they represent levels showing good combustion control). CAA section 302(k). EPA's reference to section 112(h)(1) at proposal (69 FR at 21275) was consequently erroneous.

C. Use of Carbon Monoxide and Total Hydrocarbons as Surrogate for Non-Dioxin Organic HAP[143]

Comment: A commenter states that neither the total hydrocarbon nor carbon monoxide standard alone provides adequate surrogate control for organic HAP. Accordingly, EPA must include standards for both. Hazardous waste combustors could have total hydrocarbon levels below the standard during the carbon monoxide compliance tests, but higher total hydrocarbon levels at other times during normal operation because there are many variables that can affect total hydrocarbon emissions, and these will not all be represented during the carbon monoxide compliance test. The commenter states that EPA is on record stating that carbon monoxide limits alone may not by itself minimize organic emissions because products of incomplete combustion can result from small pockets within the combustion zone where adequate time, temperature, turbulence and oxygen have not been provided to completely oxidize these organics. The commenter also states that EPA is on record stating that total hydrocarbon levels can exceed good combustion condition levels when carbon monoxide levels are below 100 ppmv.

Response: The final rule requires compliance with destruction and removal efficiency and carbon monoxide or hydrocarbon standards as surrogates to control non-dioxin organic HAP emissions[144] from liquid fuel boilers, solid fuel boilers, and hydrochloric acid production furnaces. These are effective and reliable surrogates to control organic HAP. We conclude that simultaneous measurement of both total hydrocarbons and carbon monoxide with continuous emission monitors is not necessary because each serves as a reliable surrogate to control organic HAP emissions. The commenter has cited EPA preamble language that was included in the April 19, 1996 proposed rule for hazardous waste incinerators, cement kilns, and lightweight aggregate kilns. In that rule we proposed to require compliance with both the total hydrocarbon standard and the carbon monoxide standard. We requested comment on whether these requirements were redundant, and we later requested comment on whether we should allow sources to comply with either the carbon monoxide standard or the total hydrocarbon standard. We clarified, however, that allowing sources to comply with the carbon monoxide standard would be contingent on the source demonstrating compliance with the hydrocarbon standard during the compliance test. We believed this was necessary because we had limited data that showed a source could have total hydrocarbon levels exceeding 10 ppmv even though their carbon monoxide emission levels were below 100 ppmv. EPA subsequently promulgated this approach in the September 1999 Final Rule. 62 FR 52829.

Today's rule adopts the same approach for liquid and solid fuel boilers and hydrochloric acid production furnaces. We again conclude that it is not necessary to require sources to verify compliance with both of these standards on a continuous basis with two separate continuous emission monitors, given the redundancy of these measurement techniques. Total hydrocarbon emission measurements are a more direct indicator of organic HAP emissions than carbon monoxide. Hence, continuous compliance with this standard always assures that organic HAP are well controlled. Carbon monoxide is a conservative indicator of combustion efficiency because it is a product of incomplete combustion and because it is a refractory compound that is more thermally stable than hydrocarbons. The hydrocarbon products of incomplete combustion that are simultaneously formed during incomplete, or inefficient, combustion conditions can be subsequently oxidized later in the combustion process. In such instances carbon monoxide will likely still be prevalent in the exhaust gas even though the products of incomplete combustion were later oxidized. The conservative nature of carbon monoxide as an indicator of good combustion practices is supported by our data. At carbon monoxide levels less than 100 ppmv, our data indicates that there is no apparent relationship between carbon monoxide and hydrocarbons (other than that hydrocarbon levels are generally below 10 ppm when carbon monoxide levels are below 100 ppm). For example, a source with a carbon monoxide level of 1 ppm is no more likely to have lower

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[142] USEPA, Technical Support Document for HWC MACT Standards, Volume III: Selection of MACT Standards and Technologies, July 1999, Section 12.1.2.

[143] As discussed in part two, section V, we view carbon monoxide, hydrocarbon, and destruction removal efficiency standards as unaffected by the Court's vacature of the September 1999 challenged regulations for incinerators, cement kilns, and lightweight aggregate kilns. We are therefore not re-promulgating and did not reconsider these standards in today's final rule for these source categories.

[144] As discussed in the previous section, these standards are also used as surrogates to control dioxin/furans for hydrochloric acid production furnaces, solid fuel-fired boilers, and liquid fuel-fired boilers that are not equipped with dry air pollution control devices.

measured hydrocarbons than a source achieving a carbon monoxide emission level of 100 ppm. [145]

We consider the few instances where the data showed total hydrocarbon levels above 10 ppmv while carbon monoxide levels are below 100 ppmv to be anomalies. Even so, we have accounted for this by requiring compliance with the hydrocarbon standard during the compliance test if a source elects to comply with the carbon monoxide standard. See §§ § 63.1216(a)(5)(i), 1217(a)(5)(i), and 1218(a)(5)(i).

We disagree with the commenter's assertion that the total hydrocarbon compliance demonstration during the compliance test is insufficient. Sources are required to establish numerous operating requirements based on operating levels that were demonstrated during the test, including minimum operating temperature, maximum feed rates, minimum combustion zone residence time, and operating requirements on the hazardous waste firing system that control liquid waste atomization efficiency. Sources must comply with these operating requirements on a continuous basis. Compliance with these requirements, in addition to the requirements to comply with the carbon monoxide and destruction and removal standards, adequately assure sources are controlling organic HAP emissions to MACT levels.

Comment: A commenter states that EPA's proposed use of surrogates for organic HAP do not ensure that each of the organic HAP (e.g., polychlorinated biphenyls and polyaromatic hydrocarbons) are reduced to the level of the HAP emitted by the relevant best performing sources. EPA has not shown the necessary correlation between either the total hydrocarbon or carbon monoxide standards and organic HAP, and neither is a reasonable surrogate according to the commenter.

Response: Carbon monoxide and total hydrocarbon monitoring are widely used and accepted indicators of combustion efficiency, and hence control organic HAP, which are destroyed by combustion.[146] Sources that are achieving carbon monoxide of emission levels of 100 ppm or a hydrocarbon emission levels of 10 ppm are known to be operating pursuant to good combustion practices. This is supported by an extensive data analysis we used to support identical standards for incinerators, cement kilns, and lightweight kilns which were promulgated in the September 1999 Final Rule. We are applying the same rationale to support these standards for boilers and hydrochloric acid production furnaces.

Today's rule requires continuous compliance with either a carbon monoxide and hydrocarbon standard, in combination with a destruction and removal efficiency standard, as surrogates to control organic HAP. We conclude that sources which comply with these standards are operating under efficient combustion conditions, assuring non-dioxin organic HAP are being oxidized, thus limiting emissions to levels reflecting MACT. Efficient combustion of hazardous waste minimizes emissions of organic HAP that are fed to the combustion chamber as well as emissions attributable to products of incomplete combustion that may form within the combustion chamber or post combustion. We are not capable of issuing emission standards for each organic HAP because of data limitations and because such emission standards may not be replicable by individual sources or duplicable by the other best performing sources because of the complex nature of combustion and post combustion formation of products of incomplete combustion.

V. Additional Issues Relating to Variability and Statistics

Many commenters raised issues relating to emissions variability and statistics other than those discussed above in Section III.A: (1) Variability dampening for data sets containing nondetects; (2) imputation of variability to address variability dampening for data sets containing nondetects; and (3) our analysis of variance procedures to identify subcategories. We present comments and responses on the remaining topics below.

A. Data Sets Containing Nondetects

Comment: One commenter states that EPA's approach of assuming measurements that are below detection limits are present at the detection limit dampens the variability of the data set. Thus, the variability of ranking parameters is understated when ranking sources to identify the best performers and emissions variability is understated when calculating the floor.

Response: We agree with the commenter. For the final rule, we use an approach to address nondetects whereby a value is assigned to each nondetect within its possible range such that the 99th percentile upper prediction limit for the data set (i.e., test condition runs for each source) is maximized. Although this approach maximizes the deviation among runs containing nondetect measurements, the test condition average is lower because we no longer assume the nondetect analyte is present at the level of detection. See response to comments discussion below for more information on this statistical approach to address variability of nondetects.

We use this measurement imputation approach to address variability of feedrate data sets containing nondetects for source ranking purposes and to address variability of emissions data sets containing nondetects when calculating floors. We do not apply the measurement implementation approach to system removal efficiency (SRE) data sets where feedrates or emissions contain nondetects, however. Statistical imputation of nondetect SREs is complicated given that SRE is derived from feedrate and emissions data, both of which could contain nondetect measurements.[147] Our inability to apply the imputation approach to SREs is not a major concern, however, because system removal efficiency is used as a source ranking criterion only (i.e., it is not used as the standard, except for hydrochloric acid production furnaces where there are no nondetect feedrate or emissions measurements), and there are few instances where system removal efficiencies are derived from nondetect feedrate or emissions data.

B. Using Statistical Imputation To Address Variability of Nondetect Values

On February 4, 2005, EPA distributed by email to major commenters on the proposed rule a direct request for comments on a limited number of issues that were raised by the public comments on the proposed rule. The nondetect measurement imputation approach discussed above was one of the issues for which we requested comment. We discuss below the major comments on the approach.

Comment: Most commenters state that they agree with either the concept or the approach in principle but cannot

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[145] See USEPA, "Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards," September 2005, Section 3.2 and USEPA, "Final Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards and Technologies," July 1999, Section 5.1.

[146] This is why almost all of the RCRA Land Disposal Restiction treatment standards for organic waste, which standards are for the most part established at an analytic detection level for the organic HAP in question plus a variability factor, are based on the performance of combustion technology. See 40 CFR Part 268.40–43.

[147] See USEPA, "Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards," September 2005 Section 7.3.

provide substantive comments. These commenters indicate they cannot provide substantive comments because they cannot determine the implications of using the approach given that we did not provide the resulting floor calculations. One commenter suggests that, before blindly applying this arbitrary estimate of a nondetect value, a reality check should be done to validate that this is reasonable by consulting what is published on the method variability, as well as by checking variability factors derived for other data in the database that are above the detection limit.

Another commenter voiced significant concerns with the approach. The commenter states that EPA contradicts its assumption at proposal that all data that are reported as nondetect are present at the detection limits by now admitting that the true value is between zero and the level of detection. The commenter concludes that EPA now proposes to retreat from its assumption that undetected pollutants are always present at the detection limits not because that assumption is false but because it does not generate sufficiently lenient floors. The commenter believes that this underscores that EPA's statistical analysis approach cannot possibly give an accurate picture of *any* source's actual emission levels. Accordingly, it cannot possibly satisfy EPA's obligation to ensure that its floors reflect the average emission levels achieved by the relevant best performing sources.

The commenter also states that EPA's imputation approach is independently flawed because it assumes—again inaccurately—that the value for a nondetect is always either the highest value or lowest value in the allowable range. In reality the undetected values will necessarily fall in a range between the highest and lowest, and thus yield less variability than EPA would assume.

Response: We agree in theory with the commenter who suggests that the results of the imputation approach should be checked to see if it overstates variability for nondetect data by comparing the results of the imputation approach with the actual variability for detected measurements in the data set. We considered comparing the relative standard deviation derived from the imputation approach for data sets with nondetects, to the relative standard deviation for the data set using a regression analysis. Under the regression analysis approach, we considered relating the relative standard deviation of detected data sets to the average measurement. We would determine this relationship for each standard for which we have nondetect data, and use the relationship to impute the standard deviation for a data set containing nondetects.[148]

We could not perform this analysis, however, because: (1) We have very few detected measurements for the data sets for several standards and could not establish the relationship between relative standard deviation and emission concentration for those data sets; and (2) moreover, for many data sets where detected measurements would have been adequate to establish the relationship, it would have been problematic statistically to extrapolate the relationship to the very low values assigned to the nondetect measurements (e.g., 100% of the detection limit; the value assigned by our statistical imputation approach).[149]

This commenter also suggests that we check the resultant standard deviation after imputation by consulting what is published on the method variability. The commenter did not explain, however, how method variability relates to the variability of nondetect data.

Moreover, we believe that the imputation approach is one approach we could have reasonably used to estimate variability of nondetect data. We first attempted to apply standard statistical techniques to address the nondetect issue. We investigated standard interval censoring techniques to calculate maximum likelihood estimates (MLE) of the average and standard deviation that provide the best fit for a normal distribution for the data containing nondetect values, taking into account that each nondetect data point can be anywhere within its allowable interval. These techniques are not applicable, however, to data sets where all data are nondetects, as is the case for many of our data sets. In that situation, we approximated the mean as the average of the midpoints of the nondetect intervals, and the standard deviation as one half of the possible range of the data.

After working with this MLE/Approximation approach for some time and iteratively developing complicated algorithms to address problems as they arose, we concluded that we needed a simpler approach that could be applied to all data sets. Accordingly, we developed the statistical imputation approach discussed in Section IV.A above.

For 22 separate floors, we compared the results of the approaches we considered for nondetects: (1) Nondetects present at the detection limit (i.e., full detection limit approach); (2) MLE; (3) MLE combined with an approximation approach (i.e., MLE/Approximation approach; and (4) statistical imputation.[150] The MLE approach was only applicable to 2 of the 22 floor data sets, and the numerical algorithm failed to converge on an answer for one of those. The MLE/Approximation approach sometimes results in floors that are unrealistically high (i.e., it calculated 5 of 22 floors that were higher than the statistical imputation approach, which always produces floors that are equal to or higher than assuming nondetects are present at the full detection limit), and sometimes fails to converge on an answer. Because of these limitations, we do not use either the MLE or MLE/Approximation approach.

We believe the statistical imputation approach is preferable to the full detection limit approach because it: (1) Accounts for variability of data sets containing nondetects; (2) can be applied to all data sets containing nondetects; and (3) results in reasonable floor levels. In most cases, floors calculated using statistical imputation are close to those calculated by the full detection limit approach. The statistical imputation approach can produce substantially higher floors than the full detection limit approach, however, when a relatively high nondetect is reported because of a high detection limit. Nonetheless, the statistical imputation approach calculated floors that were 30% higher than the full detection limit approach for only 2 of the 22 floors.

We reject the comment that our approach to handling nondetect data is a mere manipulation to raise the floor. The commenter observes that EPA appears to determine that its initial approach of assuming the worst-case for nondetect data—that the data are present at the detection limit—did not produce floors that were high enough, and consequently applies another manipulation—statistical imputation of nondetect measurements—that assumes the nondetect data are present at lower levels but nonetheless generates floors that are even higher than before. Although the commenter is correct

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[148] Note that, under this approach, we would continue to assume that the nondetect analyte is present at the detection limit.

[149] Note that this was not the case where we use a regression analysis of relative standard deviation versus total chlorine measurements to impute a standard deviation for values below 20 ppmv that we corrected to 20 ppmv to address the low bias of Method 0050. In that situation, we have several total chlorine measurements very close to 20 ppmv.

[150] See USEPA, ''Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards,'' September 2005, Section 5.4.

about the outcome of our handling of nondetect data'the floors are generally higher after statistically imputing nondetect measurements than if nondetects are simply assumed to be present at the detection limit—our rationale for handling nondetects is sound. At proposal, we assumed that nondetects are present at the detection limit. We do not know (nor does anyone else) whether a nondetect value is actually present at 1% or 99% of the detection limit. We thought that assuming that all values were at the limit of detection would reasonably estimate the range of performance a source could experience for these nondetect measurements. This approach inherently maximizes the average emissions but minimizes emissions variability.

Commenters on the proposed rule state that assuming nondetects are present at the detection limit dampens emissions variability—a consideration necessary to ensure that a source's performance over time is estimated reasonably. *Mossville*, 370 F. 3d at 1242 (daily maximum variability must be accounted for in MACT standards [including floors] which must be achieved continuously). See also *CMA*, 870 F. 2d at 232 (EPA not even obligated to use data from plants that consistently reported nondetected values in calculating variability factors for best performing plants). We agree with these commenters, and are using the statistical imputation approach to address the concern. Relative to our proposed approach of assuming nondetect measurements are present at the detection limit, the statistical imputation approach reduces the average of the data set for a source while maximizing the deviation of the data set. These are competing and somewhat offsetting factors when calculating the floor for existing sources given that we use a modified 99th percentile upper prediction limit to calculate the floor—the floor is the average of the test condition averages for the best performers plus the pooled variance of their runs. See *CMA*, 870 F. 2d at 232 (upholding approach to variability for datasets with nondetect values where various conservative assumptions in methodology offset less conservative assumptions).

We further disagree with this commenter's view that the statistical imputation approach is independently flawed because it assumes that the value for a nondetect is always either the highest value or lowest value in the allowable range. The commenter states that, in reality, the undetected values will necessarily fall in a range between the highest and lowest, and thus yield less variability than EPA would assume. Although the commenter is correct that the true value of a nondetect measurement is likely to be in the range between the highest or lowest value possible rather than at either extreme, we do not know where the true value is within that range. To ensure that variability is adequately considered in establishing a floor, the statistical imputation approach, by design, maximizes the deviation by assuming the nondetect value is at one end of the range or the other, whichever results in a higher average for the data set.

C. Analysis of Variance Procedures To Assess Subcategorization

We use analysis of variance (ANOVA) to determine whether subcategories of sources have significantly different emissions. For two subsets of emissions, the variance of the data between the two subsets is compared to the variance within the subsets. The ratio of these two variances is called the F-statistic. The larger the F-statistic the more likely the underlying data distributions are different. To make a decision regarding the difference between the two subsets, we compare this calculated F-statistic to an F-value associated with a particular confidence level.

One commenter has raised several concerns with our use of the ANOVA procedure in the selection of incinerator subcategories.

Comment: The ANOVA procedure is based upon the assumption that the underlying distribution of both data sets has a normal shape. For incinerator emissions data this assumption is not valid. A log-probability plot shows that particulate emission data is better described by a lognormal distribution. Prior to conducting the ANOVA procedure, the data should be log-transformed.

Response: We use probability plots, Skewness Coefficients, and Correlation Coefficient/Shapiro-Wilks testing to evaluate whether it is more appropriate to analyze emissions data for ANOVA and floor calculations assuming the data represent a normal or lognormal distribution. We believe it is reasonable to assume the data represent a normal distribution for several reasons.

The purpose of the ANOVA subcategorization analysis is to determine if there is a significant difference in emission levels between potential subcategories to warrant establishing separate floors for the subcategories. Although in some cases it may appear that a data set in its entirety may be better represented by a lognormal distribution, the high emissions data causing the right-hand skew will be truncated when we identify the best performing sources—those with the lowest emissions—to calculate floors. This moves the appearance of a skewed distribution toward one that is more symmetric and thus, more representative of a normal distribution.

In addition, our analyses showed: (1) The probability plots do not suggest that either assumed distribution is significantly or consistently better; (2) the data set arithmetic averages tend to be in the neighborhood of the medians, indicating the data sets are not significantly skewed and more closely normal than lognormal; and (3) in some cases, neither assumed distribution could be statistically rejected.[151]

Comment: Some of the data sets used for comparison have very few members. This means that the within-group variance for a small data set would have to be very low for the two groups to be judged as separate.

Response: We agree, but note that as the sample sizes change, the critical values are also changing depending on the degrees of freedom.

Comment: Only emissions data were considered in the ANOVA tests. Feed rate and removal efficiency should have been considered as well.

Response: Differences between subcategories in feedrates or system removal efficiency are irrelevant if there is no significant difference in emissions between the subcategories. The purpose of considering subcategorization is to determine if there are design, operation, or maintenance differences between subcategories that could affect the type or concentration of HAP emissions and thus sources' ability to achieve the floor absent subcategorization. Consequently, it is appropriate to consider emissions only when evaluating subcategorization.

Comment: The confidence level used by EPA for the F-statistic in all cases was 95 percent. If the calculated F-statistic were equal to this 95 percent confidence value, it would mean that there is only a 5 percent chance that data for the two subsets were drawn from the same parent distribution. A less stringent (lower) confidence level would be more appropriate for this analysis.

The commenter evaluated particulate emissions for specialty incinerators (i.e., munitions, chemical weapons and mixed waste incinerators) and non-specialty incinerators (all others). The commenter log-transformed the data and

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[151] USEPA, ''Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards,'' September 2005, Section 8.2.

determined that there was only a 30 percent chance that the two data sets could come from the same parent distribution. This result, together with the vastly different operating characteristics for the two types of incinerators, argues for their being treated as separate categories, according to the commenter.

Response: A confidence level of 95% assigns a probability of 0.95 of accepting the hypothesis when there is no difference between subcategories and hence a probability of 0.05 of rejecting a true hypothesis. This reduces the probability to 5% of rejecting a true hypothesis. A less stringent confidence level would increase the chances of rejecting a true hypothesis. The farther apart the averages of the two potential subcategories are, the more likely they are to be statistically different and the more likely you are to be wrong if you hypothesize that they are not different.

A 95% confidence level is most often used for ANOVA because it is generally believed that being wrong one time out of 20 is an acceptable risk for purposes of ANOVA. In addition, statisticians are comfortable with a 95% confidence level because, in a normal distribution, 95% of the data fall within 2 (actually 1.96) standard deviations of the mean.

Other confidence levels could be used for ANOVA—99% or 90%—if there is a good reason to deviate from the general default of 95%. A 99% confidence level is the second most commonly used confidence level and is generally used when it is very important that you be sure that you are right (i.e., where you can only accept the risk of being wrong 1 time out of 100) before you classify the populations (in this case subcategories) as different. Occasionally, but much less frequently, confidence levels of 90% or less are used. But, we note that these situations are so infrequent that some statistics books provide tables for the ANOVA F-statistic only at the 95% and 99% confidence levels.

For these reasons, we believe that the 95% confidence level is an appropriate level among those we could have reasonably selected.

VI. Emission Standards

A. Incinerators

Comment: A commenter states that EPA's subcategorization (and assignment of differing dioxin/furan standards as a result) between incinerators with wet or no air pollution control device and incinerators equipped with dry air pollution control devices or waste heat boilers is unlawful because incinerators equipped with a given type of pollution control equipment are not different ''classes,'' ''types,'' or ''sizes'' of source. The commenter implies that EPA justifies this subcategorization by stating that these sources have different emission characteristics, which is no less unlawful and arbitrary than subcategorizing based on the pollution control devices they use.

Response: We agree that it would not be appropriate to subcategorize source categories based on a given air pollution control technique. See 69 FR at 403 (Jan. 4, 2004). As stated at proposal, we do not subcategorize incinerators with respect to dioxin/furans based on the type of air pollution control device used. 69 FR at 21214. For example, with respect to dioxin/furans, it would not be appropriate subcategorize based on whether a source is using: (1) Good combustion practices; (2) a carbon bed; (3) an activated carbon injection system; or (4) temperature control at the inlet to its dry air pollution control device. These devices and practices are what control dioxin/furan emissions. Today's final rule does not subcategorize based on these control devices and practices. Instead, our subcategorization approach recognizes the potential of some emission control equipment to create pollutant emissions that subsequently must be addressed.[152]

Dioxin/furans are unique in that these pollutants are not typically present in the process inputs, but rather are formed in the combustor or in post combustion equipment. The primary cause of dioxin/furan emissions from incinerators not equipped with waste heat boilers is post combustion formation by surface-catalyzed reactions that occur within the dry air pollution system.[153] This is evidenced by the statistically significant higher dioxin furan emissions for incinerators with dry air pollution control systems compared to those without dry systems.

Incinerators with dry air pollution systems are designed to effectively control metal and particulate matter emissions through use of baghouses, electrostatic precipitators, etc. Incinerators that are designed in this manner have the potential for elevated dioxin/furan emissions because dry air pollution control systems provide locations where surface-catalyzed reactions can occur (e.g., on particles on fabric filter bags or electrostatic precipitator plates). Thus, for purposes of dioxin/furan formation and control, incinerators equipped with dry air pollution systems are in fact different ''types'' of incinerators because of their unique pollutant generation characteristics.

On the other hand, incinerators with wet air pollution control systems are generally designed to effectively reduce total chlorine emissions (with the use of wet scrubbers) and metals and particulate matter emissions. There generally is a tradeoff, however, in that these types of incinerators may not be as efficient in reducing particulate matter and metal emissions compared to incinerators that are equipped with baghouses and dry electrostatic precipitators. These types of incinerators generally do not have the potential to have elevated dioxin/furan emissions because they do not provide locations where surface catalyzed reactions can occur. For purposes of dioxin/furan emission formation and control, sources with wet air pollution control systems are thus likewise different types of incinerators.[154]

Subcategorizing dry air pollution systems and wet air pollution control systems for purposes of establishing a dioxin/furan standard is no different than subcategorizing incinerators equipped with waste heat boilers. The waste heat boiler is the origin of the dioxin/furan that is generated. These incinerators are designed to efficiently recover heat from the flue gas to produce useful energy. A result of this type of incinerator design, however, is that it also provides a location where surface catalyzed reactions can occur (i.e., the boiler tubes), potentially resulting in elevated dioxin/furan formation (and emissions if not properly controlled).

An alternative approach that does not subcategorize these sources, but rather identifies best performing sources as those sources with the lowest emissions irrespective of whether they have a wet

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[152] Although we subcategorize between incinerators with wet or no air pollution control device and incinerators equipped with dry air pollution control devices or waste heat boilers for the floor analysis, the calculated dioxin furan floors for both subcategories for existing sources were determined to be less stringent than the current interim standard. Subsequently, the final rule emission limitations for both subcategories are, for the most part, identical, and equivalent to the interim standard. See USEPA, ''Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards,'' September 2005, Section 10.1, for further discussion.

[153] See USEPA, ''Technical Support Document for the HWC MACT Standards, Volume IV: Selection of MACT Standards,'' September 2005, Section 3, for further discussion.

[154] A similar analogy applies to incinerators that are not equipped with air pollution systems. These incinerators are not designed to control emissions of metals, chlorine, and particulate matter (perhaps because emission levels are low due to low HAP feed levels). Similar to incinerator types with wet systems, this design does not provide the locations for surface catalyzed reactions to occur, which leads us to conclude that these are different types of incinerator with respect to dioxin/furan control.

or dry air pollution control device, would yield floors that would not be achievable unless all the sources, including the best performers, adopted beyond-the-floor technology. The calculated dioxin/furan floor for existing incinerators and liquid fuel boilers using such an approach would be 0.008 and 0.009 ng TEQ/dscm, respectively.[155] All of the best performing sources for these calculated floors had either wet air pollution systems or no air pollution control systems. The floor technology used by these sources is good combustion practices. As a result, these floor levels would not be replicable by these best performing sources nor duplicable by other sources through use of the same good combustion practices because of the uncertainties associated with dioxin/furan generation mechanisms and rates that can vary both within sources and across sources, potentially leading to significant variability in emission levels.[156] Sources equipped with wet or no air pollution systems would thus likely be required to install carbon systems to comply with these standards, a technology used by only four incinerators (none of which were best performers in the above discussed floor analysis). Such an outcome should be viewed as a beyond-the-floor technology and therefore assessed pursuant to the factors enumerated in section 112(d)(2). Furthermore, it is unclear, and perhaps doubtful, that these floors would be achievable by these sources even if they were to install beyond-the-floor controls such as activated carbon systems because no sources using activated carbon are currently achieving those floor levels. We therefore conclude that it is appropriate, and necessary, to subcategorize these types of incinerators for purposes of calculating dioxin/furan floor standards.

B. Cement Kilns

1. Hg Standard

Comment: Several commenters recommend that EPA use a commenter-submitted dataset, which includes three years of data documenting day-to-day levels of mercury in hazardous waste fuels fired to all hazardous waste burning cement kilns, to identify a MACT floor for existing and new cement kilns. Several commenters state that *existing* cement kilns should have the option to comply with either of the following mercury standards: (1) A hazardous waste feed concentration limit, expressed in ppmw, based on an evaluation of the five best performing sources within the commenter-submitted dataset (documenting day-to-day levels of mercury in the hazardous waste over a three year period); or (2) a hazardous waste maximum theoretical emissions concentration (MTEC), expressed in units of µg/dscm, developed by projecting emissions of the best performing sources assuming mercury concentrations in the hazardous waste were at the source's 99th percentile level in the commenter-submitted dataset. To identify the best performing sources, the commenter suggests selecting the five sources with the lowest median mercury concentrations in the dataset. For existing sources, the commenters' evaluation yields a hazardous waste feed concentration limit of 3.3 ppmw and a stack concentration emission limit of 150 µg/dscm (rounded to two significant figures and considering mercury contributions only from the hazardous waste). For *new* cement kilns, the commenters recommend a mercury standard in the format of a hazardous waste feed concentration limit only, expressed in ppmw, based on the single source with the lowest 99th percentile level of mercury in hazardous waste. The commenters recommend a mercury standard of 1.9 ppmw for new sources.

Response: We agree with commenters that the commenter-submitted dataset documenting the day-to-day levels of mercury in hazardous waste fuels fired to all hazardous waste burning cement kilns is the best available data to identify floor levels for existing and new cement kilns. See discussion in Part Four, Section I.D. However, we disagree with the commenters' suggested format of the mercury standard for existing sources. Establishing the mercury standard as the commenters' suggest (i.e., 3.3 ppmw in the hazardous waste feed *or* 150 µg/dscm as a hazardous waste MTEC) fails to consider the interim mercury standards. As discussed in Part Four, Section III.E, there can be no backsliding from the levels of performance established in the interim standards. While not every source feeding hazardous waste with a maximum mercury concentration of 3.3 ppmw would exceed the interim standard, most sources using more than 50 percent hazardous waste as fuel (i.e., replacing at least half its fossil fuel with hazardous waste) would exceed the interim standard, emitting mercury higher than the levels allowed under §§ 63.1204(a)(2) and 63.1206(b)(15) of the interim standards.[157] The hazardous waste MTEC of 150 µg/dscm calculated by the commenters is also higher than the level currently allowed under § 63.1206(b)(15) of the interim standards. Since sources cannot backslide from the levels of the interim standards, if we were to accept the commenters' floor analysis results as presented (which we are not), then we would "cap" each calculated standard (i.e., 3.3 ppmw hazardous waste feed concentration and 150 µg/dscm in stack emissions) at the interim standard level. This would result in a mercury standard for existing sources of 3.3 ppmw hazardous waste feed *and* a hazardous waste feed MTEC of 120 µg/dscm *or* 120 µg/dscm as a stack gas concentration limit. We note this is similar to the mercury standard adopted today: a hazardous waste feed concentration limit of 3.0 ppmw *and* a hazardous waste feed MTEC of 120 µg/dscm or 120 µg/dscm as a stack gas concentration limit. For an explanation of why we derived a level of 3.0 ppmw from the data, see Section 7.5.3 of Volume III of the Technical Support Document.

The commenters' suggested new source mercury standard of 1.9 ppmw in the hazardous waste has the same deficiency. New sources with a hazardous waste fuel replacement rate of approximately 75% could emit mercury at levels higher than currently allowed under the interim standards. After capping the calculated standard at the interim standard level, we would identify the mercury standard for new sources as a hazardous waste concentration limit of 1.9 ppmw in the hazardous waste and a hazardous waste feed MTEC of 120 µg/dscm *or* 120 µg/dscm as a stack gas concentration limit. For reasons discussed in Section 7.5.3 of Volume III of the Technical Support Document, this is indeed the mercury standard we are promulgating for new cement kilns.

The commenters also suggest that the best performing sources should be identified as those with the lowest three-year median concentration of mercury in hazardous waste. Although this approach would be permissible, we conclude that it is more appropriate to identify the best performers (or single best performer for new sources) by

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[155] See USEPA, "Technical Support Document for the HWC MACT Standards, Volume III: Selection of MACT Standards," September 2005, Section 20 and Appendix C, tables labeled "E-INC-all-DF" and "E-LFB-all-DF".

[156] Dioxin/furan formation mechanisms are complex. Sources equipped with wet or no air pollution control systems cannot rely on good combustion practices alone to achieve these floor levels because they cannot "dial in" to a specific emission level, as is the case with typical back-end control systems that control particulate matter and metals, for example. See Part Four, Section IV.B.

[157] USEPA, "Technical Support Document for HWC MACT Standards, Volume III: Selection of MACT Standards," Section 23.4, September 2005.

selecting those with the lowest 99th percentile upper level mercury concentrations. (This is not a statistically determined upper prediction limit; there is sufficient data for an arithmetically calculated 99th percentile to reliably reflect sources' performance.) We believe that this approach best accounts for the variability experienced by best performing sources over time.

A detailed discussion of the MACT floor analysis for existing and new cement kilns is presented in Section 7.5.3 of Volume III of the Technical Support Document. In summary, the mercury standard for existing cement kilns is 3.0 ppmw in the hazardous waste feed *and* 120 µg/dscm as a hazardous waste maximum theoretical emission concentration feed limit or 120 µg/dscm as a stack gas concentration limit. For new sources the mercury standard is 1.9 ppmw in the hazardous waste feed and 120 µg/dscm as a hazardous waste maximum theoretical emission concentration feed limit or 120 µg/dscm as a stack gas concentration limit.[158]

Comment: Two commenters oppose EPA's proposed approach to base compliance with the mercury standard on averaged annual emissions. The commenters state an annual average would allow mercury emissions to exceed the interim standard because a source could burn high concentrations of mercury waste over a short period and still comply with an annual limit by burning low concentration wastes at other times. These commenters support the concept of a 12-hour rolling average feedrate limit (i.e., the current requirement under the interim standards) in conjunction with an emission standard no less stringent than the interim standard.

Response: We agree with these comments. Cement kilns must establish a 12-hour rolling average feedrate limit of mercury to comply with these standards. The mercury standards for cement kilns are ''capped'' at the interim standard level to prevent backsliding from the current level of performance. This is accomplished by expressing the standard as a limit on the mercury concentration in the hazardous waste (with the rolling average) and either an emission concentration limit or hazardous waste maximum theoretical emission concentration feed limit. See § 63.1209(l)(1)(iii).

2. Total Chlorine

Comment: One commenter states that the proposed MACT floor approach is inconsistent with the statutory definition of MACT because EPA's selection of a routinely achievable system removal efficiency (SRE) was arbitrary and not representative of the best performing sources. Instead, the commenter suggests EPA identify a MACT SRE based on the five sources with the best SREs and apply that SRE to the MACT chlorine feed level. Later, in supplemental comments, the same commenter suggests two alternative approaches to identify a floor level. One approach applies a ranking methodology based on emissions and chlorine feed, and the second suggested approach applies a triple ranking method based on emissions, feed, and chlorine SRE. Other commenters, however, supported EPA's proposed approach.

Response: We are adopting the same approach we proposed at 69 FR at 21259. As we explained, this is a variant of the SRE/Feed approach, the variant involving the degree of system removal efficiency achieved by the best performing sources. In summary, to determine the floor level we first identify the best performing sources according to their hazardous waste chlorine feedrate. The best performing sources are those that have the lowest maximum theoretical emissions concentration (MTEC), considering variability. We then apply an SRE of 90 percent (the specific point in contention) to the best performing sources' total MTEC (i.e., thus evaluating removal of total chlorine across the entire system, including chlorine contributions to emissions from all feedstreams such as raw materials and fossil fuels) to identify the MACT floor, which is expressed as a stack gas emissions concentration in parts per million by volume. This approach defines the MACT floor as an emission level that the best performing sources could achieve if the source limits the feedrate of chlorine in the hazardous waste to the MACT level (i.e., the level achieved by the average of the best performing five sources) while also achieving an SRE that accounts for the inherent variability in raw material alkalinity and (to a lesser degree) cement kiln dust recycle rates, and production requirements. 69 FR at 21259.

Under this approach, we are evaluating hazardous waste feed control as we do for other sources. One commenter objects to our determination that an SRE of 90 percent is representative of the best performing sources because we have not established a MACT SRE—the average SRE achieved by the best performing sources.

There is no doubt that the cement manufacturing process is capable of capturing significant quantities of chlorine when favorable conditions exist within the kiln system. Our usual approach of establishing an SRE by ranking the most efficient SREs taken from individual compliance tests, however, would result in a standard that would not be achievable because it may not be duplicable by the best performers or certainly would not be replicable by others, given that it is a function of various highly variable parameters, especially levels of alkali metals (e.g., sodium and potassium) and volatile compounds (e.g., chlorine and sulfur) in the raw materials. Alkalis and volatiles vary at a given best performer facility (in fact, at all facilities) as different strata are mined in the quarry, and across facilities due to different sources of raw materials. Raw material substitution is infeasible and counter to the objective of producing quality product (i.e., a product with low alkali content).

Cement kilns thus are not able to design or operate to achieve a specific SRE at the high (most efficient) end of the range of test conditions. This is demonstrated by our calculations of system removal efficiency data, which is essentially a collection of performance ''snapshots.'' See SRE data summarized in Table 1 at the end of this response; see also *Mossville*, 370 F. 3d at 1242 (maximum emission variability associated with raw material variability needs to be accounted for in MACT floor determination since the standard must be met at all times under all operating conditions). The performance data of the ''apparent'' best performers—upwards of 99 percent—identified by the commenter are simply a snapshot in the possible range of performance and are not replicable in the future due to factors which are uncontrollable by the source, as just explained. In confirmation, cement kilns achieving this level of removal in one test proved incapable of replicating their own result in other tests even though individual sources each have their own proprietary source of raw materials. See results in table for Giant (SC), Essroc (IN), Holcim (MO), Giant (PA), and LaFarge (KS) all

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[158] Please note that we do not regard this standard as a work practice standard under section 112(h)(1) of the Act, because part of the standard includes an emission limit which is measured at the stack. EPA believes the special requirements of section 112(h)(1) apply when a work practice is the exclusive standard.

of whom would violate a 99 + percent standard based on their own operating results.

TABLE 1.—SUMMARY OF SYSTEM REMOVAL EFFICIENCY DATA FOR WET PROCESS CEMENT KILNS [159]

Facility	Number Runs in Data Base	Low SRE Run (%)	High SRE Run (%)	Average SRE of All Runs (%)
LaFarge (OH)	3	99.1	99.4	99.3
Giant (SC)	24	95.5	99.8	99.0
Essroc (IN)	13	97.3	99.9	98.7
Holcim (MO)	6	96.4	99.9	98.4
LaFarge (KS)	12	95.7	99.3	98.1
Giant (PA)	17	87.7	99.4	97.1
Continental (MO)	3	95.7	97.0	96.5
Ash Grove (AR)	37	85.1	98.8	95.1
Texas Industries (TX)	6	88.8	97.0	93.6
Holcim (MS)	9	76.5	99.2	90.0

[159] See Section 3.6 of Volume II (Specific MACT Standards) of Comment Response Document, September 2005.

However, the data indicate that SRE is reasonably quantifiable to a point. Based on our data base of system removal efficiency information from 130 test conditions where total chlorine was evaluated, we conclude that a system removal efficiency of 90 percent is a reasonable estimate of MACT SRE.[160]

We also reject the commenter's three suggested alternative approaches to identify a MACT SRE to apply to the MACT feed level. The commenter's methods all suffer a common flaw: They fail to recognize and take into account the limitations of the total chlorine SRE data. For example, as just demonstrated, available data show that considering the SRE data associated with the most recent compliance test as a ranking factor will result in unachievable standards due to the varying effectiveness of chlorine capture (which impacts emissions) depending on the raw material mix characteristics. Considering only the most recent compliance test data as suggested yields results that are unachievable because the best performer's SRE data are likely biased high (e.g., sources that happen to test under favorable conditions are likely to be identified as best performers), which would not be replicable by even that source on a day-to-day basis.

3. Semivolatile and Low Volatile Metals

Comment: Commenters oppose EPA's proposed approach to treat each kiln as a separate and unique source in the SRE/Feed MACT floor analysis for cement kilns.[161] Commenters state that the approach is an improper way to perform a statistical analysis and reduces the variability in emissions that otherwise would be observed in a MACT pool of five unique sources. Variability is reduced because co-located kilns at the same plant share many of the factors that comprise front-end and back-end controls. As a result, the calculated MACT floors for SVMs and LVMs for cement kilns are too stringent. The commenters' recommended solution (in instances where co-located kilns are among the top five performers) is to use only the data from the best performing co-located kiln, exclude any lesser performing kilns at the plant site, and then include the next-best performing non-co-located kiln in the MACT pool. Implementing their recommendation, the commenters state that the MACT floor for SVMs increases from 4.0×10^{-4} to 7.4×10^{-4} lbs/MMBtu and the floor for LVMs increases from 1.4×10^{-5} to 1.8×10^{-5} lbs/MMBtu. Another commenter generally supports EPA's approach noting that the variability factor applied to the emissions data already accounts for variability.

Response: We consider sources that are not identical as unique sources and emissions data and information from unique sources are considered separate sources in the floor analyses. An example of an "identical" source in our data base is compliance test data from a similar on-site combustion unit used in place of a compliance test for another unit (*i.e.*, emissions testing of an identical unit was not conducted). These sources and their associated data are called "data in lieu of" sources in our data based on the RCRA provisions under § 266.103(c)(3)(i). We acknowledge that co-located sources may in fact share certain similar operation features (e.g., use of raw material from the same quarry, use of the same coal and hazardous waste burn tank to fire the kilns); however, given that the co-located sources (except those designated as data in lieu of) are not designed identically, and given their hazardous waste feed control levels were not identical during testing, we conclude we must consider each source as a unique source in the floor analyses.[162]

Comment: Commenter states that EPA's proposed standards for new cement kilns are unachievable due to problems with its accounting for variability, in part because EPA did not consider geographic differences when assessing feed control levels. The concentrations of hazardous constituents in the waste in a particular region are likely to be different than in the waste from another geographical region due to types of industrial sectors located within each region. Sources cannot reasonably arrange for transportation of lower HAP wastes generated across the country and cannot treat the hazardous waste to remove or reduce HAP concentrations. The commenter cites several court decisions that support their assertions. Commenter believes that while this represents a problem for developing both the new and existing source floors, it is a greater predicament for the new

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[160] As discussed a number of times earlier, we are not basing any standards on feed control of HAP in raw material and fossil fuel input. We instead are controlling HAP attributable to those inputs by means of end-of-stack emission standards which reflect removal of HAP by some type of control device. This approach is consistent with the discussion above, since we are not basing the cement kiln chlorine standard on control of any raw material input, but rather on some type of back-end removal efficiency.

[161] It is common for cement manufacturing plants to operate multiple cement kilns at the same plant.

[162] Nonetheless, we analyzed the SVM and LVM floors for cement kilns as suggested by the commenter. Results of the analysis are presented in "Technical Support Document for HWC MACT Standards, Volume III: Selection of MACT Standards," Section 8.8, September 2005.

source floor because this floor level is based on test data for only one source.

Response: We are not obligated to account for varying hazardous waste feed control levels occurring because of differing HAP generation rates in different locations (for commercial sources), or because different production process types generate higher or lower levels HAP concentration wastes. Hazardous waste feed control is a legitimate control technology. The commenter seems to suggest that we should subcategorize low feeding sources and high feeding sources based on their hazardous waste feed control level. This would inappropriately subcategorize sources based on differing levels of controls, which we do not do. See 69 FR at 403 (January 5, 2004). Nonetheless, as previously discussed, the SRE/Feed methodology lessens the impact of feed control variations across commercial units because it results in fewer situations where best performing back-end controlled sources (from a particulate matter emissions perspective) cannot achieve the semivolatile and low volatile metal design levels and floors.

For new source standards, the single best performing cement kiln sources for semivolatile metals and low volatile metals were not the lowest hazardous waste feed controlled source (both floors were based on sources with the fourth best, (i.e., lowest, hazardous waste feed control level). We therefore do not believe these sources are atypically low hazardous waste feeders relative to the other best performing sources in the existing source MACT pools.

C. Lightweight Aggregate Kilns

1. Mercury Standard

Comment: One commenter, an operator of lightweight aggregate kilns subject to this rule, recommends that EPA establish the mercury standard for lightweight aggregate kilns at a hazardous waste feed concentration limit of 3.3 ppmw for existing sources and 1.9 ppmw for new sources, which is the same standard suggested in public comments by a trade organization representing hazardous waste burning cement kilns. The commenter notes that these mercury limits are appropriate for lightweight aggregate kilns because the commenter's two lightweight aggregate manufacturing facilities participate in the same hazardous waste fuel market as the majority of cement kilns. Moreover, the commenter maintains that its parent company also owns and operates two cement kilns and that its lightweight aggregate kilns receive hazardous waste from many of the same generators that provide hazardous waste fuel to the cement kilns. Consequently, the commenter states that the cement industry's data set of actual mercury feed concentrations in the hazardous waste best represents the full range of hazardous waste fuel concentrations that exist in the waste fuel market (see also Part Four, Sections I.D and E).

Response: We disagree with the commenter. Although the cement industry's set of mercury feed concentration data in the hazardous waste may represent the full range of concentrations for the cement kiln source category, we cannot conclude the same for lightweight aggregate kilns because the commenter states that the mercury dataset are only applicable to its kilns.[163] Further, the commenter provides no specific information or data to support the conclusion that its suggested approach is justified for the other lightweight aggregate kiln facility.

We also disagree with the commenter as to the appropriateness of establishing the mercury standard in the format of a hazardous waste feed concentration (i.e., 3.3 ppmw for existing sources and 1.9 ppmw for new sources) for lightweight aggregate kilns. A hazardous waste feed concentration standard is improper for this source category because one lightweight aggregate kiln facility's sources (although not the commenter's) controls mercury emissions using wet scrubbing. Thus, a hazardous waste feed concentration standard would inappropriately limit the mercury concentration in hazardous waste for sources that use control equipment capable of capturing mercury. A source with control equipment should not be restricted to a hazardous waste feed concentration standard that is based on sources that can only control mercury emissions through limiting the amount of mercury in the hazardous waste.

In any case, as explained earlier in our discussion of cement kiln mercury standard, we believe that it is preferable to establish an emission standard to assure that the actual amount of mercury emitted by these sources is controlled by means of a numerical standard for stack emissions.

Comment: One commenter agrees that a source may not be able to achieve the mercury standard due to raw material contributions that might cause an exceedance of the emission standard in spite of a source using properly designed and operated MACT floor control technologies, including controlling the levels of metals in the hazardous waste. The commenter opposes the proposed alternative standard of 42 µg/dscm, which is expressed as a hazardous waste maximum theoretical emissions concentration. Instead, the commenter suggests that EPA maintain the alternative standard options of §§ 63.1206(b)(15) or 63.1206(b)(9).

Response: We agree with the commenter that the mercury standard should address the concern of raw material contributions causing an exceedance of the emission standard. We also agree that the proposed alternative standard of a hazardous waste maximum theoretical emissions concentration of 42 µg/dscm is an improper standard because the underlying data are unrepresentative. See discussion in Part Four, Section I.E. We note that the mercury standard promulgated today is 120 µg/dscm as a stack gas concentration limit or 120 µg/dscm as a hazardous waste maximum theoretical emission concentration feed limit. The alternative mercury standard sought by the commenter under § 63.1206(b)(15) is a limit of 120 µg/dscm as a hazardous waste maximum theoretical emission concentration, which is included in the mercury standard promulgated today. This should address the commenter's concern.

Comment: One commenter supports a mercury standard with short-term compliance limits (e.g., 12-hour rolling average feedrate limits) as opposed to the annual limit proposed.

Response: For reasons discussed in Part Four, Section I.E, we are using a different mercury dataset than at proposal. We solicited comment on a floor approach using these data in a notice[164] sent directly to certain commenters. We are adopting that approach today. The monitoring requirements of the mercury standard for lightweight aggregate kilns includes short-term averaging periods (*i.e.*, not to exceed a 12-hour rolling average), as recommended by the commenter.

2. Total Chlorine Standard

Comment: One commenter supports excluding from the floor analysis all lightweight aggregate kiln sources that lack air pollution control devices for chlorine, such as scrubbing technology. The floor analysis should simply exclude sources without back-end controls according to the commenter.

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[163] We note that the commenter-submitted dataset is not amenable for use in establishing standards expressed in a thermal emission format because sufficient information on the characteristics of the hazardous waste (*e.g.*, heating value of hazardous waste) were not provided.

[164] See docket item OAR–2004–0022–0370.

Response: We disagree. For the final rule, we are using the SRE/Feed MACT floor approach which defines best performers as those sources with the best combined front-end hazardous waste feed control and back-end air pollution control efficiency. The commenter's suggestion would exclude emissions data from two of the three facilities in this source category even though valid emissions data from these sources are available (and therefore ordinarily to be used, see *CKRC,* 255 F. 3d at 867), and these sources achieved the best front-end hazardous waste feed control in the category. We note that the best feedrate controlled sources have hazardous waste thermal feed levels that are approximately one-fifth the level of the source's with back-end controls. These data describe the level of performance of sources in the category and must be evaluated in the MACT floor analysis. We also note that even if we were to implement the commenter's suggestion, the MACT floor results would not change for existing and new lightweight aggregate kilns because the total chlorine emissions data of the source with back-end air pollution controls (after considering variability) are higher than the standards promulgated today. Thus, the commenter's suggestion also would result in a standard that would be capped by the interim standard.

3. Beyond-the-Floor Standards

Comment: One commenter opposes EPA's proposed decision to promulgate a beyond-the-floor standard for dioxin/furans for existing and new lightweight aggregate kilns based on performance of activated carbon injection.

Response: For the final rule, we conclude that a beyond-the-floor standard for lightweight aggregate kilns is not warranted. The Clean Air Act requires us to consider costs and non-air quality impacts and energy requirements when considering more stringent requirements than the MACT floor. In the proposed rule, we estimated that the incremental annualized compliance costs for lightweight aggregate kilns to achieve the beyond-the-floor standard would be approximately $1.8 million and would provide an incremental reduction in dioxin/furan emissions of 1.9 grams TEQ per year (see 69 FR at 21262). At proposal we judged costs of approximately $950,000 per additional gram of dioxin/furan TEQ removed as justified, and, therefore, we proposed a beyond-the-floor standard. Since proposal, we made several changes to the dioxin/furan data base as the result of public comments. One implication of these changes is a lower national emissions estimate for dioxin/furans for lightweight aggregate kilns. We now estimate an incremental reduction in dioxin/furan emissions of 1.06 grams TEQ per year with costs ranging between $1.6 and $2.2 million per additional gram of dioxin/furan TEQ removed. Based on these costs and consideration of the non-air quality impacts and energy requirements (including more waste generated in the form of spent activated carbon, and more energy consumed), we conclude that a beyond-the-floor standard for existing and new lightweight aggregate kilns is no longer justified. For an explanation of the beyond-the-floor analysis, see Section 12.1.2 of Volume III of the Technical Support Document. We note that EPA also retains its authority under RCRA section 3005(c) (the so-called omnibus permitting authority) by which permit writers can adopt more stringent emission standards in RCRA permits if they determine that today's standards are not protective of human health and the environment.

D. Liquid Fuel Boilers

1. Mercury Standard Not Achievable When Burning Legacy Mixed Waste

Comment: One commenter states that the proposed liquid fuel boiler mercury standard is not achievable by a commercial boiler, DSSI (Diversified Scientific Services, Inc.) that burns mercury-bearing low level radioactive waste that is also a hazardous waste (so-called 'mixed waste') that was generated years ago (so-called, legacy waste). The waste is an organic liquid containing high concentrations of mercury. The boiler is equipped with a wet scrubber which provides good mercury control—93%, system removal efficiency according to the commenter.

The commenter states that the proposed liquid fuel boiler mercury standard is not achievable using feedrate control and/or additional back-end control. Waste minimization is not an option because the waste has already been generated. Further, available national treatment capacity for mercury-bearing, low-level radioactive organic hazardous waste is very limited. The only other hazardous waste combustion facility authorized to treat such waste is the Department of Energy incinerator at Oak Ridge, Tennessee. Waste treatment volumes at that facility are restricted by the mercury feed rate limitation for the incinerator. In addition, the feedrate of the waste cannot be practicably reduced because of the large back-log of waste that must be treated.

The commenter suggests that their boiler be subject to the incinerator mercury standard because the mixed waste has far higher concentrations of mercury than wastes burned by other boilers and, as a consequence, the boiler is more incinerator-like with respect to the feedrate of mercury.

Response. We agree with the commenter's suggestion. The final rule subjects this commercial liquid fuel boiler to the mercury standard for incinerators. We are classifying this source as a separate type of source for purposes of the mercury standard, because the type of mercury-containing waste it processes is dramatically different from that processed by other liquid fuel boilers, effectively making this a different type of source for purposes of a mercury standard[165]. The source thus feeds mercury at concentrations exceeding that of any boiler but at concentrations within the range processed by hazardous waste incinerators. The maximum test condition average MTEC[166] for mercury for the remaining liquid fuel boilers is 20 µg/dscm. All the liquid fuel boiler mercury data represent ''normal'' data, i.e., data that were not spiked. (The lack of spiked data in the liquid fuel boiler data base, in and of itself, indicates that these sources do not process mercury-bearing waste and do not need the operational flexibility gained by spiking to account for occasional higher concentration mercury wastes.) DSSI's 2002 mercury test condition average MTEC was spiked to 3500 µg/dscm. In other words, DSSI needs the operational flexibility to feed 175 times more mercury than any other liquid fuel boiler. Incinerators, on the other hand, had mercury MTECs that ranged to 110,000 µg/dscm in 2002. In fact, DSSI's mercury feed rate is the eighth highest of the 40 incinerators, including DSSI, for which we have 2002 mercury feed rate data. DSSI's process feed is thus within the upper range of mercury feed found at incinerators.

We believe it is well within the broad discretion accorded us in section 112(d)(1) to subcategorize among ''types'' and ''classes'' of sources within a category. See also *Weyerhaeuser* v. *Costle,* 590 F. 2d at 254, n. 70 (D.C. Cir. 1978) (similar raw waste characteristics justify common classification) and *Chemical Manufacturers Ass'n* v. *EPA,* 870 F. 2d 177, 253–54 and n. 340 (5th

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[165] See CAA section 112 (d) (1)), authorizing EPA to distinguish among different ''types * * * of sources within a category or subcategory'' in developing MACT standards.

[166] Maximum theoretical emission concentration is the feedrate normalized by gas flowrate assuming zero system removal efficiency.

Cir. 1989) (same). We note that this boiler will be subject to the liquid fuel boiler standards for all HAP other than mercury (the only HAP where the issue of appropriate classification arises).

Not surprisingly, given the disparity in waste concentration levels, the DSSI boiler, even though equipped with back end control comparable to best performing commercial incinerators, achieves mercury emission levels less than an order of magnitude higher than the other hazardous waste-burning liquid fuel boilers, few of which use back end control that is effective for mercury.[167] This emission disparity likewise indicates that DSSI is treating a different type of waste than other liquid fuel boilers.

The nature of the mercury-bearing waste further confirms that it is of a different type than that processed by other hazardous waste burning liquid fuel boilers. The waste is a remediation waste, a type of waste burned routinely by commercial hazardous waste incinerators but almost never by a liquid fuel boiler.

Moreover, the waste is a legacy, mixed waste generated decades ago in support of the United States' strategic nuclear arsenal. It is not amenable to the types of control all other liquid fuel boilers use to reduce mercury emissions—some type of feed control or other minimization technique. We investigated whether any waste minimization options are feasible for this waste, and find that they are not. Normally, waste minimization is accomplished by one of three means: eliminating the use of mercury in the process to prevent it from being in the waste; pretreating the waste before burning to remove the mercury; or sending it to another facility better suited to handle the waste. Changing the production process to eliminate or reduce the mercury content of the waste is not an option because this waste has already been generated. Pretreatment is already practiced to the maximum extent feasible by settling out and separating the heavier mercury from the liquid components after thermal desorbtion. The remaining organic liquid that is burned by the mixed waste boiler contains concentrations of mercury (in organo-mercury and other organic soluble forms) that are orders of magnitude higher than burned by other liquid fuel boilers. Much of the waste cannot be feasibly pretreated to remove mercury because this legacy, mixed waste comes from many highly diverse sources. It is not practical or feasible to investigate how to remove the mercury from wastes of such varied and unique origins.

Only one other facility could potentially treat this mixed waste, DOE's incinerator at Oak Ridge, Tennessee, whose permit allows the incinerator to manage mixed waste. However, waste treatment volumes for mercury-bearing wastes at that facility are restricted by the mercury feed rate limitation in the incinerator's permit. The DOE incinerator alone cannot assure national capacity for mercury-bearing, low-level radioactive organic hazardous waste. In addition, the back-end emission controls of the mixed waste boiler are superior to those used by most incinerators, including the Oak Ridge incinerator. This boiler uses a highly effective wet scrubbing system—the principal MACT floor back-end control for mercury used by incinerators—that achieves over 93% system removal efficiency. This is superior control compared to most incinerators, including the one at Oak Ridge which achieves 75 to 85% removal.[168]

Thus, this mixed waste boiler is reasonably classified a different type of source with respect to mercury waste than other hazardous waste-burning liquid fuel boilers, based on the nature of the waste burned and confirmed by the source's mercury emissions. We note that, although the final rule subjects only the DSSI mixed waste boiler to the incinerator mercury standard, we would conclude that any other liquid fuel boiler with the same fact pattern (i.e., that met the same criteria as the DSSI boiler as discussed above) should also be subject to the incinerator mercury standard rather than the liquid fuel boiler mercury standard.

Comment. One commenter states that EPA's standards for all sources must reflect the actual emission levels achieved by the relevant best sources. If EPA wishes to subject the boiler source and incinerators to the same emission standards, however, it is entirely within the Agency's power to do so.

Response. We agree. There is no functional difference between this boiler and incinerators with respect to mercury feed rate and the type of waste processed (incinerators often treat remediation wastes). Therefore, the most relevant sources for the purposes of clarification in this case are incinerators, not liquid fuel boilers.

Accordingly, we have classified DSSI as an incinerator for purposes of a mercury standard (*i.e.*, made it subject to the mercury standard for incinerators), and have included the DSSI mercury data with the incinerator data when assessing mercury standards for incinerators.

Comment. In something of a contradiction, the same commenter argues that the mixed waste boiler source (DSSI) does not claim that it cannot meet the relevant mercury standard for liquid fuel boilers, but only that it cannot do so ''using either feedrate control or MACT floor back end emission control.'' Floors must reflect the emission levels that the relevant best sources actually achieve, not what is achievable through the use of a chosen emission control technology. It is flatly unlawful—and essentially contemptuous of court—for EPA even to entertain the source's argument that the source should be subject to a less stringent emission standard based on the levels they believe would be achievable through the use of one chosen control technology.

The commenter also states that the source acknowledges that it could achieve a better emission level, and apparently meet the relevant standards, by using activated carbon. Their argument that doing so would generate large quantities of spent radioactive carbon does not support its attempt to avoid Clean Air Act requirements; the alternative to the source accumulating large quantities of radioactive carbon is releasing large quantities of radioactive and toxic pollution into the environment.

Response. DSSI cannot meet the liquid boiler mercury standard because it burns a unique waste that resembles wastes processed by hazardous waste incinerators (in terms of mercury concentration and provenance) and is unlike any mercury-containing waste burned by the remaining liquid fuel boilers. See the earlier discussion showing that DSSI needs the operational flexibility to feed 175 times more mercury than any other liquid fuel boiler, but that DSSI's process feed is within the upper range of mercury feed found at incinerators.

We agree that DSSI is processing different types of mercury-bearing wastes than those combusted by all other liquid fuel boilers. We believe that establishing a different mercury standard for DSSI is warranted, as it would for any source with demonstrably unique, unalterable feedstock which is

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[167] USEPA, ''Technical Support Document for HWC MACT Standards, Volume I: Description of Source Categories,'' September 2004, Section 2.4.4.

[168] For more explanation concerning mixed waste sources, limitations on the concentrations of mercury fed to these sources, and the system removal efficiency achieved, see USEPA, ''Technical Support Document for HWC MACT Standards, Volume III: Selection of Standards,'' September 2005, Section 8.7.

more difficult to treat than that processed by other sources otherwise in the same category.

How DSSI chooses to comply with the incinerator mercury standard (for example, whether it must use some other type of emissions control technology) is not germane to this decision. We note that today’s mercury standard for incinerators will force this source to lower its mercury emissions, since it is unlikely that it can meet today’s 120 µg/dscm standard at all times without some changes in operations.

Comment. The source argues that waste minimization is not feasible for legacy mixed waste that has already been generated. It is not possible to travel back in time and unmake mixed legacy waste that already has been created. That obvious fact, however, lends no support to their argument that it should be allowed to burn mixed legacy waste with less stringent emission standards, according to one commenter.

Response. As discussed above, the mercury standard for liquid fuel boilers is not achievable for this source because it is a different type and class of boiler, based on the type of mercury-containing hazardous waste it processes. Because this boiler has mercury feed rates that resemble those of incinerators—not liquid fuel boilers—and waste minimization is not possible, subjecting the boiler to the mercury incinerator standard is a reasonable means of sub-categorization pursuant to the discretionary authority provided us by section 112(d)(1) of the Clean Air Act.

Comment. The commenter states that it is entirely possible to dispose of mixed legacy waste without burning it. Specifically, currently available technologies such as chemical oxidation and precipitation can be used to treat mixed legacy waste without burning it—and without releasing mercury into the air. Therefore, mixed legacy waste should not be burned at all; it should be disposed of safely through the application of one of these more advanced technologies.

Response. First, these wastes must be treated before they can be land disposed. RCRA sections 3004(d), (g)(5), and (m). They also must meet a standard of 0.025 mg/l measured by the Toxicity Characteristic Leaching Procedure before land disposal is permissible. 40 CFR 268.40 (standard for ‘‘all other nonwastewaters that exhibit the characteristic of toxicity for mercury’’).[169] EPA’s technical judgment is that it would be very difficult to meet this standard by any means other than combustion. Moreover, as an organic liquid, the waste is readily amenable to treatment by combustion. In addition, combustion is a legal form of treatment for the waste. EPA did not propose to change or otherwise reconsider these treatment standards in this rulemaking, and is not doing so here. We note, however, that 40 CFR 268.42 and 268.44 provide means by which generators and treatment facilities can petition the Agency to seek different treatment standards from those specified by rule, and set out requirements for evaluating such petitions.

We note further that, because this waste is radioactive, exceptional precautions need to be taken in its handling. The nonthermal treatment alternatives mentioned by the commenter ignore the potential for radiation exposure if nonthermal treatment is used. Concerns (some of which are mentioned in DSSI’s comment) include: Nonthermal treatment would (or could) increase worker exposure; desire to reduce handling of radioactive materials in general; need to avoid contaminating equipment that subsequently requires decontamination or handling as radioactive material; minimizing the generation of additional radioactive waste residues; reducing the amount of analysis of radioactive materials, which causes potential exposure, generation of radioactive wastes and equipment; wastes are varied and often of small volumes, which makes it difficult to develop routine procedures. Nonthermal treatment alternatives are also not currently available to DOE to manage the diversity and volume of DOE mixed waste. It is thus our belief that the commenter has not fully explored the implications of its position, especially with regard to radiation exposure.

If the commenter wishes to pursue this issue, EPA believes the appropriate context is through the Land Disposal Restriction mechanisms described above.

Comment. The commenter states that the source argues that feedrate control is not ‘‘practical.’’ There appears to be no record evidence indicating what would make feedrate control impractical and why any such obstacle could not be overcome.

Response. Feedrate control to the extent necessary to achieve the liquid fuel boiler standards is not practical for reasons just discussed. This source is one of two available sources that is authorized to treat mixed waste, and the other source is not likely to have the ability to burn mercury-bearing organic waste in the future due to permit limitations and size constraints.

Comment. The commenter states that mixed legacy waste should not be burned at all. If there are truly no other facilities that are currently permitted to dispose of mixed legacy waste, such waste should be stored until a facility that can treat such waste safely—e.g., through chemical oxidation—can be permitted.

Response. The commenter’s suggestion is beyond the scope of today’s rulemaking. The suggestion is also illegal, since RCRA prohibits the storage of hazardous waste for extended periods. See RCRA section 3004(j); and *Edison Electric Inst.* v. *EPA*, 996 F. 2d 326, 335–37 (DC Cir. 1993) (illegal under RCRA section 3004(j) to store hazardous waste pending development of a treatment technology). EPA also notes that it retains authority under RCRA section 3005(c) (the so-called omnibus permitting authority) by which permit writers can adopt more stringent emission standards in RCRA permits if they determine that today’s standards are not protective of human health and the environment.

2. Different Mercury, Semivolatile Metals, Chromium, and Total Chlorine Standards for Liquid Fuel Boilers Depending on the Heating Value of the Hazardous Waste Burned

Comment. Several commenters state that liquid fuel boilers should have an alternative concentration-based standard in addition to the thermal emission-based standard. Liquid fuel boilers are typically ‘‘captive’’ units that burn waste fuels generated from on-site or nearby manufacturing operations, rather than accepting wastes from a wide variety of other sources. Because they have captive fuel sources, operators generally do not have fuel blending capabilities. Liquid fuel boilers ‘‘burn what they have,’’ and as such have very limited operational flexibility. EPA should not penalize boilers that have the same mass concentrations of metals or chlorine in their waste compared to other boilers, but which wastes have a lower heating value than wastes burned by other boilers. (The ‘‘penalty’’ is that emissions limits that are normalized by the heating value of the hazardous waste require that less volume of lower heating value waste can be burned compared to higher heating value fuel.) This problem is made worse by the limited data base for liquid fuel boilers,

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[169] Although the legacy waste that DSSI is burning is nominally classified as a nonwastewater due to its high organic content, it is in fact a liquid matrix, meaning that the treatment standard of 0.025 µg/l is effectively a total standard.

the lack of historical data to verify that these standards are achievable over time, and having most or all of the measured emissions below detection limits. In addition, most of the mercury and semivolatile metal data EPA has in the data base were obtained during normal operations and while the source demonstrated compliance with RCRA's chromium standard—the other metals data were available only because stack method Method 29 reports data for all RCRA metals, even ones that are not at issue for the compliance test. (Sources generally elected to comply with the BIF Tier I metals emissions levels, but Tier III for chromium. Thus, the Method 29 test for chromium will give emissions results for all the metals—even those not subjected to stack testing—not just chromium.)

Response. As explained earlier in Part Four, Section V.A., EPA has selected normalizing parameters that best fit the input to the combustion device. A thermal normalizing parameter (i.e., expressing the standards in terms of amount of HAP contributed by hazardous waste per thermal content of hazardous waste) is appropriate where hazardous waste is being used in energy-recovery devices as a fuel, since the waste serves as a type of fuel. Using a thermal normalizing parameter in such instances avoids the necessity of subcategorizing based on unit size.

The commenters raise the other side of the same issue. As the commenters point out, some liquid fuel boilers burn lower Btu hazardous waste because that is the waste available to them, and those with waste that has a low heating value are, in their words, ''penalized,'' compared to those with a high(-er) heating value. Also, since these are not commercial combustion units, they normally lack the opportunity to blend wastes of different heating values to result in as-fired high heating value fuels. If boiler standards are normalized by hazardous waste heating value, sources with lower heating value waste must either reduce the mass concentration of HAP or increase the waste fuel heating value (or increase the system removal efficiency) compared to sources with wastes having the same mass concentration of HAP but higher heating value.

Moreover, the thermal normalizing parameter is not well suited for a hazardous waste that is not burned entirely for its fuel value. In cases where the lower heating value waste is burned, the boiler is serving—at least in part—as a treatment device for the lower heating value hazardous waste. When this occurs, the better normalizing parameter is the unit's gas flow (a different means of accounting for sources of different size), where the standard is expressed as amount of HAP per volume of gas flow (the same normalizing parameter used for most of the other standards promulgated in today's final rule.)

The commenters requested that liquid fuel boilers be able to select the applicable standard (i.e., to choose between normalizing parameters) and further requested that we assess the performance of these units (for the purpose of establishing concentration-based MACT floor levels) by using the same MACT pool of best performing sources expressed on a thermal emissions basis.

Neither of these suggestions is appropriate. Choice of normalizing parameter is not a matter of election, but rather reflects an objective determination of what parameter is reasonably related to the activity conducted by the source. Moreover, the commenter's suggestion to use thermal emissions to measure best performance for a concentration-based standard does not make sense. It arbitrarily assumes that the best performers with respect to low and high heating value wastes are identical.

Instead, we have established two subcategories among the liquid fuel boilers: those burning high and those burning low heating value hazardous waste. The normalizing parameter for sources burning lower energy hazardous waste is that used for the other hazardous waste treatment devices, gas flow rate, so that the standard is expressed as concentration of HAP per volume of gas flow (a concentration-based form of the standard.) The normalizing parameter for sources burning higher energy content hazardous waste is the thermal parameter used for energy recovery devices, such as cement kilns and lightweight aggregate kilns. For the purposes of calculating MACT floors, the best performers are then drawn from those liquid fuel boilers burning lower energy hazardous waste for the lower heating value subcategory, and from those liquid fuel boilers burning higher energy hazardous waste for the higher heating value subcategory [170]. (See Section 23.2 of Volume III of the Technical Support Document for more information.)

Moreover, liquid fuel boilers are not irrevocably placed in one or the other of these subcategories. Rather, the source is subject to the standard for one or the other of these subcategories based on the as-fired heating value of the hazardous waste it burns at a given time. Thus, when the source is burning for energy recovery, then the thermal emissions-based standard would apply. When the source is burning at least in part for thermal destruction, then the concentration based standard would apply. This approach is similar to how we have addressed the issue of normalization in other rules where single sources switch back and forth among inputs which are sufficiently different to warrant separate classification. [171]

We next considered what an appropriate as-fired heating value would be for each liquid fuel boiler subcategory. Although we have used 5000 Btu/lb (the heating value of lowest grade fuels such as scrap wood) in past RCRA actions as a presumptive measure of when hazardous waste is burned for destruction (see, e.g. 48 FR 11159 (March 16, 1983)), we do not think that measure is appropriate here. We used the 5,000 Btu/lb level to delineate burning for destruction from burning for energy recovery at a time when that determination meant the difference between regulation and nonregulation. See 50 FR 49166–167 (Nov. 29, 1985). This is a different issue from choosing the most reasonable normalizing parameter for regulated units (*i.e.*, units which will be subject to a standard in either case).

Instead, we are adopting a value of 10,000 Btu/lb as the threshold for subcategorization. This is approximately the heating value of commercial liquid fossil fuels. 63 FR 33782, 33788 (June 19, 1998) It is also typical of current hazardous waste burned for energy recovery. *Id.* Moreover, EPA has used this value in its comparable fuel specification as a means of differentiating fuels from waste. See *id.* and Table 1 to 40 CFR section 261.38, showing that EPA normalizes all

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[170] We also agree that liquid fuel boilers present several unique circumstances, namely: they are often unable to blend fuel and have limited operational flexibility as a result; our data base on these sources' performance is relatively small; much of our mercury and semivolatile metals data is at or near detection limits; and much of the mercury and semivolatile metals data was obtained for other purposes, namely from risk burns or as a result of Method 29 testing to demonstrate compliance with a RCRA chromium standard. While not immediately important to the topic at hand—namely that not all liquid fuel boilers burn for energy recovery—they are secondary issues that we need to closely consider to make sure we do not estimate what the best performing 12% of sources are achieving in an unreasonable manner.

[171] See NESHAP for Stationary Combustion Turbines, 40 CFR section 63.6175 (definitions of ''diffusion flame gas-fired stationary combustion turbine'', ''diffusion flame oil-fired stationary combustion turbine'', ''lean pre-mix gas-fired stationary combustion turbine'' and ''lean premix oil-fired stationary combustion turbine'').

constituent concentrations to a 10,000 Btu/lb level in its specification for differentiating fuels from wastes.

We next examined the waste fuel being burned at cement kilns and lightweight aggregate kilns, which burn hazardous waste fuels to drive the process chemistry to produce products[172], to cross-check whether 10,000 Btu/lb is a reasonable demarcation value for subcategorizing. 10,000 Btu/lb is the minimum heating value found in burn tank and test report data we have for cement kilns and lightweight aggregate kilns [173]. We believe the cement kiln and light weight aggregate kiln data confirm that this is an appropriate cutpoint, since these sources are energy recovery devices that blend hazardous wastes into a consistent, high heating value fuel for energy recovery in their manufacturing process.

We then separated the liquid fuel boiler emissions data we had into two groups, sources burning hazardous waste fuel with less than 10,000 Btu/lb and all other liquid fuel boilers, and performed separate MACT floor analyses. (See Sections 13.4, 13.6, 13.7, 13.8, and 22 of Volume III of the Technical Support Document.) We calculated concentration-based MACT standards for these sources from their respective mercury, semivolatile metals, chromium, and total chlorine data.

Liquid fuel boilers will need to determine which of the two subcategories the source belongs in at any point in time. Thus, you must determine the as-fired heating value of each batch of hazardous waste fired so that you know the heating value of the hazardous waste fired at all times.[174] If the as-fired heating value of hazardous wastes varies above and below the cutpoint (i.e., 10,000 Btu/lb) at times, you are subject to the thermal emissions standards when the heating value is not less than 10,000 Btu/lb and the mass concentration standards when the heating value is less than 10,000 Btu/lb. To avoid the administrative burden of frequently switching applicable operating requirements between the subcategories, you may elect to comply with the more stringent operating requirements that ensure compliance with the standards for both subcategories.

Comment: EPA's attempt to give actual performance two different meanings within a single floor approach is unlawful, unexplained, internally inconsistent, and arbitrary. If EPA believes that mass-based emissions constitute sources' actual performance, the best performing sources must be those with the best mass based emissions—not thermal emissions.

Response: As just explained, we agree with this comment, and have developed MACT floors independently for the two subcategories of liquid fuel boilers. Thus, we have defined two separate MACT pools based on the thermal input of the waste fuel and derived two separate and consistent MACT standards for sources when they burn solely for energy recovery, and when they do not.

We also note that a source cannot "pick and choose" the less stringent of the two standards and comply with those. The source must be in compliance with the set of standards that apply.

3. Alternative Particulate Matter Standard for Liquid Fuel Boilers

Comment: A commenter requested that EPA establish standards that allow boilers the option to comply with either a concentration-based particulate matter standard or thermal emissions-based particulate matter standard.

Response: We determined that it is appropriate to express the particulate matter emission standard as a concentration-based standard consistently across source categories and not to give boilers the option to comply with a thermal emissions-based particulate matter standard. As discussed in Part Four, Section III.D as well as the preceding section, metal and chlorine concentration-based emission standards can be biased against sources that process more hazardous waste (from an energy demand perspective), in part because the SRE/Feed methodology assesses feed control of each source when identifying the best performing sources; the ranking procedure thus favors sources with lower percentage hazardous waste firing rates (keeping all other assessment factors equal). The thermal emission standard format eliminates this firing rate bias, which amounts to a limitation on the amount of raw material (hazardous waste fuel to an energy recovery device) that may be processed, when identifying best performing sources.

The methodology we use to identify best performing sources for particulate matter emissions is not affected by the firing rate bias in the manner that metal and chlorine emissions are. This is primarily because we define best performing sources as those with the best back-end air pollution control technology; feed control is not assessed (specifically ash feed control) for raw materials, fossil fuel, or unenumerated HAP metal in the hazardous waste. The hazardous waste firing rate bias is therefore not present when we identify the best performing particulate matter sources because a source's hazardous waste firing rate is not a direct factor in the ranking procedure.

We also note that four of the nine best performing liquid fuel boilers for particulate matter are equipped with fabric filters. Particulate matter emissions from sources equipped with fabric filters are not significantly affected by ash inlet loading. This is not true for metals and chlorine, given metal and chlorine emissions from fabric filters tend to increase at increased feed rates. See Volume III of the Technical Support Document, Sections 5.3 and 7.4. We conclude that the hazardous waste firing rate issue is not a concern for these sources given their particulate matter emissions would not be significantly affected by increased hazardous waste firing rates.

4. Long-term, Annual Averaging Is Impermissible

Comment: Standards expressed as long-term limits are legally impermissible because those levels, by definition, would sometimes be greater than the average emission levels achieved by the best performing sources. Compliance also must be measured on a continuous basis, under section 302(k) of the Act. Thus, floor levels (and standards) for mercury expressed as long-term limits are illegal.

Response: The commenter maintains that the statutory command in section 112(d)(3)(A) to base floor standards for existing sources on "the average emission limitation achieved by the best performing 12 percent of * * * existing sources" precludes establishing standards expressed as long term averages because certain daily values could be higher. We do not accept this position. The statute does not state what type of "average" performance EPA must assess. Long term, i.e., annual, averaging of performance is quite evidently a type of average, and so is permissible under the statutory text. Moreover, it is reasonable to establish

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[172] The Norlite light-weight aggregate kiln was not included in this analysis because they claim they are *not* burning for energy recovery. The waste Norlite burns is 4,860 Btu/lb or lower. This is indicative of a source burning solely for thermal treatment of the waste and not, at least in part, for energy recovery. See 40 CFR 266.100(d)(2)(ii).

[173] The cement kiln burn tank data and test report data shows the minimum heating values of 9,900 and 10,000 Btu/lb, respectively, for the hazardous waste. The minimum lightweight aggregate kiln heating values for hazardous waste was 10,000 Btu/lb, excluding the Norlite source.

[174] If you burn hazardous waste in more than one firing nozzle, you must determine the mass-weighted average heating value of the as-fired hazardous waste across all firing nozzles.

standards on this basis (the standards being the average of the best performing sources, expressed as a long-term average), where sufficient data exist. Indeed, since the principal health concern posed by the emitted HAP is from chronic exposure (i.e. cumulative exposure over time), long-term standards (which reduce the long-term distribution of emitted HAP) arguably would be preferable in addressing the chief risks posed by these sources' emissions.

We establish standards with long-term averaging limits whenever we use normal data to estimate long-term performance. We do this in the few instances where there are insufficient data (whether normal data or compliance test data) to estimate each source's short term emission levels (e.g., mercury and semivolatile metal standards for liquid fuel boilers).[175] One or two snapshot data based on normal operations are not likely to reflect a source's short-term operating levels in part because feed control levels can vary over time.[176] See *Mossville*, 370 F. 3d at 1242 (varying feed rates lead to different emission levels, and this variability must be encompassed within the floor standard because the standard must be met at all times). As a result, snapshot normal emissions, when averaged together, better reflect a source's long term average emissions. An emission standard based on normal data that is averaged together, but expressed as a short-term limit, would not be achievable by the best performing sources because it would not adequately account for their emissions variability. See *National Wildlife Federation* v. *EPA*, 286 F. 3d at 572–73 (''[c]ontinuous operation at or near the daily maximum would in fact result in discharges that exceed the long-term average. Likewise, setting monthly limitations at the 99th percentile would not insure that the long-term average is met''). Long-term limits better account for this variability because such limits allow sources to average their varying feed control levels over time while still assuring average emissions over this period are below the levels demonstrated by the best performing sources.

Indeed, under the commenter's approach where no averaging of intra-source data would be allowed, sources would not be in compliance with the standards during the performance tests themselves. The tests consist of the average of three data runs, so half of the emissions-weighted data points would be impermissibly higher than the average during the test used to derive today's emission standards.

EPA also does not see that section 302(f) of the Act, cited by the commenter, supports its position. That provision indicates that the emission standards EPA establishes must limit the quantity, rate, or concentration of air pollutants on a continuous basis. A standard expressed as a long-term average does so by constraining the overall distribution of emissions to meet a long-term average. Also, long term limits result in emission standards that are lower than those that otherwise would be implemented on a short-term basis. The short-term limit would have to reflect the best performing sources' short term emissions variability (i.e., the maximum amount of variability a source could experience during a single test period). *National Wildlife Federation*, 286 F. 3d at 571–73.

Comment: Other commenters argued the opposite point, that ERA has no data to show that an annual average is achievable, and EPA should establish a longer averaging period.

Response: We believe that all sources can achieve the mercury and semivolatile metals standards for liquid fuel boilers on an annual basis using some combination of MACT controls, i.e., feed control, back end control, or some combination of both. We agree that we have a small data set for these standards, but also believe that it is intuitive that a liquid fuel boiler can meet these standards on an annual basis, because one year is sufficiently more than any seasonal (i.e., several month long) production of certain items that may not be represented by the tests we have.

This informs us that an average of less than a year may not be achievable. It does not inform us that averaging of more than a year is required, since variations that occur with a year are averaged together. An annual average is sufficient for a source to determine whether an individual waste stream impacts negatively on the compliance of the liquid fuel boiler and take measures to address the issue.

5. Gas Fuel Boilers

Comment: How can a boiler burning only gaseous waste also be burning hazardous waste? Uncontained gases are not considered hazardous waste under RCRA. Why are boilers that burn only gasses part of the liquid fuel boiler subcategory?

Response: We agree with the commenter that boilers that burn gasses are unlikely to burn hazardous wastes. However, gas fuel hazardous waste boilers have existed in the past,[177] and we believe we need to define a MACT standard for them. Therefore, we included gas fuel boilers in the liquid fuel boiler subcategory for reasons cited in the proposed rule. See 69 FR at 21216.

E. General

1. Alternative to the Particulate Matter Standards

Comment: Commenters state that some incinerators are currently complying with the alternative to the particulate matter standard provision pursuant to the interim standards. See § 63.1206(b)(14). The eligibility and operating requirements for the alternative to the particulate matter standard in the Interim Standards are different than the proposed alternative to the particulate matter standard in the replacement rule. Specifically, the proposed alternative to the particulate matter standard would no longer require sources to demonstrate a 90% system removal efficiency or a minimum hazardous waste metal feed control level to be eligible for the alternative. Commenters request that EPA clarify in the final rule that the proposed alternative to the particulate matter standard supersedes the requirements in the Interim Standards.

Response: We are finalizing the alternative to the particulate matter standard for incinerators as proposed, with the exception that the alternative metal emission limitations have been revised as a result of database changes since proposal. See § 1219(e) and part three, section II.A. We considered superseding the interim standard alternative to the particulate matter standard requirements (63.1206(b)(14)) immediately (upon promulgation) by replacing it with the revised alternative

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[175] Two emission standards in this rulemaking are based on normal data but are expressed as short term limits (the mercury standards for lightweight aggregate and cement kilns). However, in these instances we had enough normal data to reasonably estimate each source's maximum emissions, thus allowing us to express the standard as a short term limit. See USEPA, ''Technical Support Document for HWC MACT Standards, Volume III: Selection of MACT Standards,'' September 2005, Sections 11.2 and 12.2.

[176] This is not the case for floors that are based on compliance tests because sources spiked their hazardous wastes to account for variability in hazardous waste feedrate. See Part Four, Section III.C above. Normal data, however, are a snapshot of what occurred on that day and are not likely to be representative over the long term, especially for mercury and semivolatile metals for liquid fuel boilers, where these limited data were almost entirely below the analytic detection limit.

[177] For example, sources 2014 and 2015 owned by Environmental Purification Industries in Toledo, Ohio, were considered hazardous waste boilers at the time the Phase II data base was noticed in the June 27, 2000, despite the fact that these boilers burned only gasses. These boilers have since stopped burning hazardous waste.

standard provisions finalized in today's rule. Although the eligibility requirements for the alternative to the particulate matter standard finalized today are less stringent than the interim standard requirements, the metal emission limitations that are also required by the alternative finalized today are by definition equivalent to or more stringent than the metal limitations in the interim standard alternative. We therefore cannot completely supersede the interim standard provisions immediately (upon promulgation) because sources have three years to comply with more stringent standards. We are instead revising the interim standard provisions of § 63.1206(b)(14) to only reflect the revised alternative standard eligibility criteria (specifically, we have removed the requirements to achieve a given system removal efficiency and hazardous waste metal HAP feed control level).[178] These eligibility criteria revisions become effective immediately with respect to the interim standards because they are less stringent than the current requirements. Sources should modify existing Notifications of Compliance and permit requirements as necessary prior to implementing these revised procedures.

Comment: One commenter is opposed to the alternative to the particulate matter standard because it ignores the health effects/benefits that are attributable to particulate matter.

Response: Particulate matter is not defined as a hazardous air pollutant pursuant the NESHAP program. See CAA 112(b)(1). We control particulate matter as a surrogate for metal HAP. See part four, section IV.A. As a result, a particulate matter standard is not necessary in instances where metal HAP emission standards can alternatively and effectively control the nonmercury metal HAP that is intended be controlled with the surrogate particulate matter standard. The alternative to the particulate matter standard in the final rule accomplishes this. We acknowledge that particulate matter emission reductions result in health benefits. That in itself does not give EPA the authority under § 112(d)(2) to directly regulate particulate matter, however.

2. Assessing Risk as Part of Consideration of Nonair Environmental Impacts

Comment: Commenter states that EPA has inappropriately failed to consider emissions of persistent bioaccumulative pollutants in its beyond-the-floor analysis despite EPA's acknowledgment that these HAPs have non-air quality health and environmental impacts.

Response: EPA has taken the consistent position that considerations of risk from air emissions have no place when setting MACT standards, but rather are to be considered as part of the residual risk determination and standard-setting process made under section 112 (f) of the statute. EPA thus interprets the requirement in section 112 (d) (2) that we consider ''non-air quality health and environmental impacts'' as applying to the by-product outputs from utilization of the pollution control technology, such as additional amount of waste generated, and water discharged.[179] EPA's interpretation was upheld as reasonable in *Sierra Club* v. *EPA*, 353 F. 3d 976, 990 (D.C. Cir. 2004) (Roberts, J.).

VII. Health-Based Compliance Alternative for Total Chlorine

A. Authority for Health-Based Compliance Alternatives

Comment: One commenter states there is no established health threshold for either HCl or chlorine.

Response: Although EPA has not developed a formal evaluation of the potential for HCl or chlorine carcinogenicity (e.g., for IRIS), the evaluation by the International Agency for Research on Cancer stated that there was inadequate evidence for carcinogenicity in humans or experimental animals and thus concluded that HCl and chlorine are not classifiable as to their carcinogenicity to humans (Group 3 in their categorization method). Therefore, for the purposes of this rule, we have evaluated HCl and chlorine only with regard to non-cancer effects. In the absence of specific scientific evidence to the contrary, it has been our policy to classify non-carcinogenic effects as threshold effects. RfC development is the default approach for threshold (or nonlinear) effects.

Comment: One commenter states that the proposal is an inappropriate forum for bringing forward such a significant change in the way that MACT standards are established under Section 112(d) of the Clean Air Act. A precedent-setting change of the magnitude that EPA has raised should be discussed openly and carefully with all affected parties, rather than being buried in several individual proposed standards.

Response: Including health-based compliance alternatives for hazardous waste combustors does not mean that EPA will automatically provide such alternatives for other source categories. Rather, as has been the case throughout the MACT rule development process, EPA will undertake in each individual rule to determine whether it is appropriate to exercise its discretion to use its authority under CAA section 112(d)(4) in developing applicable emission standards. Stakeholders for those affected rules will have ample opportunity to comment on the Agency's proposals.

Comment: One commenter states that the proposed approach is contrary to the intent of the CAA which explicitly calls for a general reduction in HAP emissions from all major sources nationwide through the establishment of MACT standards based on technology, rather than risk, as a first step.

Response: For pollutants for which a health threshold has been established, CAA section 112(d)(4) allows the Administrator to consider such threshold level, with an ample margin of safety, to establish emission standards.

Comment: One commenter states that the proposed approach would take the national air toxics program back to the time-consuming NESHAP process that existed prior to the Clean Air Act Amendments of 1990.

Response: We disagree that allowing a health-based compliance alternative in the final rule will alter the MACT program or affect the schedule for promulgation of the remaining MACT standards. Today's rule is the last MACT rule to be promulgated, and the health-based compliance alternative did not delay promulgation of the rule.

Comment: A commenter is concerned that the proposal would remove the benefit of the ''level-playing field'' that would result from the proper implementation of technology-based MACT standards.

Response: Providing health-based compliance alternatives in the final rule for sources that can meet them will assure the application of a uniform set of requirements across the nation. The final rule and its criteria for demonstrating eligibility for the health-based compliance alternatives apply uniformly to all hazardous waste combustors except hydrochloric acid

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[178] Sources can only use § 63.1206(b)(14) for purposes of complying with the interim standards. After the compliance date for today's rule, incinerators electing to comply with the alternative to the particulate matter standard must comply with the provisions found in § 63.1219(e).

[179] See USEPA, ''Technical Support Document for the HWC MACT Standards, Volume V: Emission Estimates and Engineering Costs,'' September 2005, Section 6, for a discussion of the non-air impact that were assessed for this final rule.

production furnaces. The final rule establishes two baseline levels of emission reduction for total chlorine, one based on a traditional MACT analysis and the other based on EPA's evaluation of the health threat posed by emissions of HCl and chlorine. All hazardous waste combustor facilities must meet one of these baseline levels, and all facilities have the same opportunity to demonstrate that they can meet the alternative health-based emission standards. We also note that additional uniformity is provided by limiting the health-based compliance alternatives for incinerators, cement kilns, and lightweight aggregate kilns to the emission levels allowed by the Interim Standards.

Comment: Several commenters state that site-specific emission limits are inappropriate under section 112(d)(4) because they are not emission standards. One commenter asserts that the Agency's position that the limits are based on uniform procedures is flawed because the process allows ''any scientifically-accepted, peer-reviewed risk assessment methodology for your site-specific compliance demonstration.'' This is not a ''uniform'' procedure, according to the commenter. There are a host of variables that influence the results of an accepted methodology. The commenter reasons that, without some standardization of those variables, there is no uniform or standard analysis. Each permitting authority could establish its view of appropriate variables; there would be no national consistency.

Several other commenters assert that EPA has the authority to establish an exposure-based emission limit for total chlorine. One commenter notes that one issue that often arises when considering risk-based standards is whether EPA has authority under section 112 to establish an exposure-based emission limit. The commenter states that the concern seems to be that some stakeholders construe the Act's statutory provisions as requiring uniform emission limitations at all facilities, rather than emissions that are measured at places away from the source and that vary from facility to facility. The commenter does not see any legal impediment to establishing exposure-based limits.

The commenter notes that, first, under section 112, EPA has authority to establish ''emission standards.'' Emission standards are defined to be a requirement established by the State or the Administrator which limits the quantity, rate or concentration of emissions of air pollutants on a continuous basis * * * to assure continuous emission reduction, and any design, equipment, work practice or operational standard promulgated under this chapter. EPA's alternate risk-based emission standard will limit the quantity, rate or concentration of the emissions. The commenter states that there is no requirement in the definition that specifies where the emission standard is to be measured, nor is there such a requirement anywhere in the statute.

Second, the commenter notes that EPA's proposed exposure-based limit will result in facilities establishing operating parameter limitations, or OPLs. These OPLs qualify as emission limitations because they are ''operational standards'' being promulgated under section 112, according to the commenter. They will be measured at the facility, not at the point of exposure. Finally, the commenter reasons that the limitations EPA is establishing are uniform. They uniformly protect the individual most exposed to emission levels no higher than a hazard index of 1.0. Consequently, the commenter believes that there is nothing in the statute that prevents the Agency from promulgating exposure-based emission standards.

Response: We agree with the commenters who believe the Agency has the authority to establish health-based compliance alternatives under a national exposure standard. In particular, we agree with the commenter that the health-based compliance alternatives are national standards since they provide a uniform and national measure of risk control, and also that the health-based compliance alternatives are ''emission standards'' because they limit the quantity, rate or concentration of total chlorine emissions.

Section 112(d)(4) authorizes EPA to bypass the mandate in section 112(d)(3) in appropriate circumstances. Those circumstances are present for hazardous waste combustors other than hydrochloric acid production furnaces. Section 112(d)(4) provides EPA with authority, at its discretion, to develop health-based compliance alternatives for HAP ''for which a health threshold has been established,'' provided that the standard reflects the health threshold ''with an ample margin of safety.''

Both the plain language of section 112(d)(4) and the legislative history indicate that EPA has the discretion under section 112(d)(4) to develop health-based compliance alternatives for some source categories emitting threshold pollutants, and that those standards may be less stringent than the corresponding MACT standard (including floor standards) would be.[180] EPA's use of such standards is not limited to situations where every source in the category or subcategory can comply with them. As with technology-based standards, a particular source's ability to comply with a health-based standard will depend on its individual circumstances, as will what it must do to achieve compliance.

In developing health-based compliance alternatives under section 112(d)(4), EPA seeks to ensure that the concentration of the particular HAP to which an individual exposed at the upper end of the exposure distribution is exposed does not exceed the health threshold. The upper end of the exposure distribution is calculated using the ''high end exposure estimate,'' defined as ''a plausible estimate of individual exposure for those persons at the upper end of the exposure distribution, conceptually above the 90th percentile, but not higher than the individual in the population who has the highest exposure'' (EPA Exposure Assessment Guidelines, 57 FR 22888, May 29, 1992). Assuring protection to persons at the upper end of the exposure distribution is consistent with the ''ample margin of safety'' requirement in section 112(d)(4).

We agree with the view of several commenters that section 112(d)(4) is appropriate for establishing health-based compliance alternatives for total chlorine for hazardous waste combustors other than hydrochloric acid production furnaces. Therefore, we have established such compliance alternatives for affected sources in those categories. Affected sources which believe that they can demonstrate compliance with the health-based compliance alternatives may choose to comply with those compliance alternatives in lieu of the otherwise applicable MACT-based standard.

Comment: One commenter states that the risk assessments would not provide an ample margin of safety because background exposures are not taken into account. There is no accounting for other chlorine compounds from other sources at the facility, or from other neighboring facilities. The commenter believes that there is no evidence in the section 112(f) residual risk assessments produced thus far that emissions from collocated sources will actually be pursued by EPA. The commenter also notes that the Urban Air Toxics program cannot be relied upon to address ambient background. This program,

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[180] See also Legislative History at 876 (section 112(d)(4) standard may be less stringent than MACT).

required under section 112(k), was to be completed by 1999. However, the strategy has not been finalized and the small amount of activity in this area is focused on *voluntary* emission reductions rather than federal requirements. Finally, the commenter notes that control of criteria pollutants via State Implementation Plans to achieve compliance with the NAAQS is problematic. For particulate matter (PM) and ozone, new NAAQS were set in 1997 and seven years later the nonattainment designations are still being determined. The designation process will be followed by a 3 year period to prepare State Implementation Plans and several more years to carry out those plans. In the meantime, there will be high levels of PM and ozone in the air near many hazardous waste combustors in New Jersey which will exacerbate exposures to chlorine and hydrogen chloride.

Response: Total chlorine missions from collocated hazardous waste combustors must be considered in establishing health-based compliance alternatives under § 63.1215. Ambient levels of HCl or chlorine attributable to other on-site sources, as well as off-site sources, are not considered, however. As we indicated in the Residual Risk Report to Congress and in the recent residual risk rule for Coke Ovens, the Agency intends to consider facility-wide HAP emissions as part of the ample margin of safety determination for CAA section 112(f) residual risk actions. 70 FR at 19996–998 (April 15, 2005); see also, 54 FR at 38059 (Sept. 14, 1989) (benzene NESHAP).

Comment: Several commenters state that acute exposure guideline levels (AEGLs) are *once-in-a-lifetime* exposure levels. They assert that, because short term exposures at a Hazard Index greater than 1.0 may occur more than once in a lifetime, using AEGLs for the purpose of setting risk-based short-term limits for HCl and chlorine does not provide an ''ample margin of safety.''

Response: To assess acute exposure, we proposed to use acute exposure guideline levels for 1-hour exposures (AEGL–1) as health thresholds. We have investigated commenters' concerns, however, and conclude that AEGLs are not likely to be protective of human health because individuals may be subject to multiple acute exposures at a Hazard Index greater than 1.0 from hazardous waste combustors. Consequently, we use acute Reference Exposure Levels (aRELs) rather than acute exposure guideline levels (AEGLs) as acute exposure thresholds for the final rule. See also Part Two, Section IX.D above. Acute RELs are health thresholds below which there would be no adverse health effects while AEGL–1 values are health thresholds below which there may be mild adverse effects.

Acute exposures are relevant (in addition to chronic exposures) and the acute exposure hazard index of 1.0 could be exceeded multiple times over an individual's lifetime. Although we concluded at proposal that the chronic exposure Hazard Index would always be higher than the acute exposure Hazard Index, and thus would be the basis for the total chlorine emission rate limit, this conclusion relates to acute versus chronic exposure to a constant, maximum average emission rate of total chlorine from a hazardous waste combustor. See 69 FR at 21300. We explained that acute exposure must nonetheless be considered when establishing operating requirements to ensure that short-term emissions do not result in an acute exposure Hazard Index of greater than 1.0. This is because total chlorine and chloride feedrates to a hazardous waste combustor (e.g., commercial incinerator) can vary substantially over time. Although a source may remain in compliance with a feedrate limit with a long-term averaging period (e.g., 12-hour, monthly, or annual) based on the chronic Hazard Index, the source could feed chlorine during short periods of time that substantially exceed the long-term feedrate limit. This could result potentially in emissions that exceed the one-hour (i.e., acute exposure) Hazard Index. Consequently, we discussed at proposal the need to establish both short-term and long-term total chlorine and chloride feedrate limits to ensure that neither the chronic exposure nor the acute exposure Hazard Index exceeds 1.0.[181]

We conclude that 1-hour Reference Exposure Levels (aRELs) are a more appropriate health threshold metric than AEGL–1 values for hazardous waste combustors given that the acute Hazard Index limit of 1.0 may be exceeded multiple times over an individual's lifetime, albeit resulting from uncontrollable factors. The California Office of Health Hazard Assessment has developed acute health threshold levels that are intended to be protective for greater than once in a lifetime exposures. The acute exposure levels are called acute Reference Exposure Levels and are available at *http://www.oehha.ca.gov/air/acute_rels/acuterel.html.*

The 1-hour REL values for hydrogen chloride and chlorine are 2.1 mg/m^3 and 0.21 mg/m^3, respectively. The AEGL–1 values for hydrogen chloride and chlorine are 2.7 mg/m^3 and 1.4 mg/m^3, respectively. Although there is little difference between the 1-hour REL and AEGL–1 values for hydrogen chloride, the 1-hour REL for chlorine is substantially lower than the AEGL–1 value.

In summary, we believe that aRELs are a more appropriate health threshold metric than AEGL–1 values for establishing health-based compliance alternatives for hazardous waste combustors because aRELs are ''no adverse effect'' threshold levels that are intended to be protective for multiple exposures.

Comment: One commenter states that the health-based compliance alternative is unlawful because the proposal does not address ecological risks that may result from uncontrolled HAP emissions, including risks posed to those areas where few people currently live, but sensitive habitats exist.

Response: An ecological assessment is normally required under CAA section 112(d)(4) to assess the presence or absence of ''adverse environmental effects'' as that term is defined in CAA section 112(a)(7). To identify potential multimedia and/or environmental concerns, EPA has identified HAP with significant potential to persist in the environment and to bioaccumulate. This list does not include hydrogen chloride or chlorine.

We also note that health-based total chlorine emission limits for incinerators, cement kilns, and lightweight aggregate kilns cannot be higher than the current Interim Standards. See § 63.1215(b)(7). Thus, the ecological risk from total chlorine emissions from these sources will not be increased under the health-based limits.

In addition, we note that only 2 of 12 solid fuel boilers have total chlorine emissions higher than 180 ppmv, and only 1 liquid fuel boiler has emissions higher than 170 ppmv. Thus, boilers generally have low total chlorine emissions which would minimize ecological risk.

Consequently, we do not believe that emissions of hydrogen chloride or chlorine from hazardous waste boilers will pose a significant risk to the environment, and facilities attempting to comply with the health-based

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[181] Note that we conclude for the final rule that most sources are not likely to exceed the acute Hazard Index because they will establish a 12-hour rolling average chlorine feedrate limit and their chlorine feedrates are not likely to vary substantially over that averaging period. Thus, we believe that most sources will not be required to establish an hourly rolling average chlorine feedrate limit. The owner/operator must determine whether the hourly rolling average chloride feedrate limit can be waived under § 63.1215(d).

alternatives for these HAP are not required to perform an ecological assessment.

B. Implementation of the Health-Based Standards

Comment: Several commenters are concerned that the health-based compliance alternative will place an intensive resource demand on state and local agencies to review and approve facilities' eligibility demonstrations, and State and local agencies may not have adequate expertise to review and approve the demonstrations. One commenter states that permitting authorities do not have the expertise to review eligibility demonstrations that are based on procedures other than those included in EPA's Reference Library, as would be allowed. The commenter also states that, if the health-based compliance alternative is promulgated, EPA should establish one standard method for the analyses so there is consistency nationwide. If EPA offers more than one method, EPA should do all of the risk assessment reviews, instead of passing the responsibility, without clear direction, to the permitting authorities, according to the commenter.

Response: The health-based compliance alternatives for total chlorine that EPA has adopted in the final rule should not impose significant resource burdens on states. The required compliance demonstration methodology is structured in such a way as to avoid the need for states to have significant expertise in risk assessment methodology. We have considered the commenters' concerns in developing the criteria defining eligibility for these compliance alternatives, and the approach that is included in the final rule provides clear, flexible requirements and enforceable compliance parameters. The final rule provides two ways that a facility may demonstrate eligibility for complying with the health-based compliance alternatives. First, look-up tables allow facilities to determine, using a limited number of site-specific input parameters, whether emissions from their sources might cause the Hazard Index limit to be exceeded. Second, if a facility cannot demonstrate eligibility using a look-up table, a modeling approach can be followed. The final rule presents the criteria for performing this modeling.

Only a portion of hazardous waste combustors will submit eligibility demonstrations for the health-based compliance alternatives. Of these sources, several should be able to demonstrate eligibility based on simple analyses—using the look-up tables. However, some facilities will require more detailed modeling. The criteria for demonstrating eligibility for the compliance alternatives are clearly defined in the final rule. Moreover, under authority of RCRA section 3005(c)(3), multi-pathway risk assessments will typically have already been completed for many hazardous waste combustors to document that emissions of toxic compounds, including total chlorine, do not pose a hazard to human health and the environment. Thus, state permitting officials have already reviewed and approved detailed modeling studies for many hazardous waste combustors. The results of these studies could be applied to the eligibility demonstration required by this final rule.

Because these requirements are clearly defined, and because any standards or requirements created under CAA section 112 are considered applicable requirements under 40 CFR part 70, the compliance alternatives would be incorporated into title V programs, and states would not have to overhaul existing permitting programs.

Finally, with respect to the burden associated with ongoing assurance that facilities that opt to do so continue to comply with the health-based compliance alternatives, the burden to states will be minimal. In accordance with the provisions of title V of the CAA and part 70 of 40 CFR (collectively ''title V''), the owner or operator of any affected source opting to comply with the health-based compliance alternatives is required to certify compliance with those standards every five years on the anniversary of the comprehensive performance test. In addition, if the facility has reason to know of changes over which the facility does not have control, and these changes could decrease the allowable HCl-equivalent emission rate limit, the facility must submit a revised eligibility demonstration. Further, before changing key parameters that may impact an affected source's ability to continue to meet the health-based emission standards, the source is required to evaluate its ability to continue to comply with the health-based compliance alternatives and submit documentation to the permitting authority supporting continued eligibility for the compliance alternative. Thus, compliance requirements are largely self-implementing and the burden on states will be minimal.

Comment: One commenter suggests that the look-up tables would have more utility if EPA developed tables for each source category to ensure the HCl-equivalent emission rate limits reflected stack parameters representative of each source category. Similarly, another commenter notes that a look-up table designed to be applicable to all hazardous waste combustors is very conservative and will have limited utility. This commenter does not suggest that EPA develop look-up tables for each class of hazardous waste combustors, however. Rather, the commenter suggests that since look-up tables have already been developed for industrial boilers that do not burn hazardous waste[182] hazardous waste combustors should be allowed to use those look-up tables instead of the look-up tables proposed for hazardous waste combustors.

Response: We noted at proposal that the emission rates provided in the look-up table for hazardous waste combustors are more stringent than those promulgated for solid fuel industrial boilers that do not burn hazardous waste. This is because the key parameters used by the SCREEN3 atmospheric dispersion model (i.e., stack diameter, stack exit gas velocity, and stack exit gas temperature) to predict the normalized air concentrations that EPA used to establish HCl-equivalent emission rates for solid fuel industrial boilers that do not burn hazardous waste are substantially different for hazardous waste combustors. Thus, the maximum HCl-equivalent emission rates for hazardous waste combustors would generally be lower than those EPA established for solid fuel industrial boilers that do not burn hazardous waste.

Nonetheless, we agree with the commenter's concerns that the look-up tables would have more utility if they better reflected the range of stack properties representative of hazardous waste combustors. Accordingly, we examined the stack parameters for all hazardous waste-burning sources in our data base (except for hydrochloric acid production furnaces that are not eligible for the health-based emission standards). After analyzing the relationships among the various stack parameters (i.e., stack height, stack diameter, stack gas exhaust volume, and exit temperature), we concluded that the look-up table should be modified to treat both stack diameter and stack height as independent variables rather than relying on stack height alone.

We developed separate tables for short-term (i.e., 1-hour) HCl-equivalent

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[182] See Table 2 of Appendix A to Subpart DDDDD, Part 63.

emissions limits to protect against acute health effects and long-term (i.e., annual) emission limits to protect against chronic effects from exposures to chlorine and hydrogen chloride. As discussed above, we used the acute Reference Exposure Level (aREL) developed by Cal-EPA as the benchmark for acute health effects. We used EPA's Reference Concentrations (RfC) as the benchmark for chronic health effects from exposures occurring over a lifetime.

Emission limits in the look-up table are expressed in terms of HCl-toxicity equivalent emission rates (lbs/hr). To convert your total chlorine emission rate (lb/hr) to an HCl-equivalent emission rate, you must adjust your chlorine emission rate by a multiplicative factor representing the ratio of the HCl health risk benchmark to the chlorine health risk benchmark. For 1-hour average HCl-equivalent emission rates, the ratio is the ratio of the aREL for HCl (2100 micrograms per cubic meter) to the aREL for chlorine (210 micrograms per cubic meter), or a factor of 10.[183] For annual average emissions, the ratio is the ratio of the RfC for HCl (20 micrograms per cubic meter) to the RfC of chlorine (0.2 micrograms per cubic meter), or a factor of 100. See § 63.1215(b).

We used the SCREEN3 air dispersion model to develop the emission limits in the look-up tables. SCREEN3 is a screening model that estimates air concentrations under a wide variety of meteorological conditions in order to identify the meteorological conditions under which the highest ambient air concentrations are likely to occur and what the magnitude of the ambient air concentrations are likely to be. The SCREEN3 model implements the procedures in EPA's ''Screening Procedures for Estimating the Air Quality Impact of Stationary Sources, Revised'' (EPA–454/R–92–019, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, NC, October 1992). Included are options for estimating ambient air concentrations in simple elevated terrain and complex terrain. Simple elevated terrain refers to terrain elevations below stack top. We did not use the complex terrain option in the development of the look-up tables because of the site-specific nature of plume impacts in areas of complex terrain. Therefore, the look-up tables cannot be used in areas of complex terrain (which we define generally as terrain that rises above stack top). Sources located in complex terrain (i.e., as a practical matter, sources other than those that are located in flat or simple elevated terrain as discussed below and thus cannot use the look-up tables) must use site-specific modeling procedures to establish HCl-equivalent emission rates.

We looked at two generic terrain scenarios for purposes of the look-up table. In one we assumed the terrain rises at a rate of 5 meters for every 100 meter run (i.e., a slope of 5 percent) and that terrain is ''chopped off'' above stack top (following the convention for such analyses in simple elevated terrain). In the other we assumed flat terrain. As can be seen from the tables in § 63.1215, the emission limits with flat terrain are significantly higher than those with simple elevated terrain. To reasonably ensure that the emission limits are not substantially over-stated (e.g., by a factor of 2), the simple elevated terrain table must be used whenever terrain rises to an elevation of one half (½) the stack height within a distance of 50 stack heights.

For both the simple elevated terrain and flat terrain scenarios, we performed model runs for urban and rural dispersion conditions, with and without building downwash. We selected the highest (ambient air concentration) values at each distance from among the four runs for each of the terrain scenarios.

As can be seen from the tables in § 63.1215, the HCl-equivalent emission rate limits range from 0.13 pounds per hour on an annual average (for a 0.3 meter diameter stack that is 5 meters tall that lies within 30 meters of the property boundary) to 340 pounds per hour (for a 4.0 meter diameter stack that is 100 meters tall that lies 5000 meters from the property boundary) when located in simple elevated terrain. In flat terrain, the range is from 0.37 to 1100 pounds per hour on an annual average. This contrasts with the look-up table at proposal, where the comparable range was from 0.0612 pounds per hour (for a 5 meter stack height at a distance of 30 meters) to a maximum of 18 pounds per hour (for stack heights of 50 meters or greater, at distances of 500 meters or greater).

If you have more than one hazardous waste combustor on site, the sum of the ratios for all combustors of the HCl-equivalent emission rate to the HCl-equivalent emission rate limit cannot exceed 1.0. See § 63.1215 (c)(3)(v). This will ensure that the Hazard Index of 1.0 is not exceeded considering emissions from all on-site combustors.

Comment: Several commenters state that facilities should be allowed to establish an averaging period for the total chlorine and chloride feedrate limit that is shorter than an annual rolling average. Commenters are referring to the feedrate limit to ensure compliance with the annual average HCl-equivalent emission rate limit. Commenters are concerned with the data handling issues that could arise from calculating, recording, and reporting an annual rolling average feedrate level that is updated hourly, and note that a shorter averaging period would make the limit more stringent.

Response: We agree with commenters, and conclude, moreover, that a 12-hour averaging period rather than an annual averaging period will be imposed on the vast majority of sources as a practical matter. This is because sources must establish a limit on the feedrate of total chlorine and chloride to ensure compliance with the semivolatile metals emission standards. See § 63.1209(n). The feedrate limit for total chlorine and chloride is established under § 63.1209(n) as the average of the hourly rolling averages for each test run, and the averaging period is 12 hours. Thus, the averaging period for the feedrate limit for semivolatile metals—12-hour rolling average updated hourly—trumps the annual rolling average averaging period that would otherwise apply here.[184]

Sources may also demonstrate compliance with the semivolatile metals standard by assuming all semivolatile metals in feedstreams are emitted. See § 63.1207(m)(2). Sources that do not have emission control equipment, such as most liquid fuel boilers, are particularly likely to use this approach. Under this approach, there is no concern regarding increased volatility of metals as chlorine feedrates increase, and such sources are not subject to a feedrate limit for chlorine for compliance assurance with the semivolatile metal standard. These sources may establish an averaging period for the feedrate of total chlorine and chloride for compliance with the health-based compliance alternative for total chlorine of not to exceed one year.[185]

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[183] We note that this factor of 10 ratio of the aRELs of HCl to chlorine is based on current aREL values and is subject to change. You must use current aREL (and RfC) values when you conduct your eligibility demonstration. See § 63.1215(b)(4 and 5).

[184] To also ensure compliance with the annual average HCl-equivalent emission rate limit, however, the numerical value of the feedrate limit established during the semivolatile metals performance test cannot exceed the value calculated as the annual average HCl-equivalent emission rate limit divided by [1 − system removal efficiency], where you demonstrate the total chlorine system removal efficiency during the comprehensive performance test.

[185] We note that we have also applied this ''not-to-exceed'' approach to establishing the duration of

Comment: Several commenters offered suggestions on whether a short-term feedrate limit was needed for total chlorine and chloride (*i.e.*, chlorine) as EPA suggested, and if EPA continues to consider it necessary, how the limit should be established.

One commenter states that it is not necessary to set short-term limits for chlorine feedrates. If EPA concludes that short-term limits are necessary, however, the commenter recommended these options: (1) Cap the feedrate at a level that is extrapolated up to the feedrate associated with Interim Standard for incinerators; (2) if the facility uses the site-specific option to set emission limits, the dispersion models can easily be used to set a 1-hour (or longer) limit; and (3) if the facility uses the look up table (which at proposal provided only annual average HCl-equivalent emission rate limits), a short-term limit can be set based on a multiplier of the annual limit’10 times the annual limit as recommended by documents in EPA’s Air Toxics Risk Assessment Reference Library.

Another commenter states that, if EPA were to promulgate a short-term feedrate limit, the EPA-endorsed factor of 0.08 employed to translate maximum hourly concentrations to annual concentrations could be used to identify the maximum hourly feedrate limit.

Finally, another commenter states that extrapolation of the chlorine feedrate (from the level during the comprehensive performance test when the source documents compliance with the annual average HCl-equivalent emission rate limit) should be allowed to 100% of the 1-hour average HCl-equivalent emission rate limit because numerous safety factors have already been included in the health risk threshold values, look-up tables, and modeling demonstration.

Response: At proposal, we explained that sources would establish an annual average feedrate limit on chlorine as the feedrate level during the comprehensive performance test demonstrating compliance with the annual average HCl-equivalent emission rate limit.[186] Only long-term exposures—maximum annual average exposures—need be considered when confirming that the chlorine feedrate during the comprehensive performance test (i.e., average of the hourly rolling averages for each run) is acceptable because the annual exposure Hazard Index limit (i.e., not to exceed 1.0) would always be exceeded before the 1-hour Hazard Index limit (i.e., not to exceed 1.0). Thus, the feedrate limit associated with annual exposures would always be more stringent than the feedrate limit associated with 1-hour exposures. See 69 FR at 21299.

We further explained at proposal, however, the need to establish a short-term feedrate limit for chlorine to ensure that the 1-hour HCl-equivalent emission rate did not exceed the 1-hour average HCl-equivalent emission rate limit due to variability in the chlorine feedrate during the annual averaging period for the feedrate limit. We requested comment on approaches to establish this 1-hour chlorine feedrate limit, including extrapolating feedrates to 100% of the 1-hour average HCl-equivalent emission rate limit. See 69 FR at 21304.

In the final rule we have corrected and refined these procedures. The final rule requires you to establish a long-term chlorine feedrate limit to maintain compliance with the annual average HCl-equivalent emission rate limit as either: (1) The chlorine feedrate during the comprehensive performance test if you demonstrate compliance with the semivolatile metals emission standard during the test (see § 63.1209(o)); or (2) if you comply with the semivolatile metals emission standard under § 63.1207(m)(2) by assuming all metals in the feed to the combustor are emitted, the annual average HCl-equivalent emission rate limit divided by [1 − system removal efficiency] where you demonstrate the system removal efficiency during the comprehensive performance test. See discussion in Part Two, Section IX.H, of this preamble. If you establish the chlorine feedrate limit based on the feedrate during the performance test to demonstrate compliance with the semivolatile metals emission standard, the averaging period for the feedrate limit is a 12-hour rolling average. If you establish the chlorine feedrate limit based on the system removal efficiency during the performance test, the averaging period is up to an annual rolling average.

The final rule also requires you to establish an hourly rolling average chlorine feedrate limit if you determine under § 63.1215(d)(3) that the 1-hour average HCl-equivalent emission rate limit may be exceeded. That feedrate limit is established as the 1-hour HCl-equivalent emission rate limit divided by [1 − system removal efficiency].

Under § 63.1215(d)(3), you must establish an hourly rolling average chlorine feedrate limit unless you determine considering specified criteria that your chlorine feedrates will not increase over the averaging period for the long-term chlorine feedrate limit (*i.e.*, 12-hour rolling average or (up to) annual rolling average) to a level that may result in an exceedance of the 1-hour average HCl-equivalent emission rate limit. The criteria that you must consider are: (1) The ratio of the 1-hour average HCl-equivalent emission rate based on the total chlorine emission rate you select for each combustor to the 1-hour average HCl-equivalent emission rate limit for the combustor; and (2) the potential for the source to vary chlorine feedrates substantially over the averaging period for the long-term chlorine feedrate limit.

For example, if a source’s primary chlorine-bearing feedstreams have a relatively constant chlorine concentration over the averaging period for the chlorine feedrate limit to ensure compliance with the annual average HCl-equivalent emission rate limit (*e.g.*, generally 12-hours), as may be the case for commercial sources feeding from large burn tanks or on-site sources where chlorine levels in wastes are fairly constant, you may conclude that there is little probability that 1-hour feedrates would vary substantially over the averaging period. Thus, a 1-hour rolling average chlorine feedrate limit may not be warranted. Even if chlorine feedrates could vary substantially over the long-term feedrate averaging period, however, an hourly rolling average feedrate limit still may not be warranted if the source’s 1-hour average HCl-equivalent emission rate is well below the 1-hour HCl-equivalent emission rate limit. See Part Two, Section IX.H, of this preamble for a discussion of the relationship between emission rates, emission rate limits, and feedrate limits.

We disagree with the commenter who states that short-term chlorine feedrate limits are not necessary. The 1-hour average HCl-equivalent emission rate limit could potentially be exceeded for sources with highly variable chlorine feedrates and where the 1-hour HCl-equivalent emission rate is relatively high compared to the 1-hour HCl-equivalent emission rate limit. The 1-hour average HCl-equivalent emission rate limit could be exceeded even though the source remains in compliance with the annual average HCl-equivalent emission rate limit (and,

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averaging periods for the limits on all operating parameters established under § 63.1209. See new § 63.1209(r) and USEPA, “Final Technical Support Document for HWC MACT Standards, Volume IV: Compliance with HWC MACT Standards, September 2005, Section 2.4.6.

[186] We discussed at proposal that the feedrate limit to ensure compliance with the long-term Hazard Index limit of not to exceed 1.0 would be the average of the hourly rolling averages for each test run, with compliance based on an annual average. Note that, under the final rule however, the long-term chlorine feedrate limit is established as the annual average HCl-equivalent emission rate limit divided by [1 − system removal efficiency]. See § 63.1215(g)(2).

moreover, the 12-hour rolling average or (up to) annual rolling average chlorine feedrate limit).

We agree with commenters that suggest that the hourly rolling average chlorine feedrate limit should be extrapolated from performance test feedrates up to 100% of the 1-hour average HCl-equivalent emission rate limit. The final rule requires you to establish the hourly rolling average feedrate limit (if a limit is required under § 63.1215(d)(3)) as the 1-hour HCl-equivalent emission rate limit divided by [1 − system removal efficiency]. Establishing the hourly rolling average feedrate in this manner ensures that the 1-hour HCl-equivalent emission rate limit is not exceeded, and thus that the aREL-based Hazard Index of 1.0 is not exceeded.

We also agree in principle with commenters that suggest that the hourly rolling average feedrate limit be based on the 1-hour average HCl-equivalent emission rate limit which is based on emissions modeling. These commenters suggested that we use a multiplier of 10 or 12.5 (*i.e.*, 1/0.08) to project 1-hour average HCl-equivalent emission rate limits from the annual average HCl-equivalent emission rate limits. Rather than use these approaches to project 1-hour average emissions from annual average emissions, however, we use emissions modeling to develop look-up tables for both 1-hour average HCl-equivalent emission rate limits and annual average HCl-equivalent emission rate limits. For sources that use site-specific risk assessment to demonstrate eligibility, they will use the same models to estimate 1-hour average maximum ambient concentrations. Thus, the final rule uses modeling to establish directly 1-hour average HCl-equivalent emission rate limits rather than approximating those limits from annual average HCl-equivalent emission rate limits as commenters suggest. In summary, the final rule requires you to establish the 1-hour average HCl-equivalent emission rate limit by either using Tables 3 or 4 in § 63.1215 to look-up the limit, or conducting a site-specific risk analysis. Under the site-specific risk analysis option, the 1-hour average HCl-equivalent emission rate limit would be the highest emission rate that the risk assessment estimates would result in an aREL-based Hazard Index not exceeding 1.0 at any off-site receptor location.

We do not agree that the short-term feedrate limit should be capped at the level corresponding to the Interim Standards for incinerators, cement kilns, and lightweight aggregate kilns. The final rule caps the total chlorine emission rate and the annual average HCl-equivalent emission rate limit at the level equivalent to the Interim Standard for total chlorine. Thus, the long-term chlorine feedrate limit (12-hour rolling average or (up to) an annual rolling average) is capped at the level corresponding to the Interim Standards for incinerators, cement kilns, and lightweight aggregate kilns. The hourly rolling average feedrate limit to maintain compliance with the 1-hour average HCl-equivalent emission rate limit, however, can exceed the numerical value of the long-term chlorine feedrate limit because the 1-hour average HCl-equivalent emission rate limit is substantially higher than the annual average HCl-equivalent emission rate limit. Thus, capping at the interim standard level is inappropriate unless the interim standard were somehow re-expressed as a 1-hour limit.

Comment: Many commenters state that requiring prior approval of the eligibility demonstration would be unworkable. Commenters are concerned that the permitting authority may not approve the demonstration prior to the compliance date even though the source has submitted complete and accurate information and has responded to any requests for additional information in good faith. Commenters are also concerned that the permitting authority may disapprove the demonstration too late for the source to take other measures to comply with the total chlorine MACT standard. Once commenter recommends the following alternative approach: (1) If the regulatory agency does not act on a risk demonstration within the 6-month period, it is conditionally deemed approved; and (2) if a risk demonstration is disapproved, the source would have to comply with the MACT emission standards no later than three years after notice of disapproval and, in the interim, sources would comply with current emission limits for total chlorine.

Another commenter suggests that, if the permitting authority has neither approved nor disapproved the eligibility demonstration by the compliance date, the source may begin complying on the compliance date with the alternative health-based limits specified in the eligibility demonstration.

Finally, another commenter states that facilities should be granted a three-year extension of the compliance date if the Agency denies a good-faith eligibility demonstration. The commenter is concerned that sources will not have time to install additional controls or take other measures after a denial is issued but prior to the compliance date.

Response: We agree with commenters that requiring prior approval of the eligibility demonstration may be unworkable for the reasons commenters suggest. We also agree with commenters that sources who make a good-faith eligibility demonstration but whose demonstration is denied by the permitting authority may need additional time to install controls or take other measures to comply with the MACT emission standards.

Accordingly, the final rule does not require prior approval of the eligibility demonstration for existing sources. If your permitting authority has not approved your eligibility demonstration by the compliance date, and has not issued a notice of intent to disapprove your demonstration, you may nonetheless begin complying, on the compliance date, with the HCl-equivalent emission rate limits and associated chlorine feedrate limits you present in your eligibility demonstration.

In addition, the final rule states that the permitting authority should notify you of approval or intent to disapprove your eligibility demonstration within 6 months after receipt of the original demonstration, and within 3 months after receipt of any supplemental information that you submit. A notice of intent to disapprove your eligibility demonstration, whether before or after the compliance date, will identify incomplete or inaccurate information or noncompliance with prescribed procedures and specify how much time you will have to submit additional information or comply with the total chlorine MACT standards. The permitting authority may extend the compliance date of the total chlorine MACT standards to allow you to make changes to the design or operation of the combustor or related systems as quickly as practicable to enable you to achieve compliance with the total chlorine MACT standards.

Comment: One commenter states that proposed § 63.1215(f)(1)(A) should have required sources to conduct a new comprehensive performance test only if there are changes that would decrease the HCl-equivalent emission rate limit below the HCl-equivalent emission rate demonstrated during the comprehensive performance test. Similarly, the commenter suggests that a retest should not be required if a change increases the HCl-equivalent emission rate limit but the source elects to maintain the current feedrate limit.

Another commenter states that the Agency should clarify that if there are any changes that are not controlled by the facility owner/operator, and the facility is required to change its design or operation to lower chlorine emissions to address the changes, the facility may request up to three years to make such changes.

Response: We generally agree with the commenters and have revised the rule as follows: (1) A new comprehensive performance test is required to reestablish the system removal efficiency for total chlorine only if you change the design, operation, or maintenance of the source in a manner that may decrease the system removal efficiency (e.g., the emission control system is modified in a manner than may decrease total chlorine removal efficiency); and (2) if you use the site-specific risk analysis option for your eligibility demonstration and changes beyond your control (e.g., off-site receptors newly residing or congregating at locations exposed to higher ambient levels than originally estimated) dictate a lower HCl-equivalent emission rate limit and you must make changes to the design, operation, or maintenance of the combustor or related systems to comply with the lower limit, you may request that the permitting authority grant you additional time to make those changes as quickly as practicable.

Comment: Several commenters state that the proposed approach for calculating chlorine emissions to address the potential bias using Method 26/26A attributable to high bromine or sulfur levels in feedstreams is not statistically valid. They indicate that the approach could lead to collection of total chlorine, hydrogen chloride and chlorine data that are contradictory and difficult to apply in a compliance situation. One commenter suggests that using Method 26/26A results for sources with bromine and sulfur dioxide, while recognizing that there is bias in the sampling method, will result in a valid compliance approach.

Response: We agree with commenters that the proposed approach to avoid the bias when feedstreams contain high levels of bromine or sulfur (bromine/chlorine ratio in feedstreams of greater than 5 percent, or sulfur/chlorine ratio in feedstreams of greater than 50 percent) during the comprehensive performance test may be problematic. The proposed approach would have required you to use Method 320/321 or ASTM D 6735–01 for hydrogen chloride measurements, to use Method 26/26A for total chlorine (i.e., hydrogen chloride and chlorine combined) measurements, and to calculate chlorine levels by difference. The potential problem is that chlorine emission levels are generally a very small portion of total chlorine measurements, and variability in the hydrogen chloride or total chlorine measurements due to method imprecision or other factors could result in inaccurate estimations of chlorine emission levels.

We do not agree, however, that using Method 26/26A for chlorine measurements for combustors feeding high levels of bromine or sulfur is acceptable–the chlorine measurement may be biased low. Chlorine emission levels must be determined as accurately as possible given that the long-term health threshold for chlorine is 100 times the threshold for HCl, and the short-term health threshold for chlorine is 10 times the threshold for HCl (i.e., using current RfCs and aRELs). To ensure that a conservative estimate of the chlorine emission rate is used to establish the alternative health-based emission limits and to address commenters' concerns, the final rule requires that you determine chlorine emissions to be the higher of: (1) The chlorine value measured by Method 26/26A, or an equivalent method; or (2) the chlorine value calculated by difference between the combined hydrogen chloride and chlorine levels measured by Method 26/26A, or an equivalent method, and the hydrogen chloride measurement from EPA Method 320/321 or ASTM D 6735–01, or an equivalent method.

Comment: Several commenters state the procedures for calculating HCl-equivalent emission rates cannot merely reference an outside source, such as a Web site, unless that reference specifies that the contents of the source are as of a date certain. To specify use of health threshold values that can change over time provides inadequate opportunity for notice and comment on the regulation.

Response: We believe that the best available sources of health effects information should be used for risk or hazard determinations. To assist us in identifying the most scientifically appropriate toxicity values for our analyses and decisions, the Web site to be used for RfCs identifies pertinent toxicity values using a default hierarchy of sources, with EPA's Integrated Risk Information System (IRIS) being the preferred source. The IRIS process contains internal and external peer review steps and IRIS toxicity values represent EPA consensus values. When adequate toxicity information is not available in IRIS, however, we consult other sources in a default hierarchy that recognizes the desirability of these qualities in ensuring that we have consistent and scientifically sound assessments. Furthermore, where the IRIS assessment substantially lags the current scientific knowledge, we have committed to consider alternative credible and readily available assessments (e.g., the acute Relative Exposure Levels established by the California Office of Health Hazard Assessment). For our use, these alternatives need to be grounded in publicly available, peer-reviewed information. We agree with the commenter that the issue of changing toxicity values is a general challenge in setting health-based regulations. However, we are committed to establishing such regulations that reflect current scientific understanding, to the extent feasible.

C. National Health-Based Standards for Cement Kilns

Comment: One commenter states that our suggestion at proposal that it would be appropriate to establish a single national emission rate type standard applicable to all cement kilns based on the worst-case scenario cement kiln is unduly burdensome as it discounts the benefits of improved dispersion realized by facilities that have invested in taller stacks that minimize downwash effects. The commenter recommends a dual limit for cement kilns such that the HCl equivalent emission rate is limited to both: (1) A 130 ppmv total chlorine emission standard (the Interim Standard) coupled with a chlorine feedrate limit based on a 12-hour rolling average; and (2) a Hazard Index of 1.0.

Response: We have decided not to include a separate national standard for cement kilns in the final rule for several reasons: (1) We have no assurance that the Cl_2/HCl volumetric ratio exhibited during the most recent compliance test, and that was the basis for the commenter documenting in a study [187] that the Hazard Index of 1.0[188] was not exceeded, is representative of ratios in the past or future; (2) the commenter's recommended emission standard for cement kilns—130 ppmv total chlorine emission limit and a Hazard Index of 1.0—is equivalent to the requirements under § 63.1215 applicable to other hazardous waste combustors to establish site-specific emission limits; (3) the MACT standard for total chlorine for cement kilns is 120 ppmv such that the health-based standard that the commenter recommends—130 ppmv,

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[187] See Trinity Consultants, "Analysis of HCl/Cl2 Emissions from Cement Kilns for 112(d)(4) Consideration in the HWC MACT Replacement Standards," September 17, 2003.

[188] The HCl/Cl_2 ratio for the total chlorine measurement is important because the current RfC for chlorine is 0.2 $\mu g/m^3$ while the current RfC for HCl is 20 $\mu g/m^3$. Thus, when calculating HCl-equivalent emission rate limits, chlorine emissions are currently multiplied by a factor of 100.

the Interim Standard—would provide little compliance relief; and (4) even though the final rule does not provide a separate national health-based standard for cement kilns, cement kilns may apply for the health-based compliance alternatives applicable to other hazardous waste combustors.

Prior to publication of the proposed rule, the commenter submitted results of site-specific risk assessments for all cement kiln facilities showing that both the long-term and short term Hazard Index of 1.0 would not be exceeded at any facility assuming: (1) Sources emit total chlorine at the Interim Standard level of 130 ppmv; and (2) total chlorine emissions are apportioned between HCl and chlorine according to the apportionment exhibited during the most recent compliance test.

At proposal, we requested comment on how to ensure that the 130 ppmv concentration-based standard would ensure that total chlorine emission rates (lb/hr) would not increase to levels that may exceed the Hazard Index limit of 1.0 given that: (1) The partitioning ratio between HCl and chlorine could change over time such that a larger fraction of total chlorine could be emitted as chlorine, which has a much lower health risk threshold; and (2) the mass emission rate of total chlorine could increase. See 69 FR at 21306.

The commenter has addressed the concern about the mass emission rate of total chlorine potentially increasing by suggesting that the health-based standard include a limit on the feedrate of total chlorine and chloride at the level used in their risk assessment supporting a separate national standard for cement kilns. The commenter has also addressed the concern about the HCl and chlorine apportionment ratio changing over time by suggesting that the standard also include a requirement that the Hazard Index of 1.0 not be exceeded. We agree that sources need to account for variability in the chlorine to HCl ratio (see § 63.1215(b)(6)) and that periodic checks to ensure that the Hazard Index of 1.0 is not exceeded are needed. We believe the best way to ensure that the health-based compliance alternatives for total chlorine for cement kilns are protective with an ample margin of safety is through the procedures of § 63.1215 where site-specific emission rate limits are established rather than under a separate national standard for cement kilns.

VIII. Implementation and Compliance

A. Compliance Assurance Issues for both Fabric Filters and Electrostatic Precipitators (and Ionizing Wet Scrubbers)

1. Implementation Issues

Comment: Several commenters state that design and performance specifications and explicit detailed test procedures to determine conformance with the specifications are needed so that manufacturers can certify that their bag leak detection systems and particulate matter detection systems meet applicable criteria. Absent design and performance specifications and test procedures, commenters assert that the ‘‘manufacturer’s certification’’ cannot ensure the performance capabilities of the devices.

Response: In general, we believe adherence to manufacturer’s written specifications and recommendations is an appropriate approach to reasonably ensure performance of a bag leak detection system or particulate matter detection system, and we have retained that provision in the final rule. We agree, however, that there may be cases where other procedures are more appropriate than the manufacturer’s recommendations to ensure performance of a bag leak detection system or particulate matter detection system. Consequently, the rule allows you to request approval for alternative monitoring procedures under § 63.1209(g)(1).[189] We note that you may use references other than EPA’s Guidance Document, ‘‘Fabric Filter Bag Leak Detection Guidance,’’ September 1997 to identify appropriate performance specifications for the bag leak detection system or particulate matter detection system, including: PS–11 for PM CEMS; PS–1 for opacity monitors; and CPS–001 for opacity monitoring below 10% opacity. You may use these references to support your request for additions to, or deviations from, manufacturer’s specifications.

Comment: One commenter states that bag leak detection systems and particulate matter detection systems should have a detection limit of 1.0 mg/acm to ensure peak performance is maintained rather than explicitly allowing sources to request approval for a detection limit on a site-specific basis as the rule currently allows. Several other commenters state that the bag leak detection system or particulate matter detection system need not have a detection limit as low as 1.0 mg/acm to detect increases in normal emissions. One commenter believes that bag leak detection systems installed on cement kilns should be allowed to have a detection limit of 10 mg/acm because: (1) A detection limit requirement of 10 mg/acm is more than sufficient to protect the particulate matter emission limit and to detect increases in particulate matter concentration given that the current particulate matter emission limit for existing kilns is 63 mg/dscm; (2) a detection limit requirement of 10 mg/acm is consistent with the requirement for bag leak detection systems in Subpart LLL, Part 63, for cement plants that choose to install bag leak detection systems on finish mills and raw mills, for bag leak detection systems and particulate matter detection systems installed on lime kilns under Subpart AAAAA, and for industrial boilers under Subpart DDDDD; (3) a 10 mg/acm detection limit is achievable using state-of-the-art transmissometers (the actual instrument used in a continuous opacity monitoring system (COMS) at cement plants having kiln stack diameters of 2–3 meters, or greater; and (4) it is unclear if any bag leak detection system device can actually be demonstrated to achieve a 1.0 mg/acm detection limit except by extrapolation from tests conducted at higher dust loadings and theoretical arguments based on signal-to-noise ratios or other parameters. This commenter also recommends that EPA establish a 10 mg/am^3 detection limit for all cement kilns rather than provide for site-specific determinations because allowing site-specific determinations is likely to create confusion in the selection of monitoring devices and further complicate the manufacturer’s certification of performance requirements.

Response: The current requirement for the bag leak detection system sensitivity/detection limit applicable to incinerators and lightweight aggregate kilns is 1.0 mg/acm unless you demonstrate under § 63.1209(g)(1) that a lower sensitivity (i.e., higher detection limit) would detect bag leaks. We proposed to apply the bag leak detection system requirements to all hazardous waste combustors equipped with fabric filters and promulgate that requirement today. Although we also requested comment whether detection limits higher than 1.0 mg/acm should be allowed, none of the comments has convinced us to alter our view that the rule should allow higher detection limits on a site-specific basis. Similarly,

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[189] See discussion in Part Five, Section III.C, for an explanation of how the alternative monitoring provisions of § 63.1209(g)(1) relate to those of § 63.8(f).

we believe that the same detection limit requirement should apply to particulate matter detection systems that you may elect to use for compliance monitoring for your electrostatic precipitator or ionizing wet scrubber in lieu of site-specific operating parameter limits.

Both bag leak detection systems and particulate matter detection systems must be able to detect particulate emission in the range of normal concentrations. For example, to establish the alarm level for the bag leak detection system, you must first adjust detector gain/sensitivity and response time based on normal operations. Although the alarm level for particulate matter detection systems will be established based on operations during the comprehensive performance test or higher (see discussion below), the detector must be responsive within the range of normal operations for you to effectively minimize exceedances of the alarm level.

The range of normal emission concentrations will generally be well below both the particulate matter standard and emissions during the comprehensive performance test. Consequently, we disagree with commenters that believe the detection limit need only be within the range of emissions at the particulate matter emission standard. On the other hand, normal emissions may be well above 1.0 mg/acm such that a higher detection limit (e.g., 10 mg/acm) may be appropriate on a site-specific basis.

We also disagree with the comment that bag leak detection systems (or particulate matter detection systems) may not be able actually to achieve a 1.0 mg/acm detection limit. EPA is aware of bag leak detection system instruments certified to meet levels of 0.2 mg/m^3 and particulate matter detection systems can readily achieve detection limits well below 1.0 mg/acm.[190]

Comment: One commenter states that a continuous opacity monitoring system (COMS) that can achieve a detection level of 10 mg/acm or less can be used to monitor electrostatic precipitator performance. The commenter believes that allowing a COMS for compliance under Subpart EEE is also appropriate because cement kilns will be operating under the requirements of Subpart LLL (for cement kilns that do not burn hazardous waste) at times, which requires compliance with an opacity standard using a COMS.

Response: You may use a COMS (i.e., transmissometer) that meets the detection limit requirement as discussed above (i.e., 1.0 mg/acm or a higher detection limit that you document under an alternative monitoring petition under § 63.1209(g)(1) would routinely detect particulate matter loadings during normal operations) as the detector for your bag leak detection system or particulate matter detection system.

2. Compliance Issues

Comment: One commenter states that, if the bag leak detection system or particulate matter detection system exceeds the alarm level or an operating parameter limit (OPL) is exceeded, the automatic waste feed cutoff (AWFCO) system must be initiated. Allowing a source to exceed the alarm level for 5% of the time in a 6-month period does not ensure continuous compliance.

Response: Although the AWFCO system must be initiated if an OPL is exceeded, we believe that allowing exceedances of the bag leak detection system or particulate matter detection system alarm level up to 5% of the time in a 6-month period is reasonable. Requiring initiation of the AWFCO for an exceedance of an OPL is reasonable because sources generally can control directly the parameter that is limited. Examples are the feedrate of metals or chlorine, or pressure drop across a wet scrubber. Bag leak detection systems and particulate matter detection systems, however, measure mass emissions of particulate matter, a parameter that is affected by many interrelated factors and that is not directly controllable. We believe that the 5 percent alarm rate is a reasonable allowance for sources due to difficult-to-control variations in particulate matter emissions. More important, although the bag leak detection system and particulate matter detection system measure mass emissions of particulate matter, the detector response is not correlated to particulate matter emission concentrations to the extent necessary for compliance monitoring.[191] Thus, triggering the alarm level is not evidence that the particulate matter emission standard has been exceeded.

The purpose of a BLDS or PMDS is to alert the operator that the PM control device is not functioning properly and that corrective measures must be undertaken. We believe that using a BLDS or PMDS for compliance assurance better minimizes emissions of PM (and metal HAP) than use of operating parameter limits (which are linked to the automatic waste feed cutoff system). APCD operating parameters often have an uncertain relationship to PM emissions while the BLDS and PMDS provide real-time information on actual PM mass emission levels.[192]

Comment: One commenter states that requiring a notification if the bag leak detection system or particulate matter detection system set point is exceeded more than 5% of the time in a 6-month period is not cost-effective. Sources using bag leak detection systems have not linked exceedances to the data logging system and would incur an expense to do so.

Response: We continue to believe that limiting the aggregate duration of exceedances in a 6-month period is a reasonable approach to gage the effectiveness of the operation and maintenance procedures for the combustor. We note that recent MACT standards for several other source categories use this approach, including standards for industrial boilers and process heaters and standards for lime kilns.

Comment: One commenter states that EPA did not present a rationale for requiring a notification within 5 working days if the bag leak detection system or particulate matter detection system set point is exceeded more than 5% of the time during a 6-month period. The commenter notes that this notice is not required under the Subpart DDDDD boiler and process heater MACT. The commenter also notes that the source is required to take corrective measures under both the operation and maintenance plan and bag leak detection systems and particulate matter detection systems requirements. The commenter believes that requiring a report to the permitting authority is duplicative, unnecessary, and increases the burden on regulated facilities without providing additional protection to human health or the environment.

Response: If a source exceeds the alarm set point more than 5% of the time in a 6-month period, it is an indication that the operation and maintenance plan may need to be revised. Requiring the source to report the excess exceedances to the permitting

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[190] USEPA, ''Technical Support Document for HWC MACT Standards, Volume IV: Compliance with the HWC MACT Standards,'' September 2005, Appendix C, Section 4.0.

[191] Actually, the BLDS is not correlated at all to PM concentrations, and the alarm level for a PMDS may or may not be approximately correlated to PM concentrations. See § 63.1206(c)(9).

[192] Moreover, for FFs, we are not aware of any APCD operating parameters that correlate well with PM emissions. Thus, sources must use a BLDS or PMDS for compliance assurance. For ESPs and IWSs, we are not aware of generic APCD parameters that correlate well with PM emissions. See discussion below in Section VIII.C of the text. Consequently, although the rule allows sources with ESPs and IWSs to establish site-specific operating parameter limits, sources are encouraged to use a PMDS.

authority serves as a notification that the authority may need to review the operation and maintenance plan with the source to determine if changes are warranted.

We agree with the commenter, however, that it is not necessary to require that the report be submitted within five working days of the end of the 6-month block period. Consequently, the final rule requires you to submit the report within 30 days of the end of the 6-month block period. Allowing 30 days to submit the report rather than 5 days as proposed is reasonable. We are concerned that 5 days may not be enough time to complete the report given that several exceedances toward the end of the 6-month block period may cause you to exceed the 5% time limit and that there may be many individual exceedances that need to be included in the report. We acknowledge that it may take some time to prepare the report given that you must describe the causes of each exceedance and the revisions to the operation and maintenance plan you have made to mitigate the exceedances.

Comment: One commenter notes that there is no guidance on how to calculate when the set-point has been exceeded more than 5 percent of the operating time within a 6 month period. The commenter notes that the MACT for industrial boilers and process heaters provides minimal instruction on how this is to be done, but it is not specific enough to enable facilities to ensure that they are in compliance with this requirement.

Response: For the final rule, we have adopted the procedures specified in the industrial boiler and process heater MACT for calculating the duration of exceedances of the set point. Those procedures are as follows:

1. You must keep records of the date, time, and duration of each alarm, the time corrective action was initiated and completed, and a brief description of the cause of the alarm and the corrective action taken.
2. You must record the percent of the operating time during each 6-month period that the alarm sounds.
3. In calculating the operating time percentage, if inspection of the fabric filter, electrostatic precipitator, or ionizing wet scrubber demonstrates that no corrective action is required, no alarm time is counted.
4. If corrective action is required, each alarm shall be counted as a minimum of 1 hour.

Although the commenter indicates that these procedures are not specific enough to ensure that sources are in compliance with the requirements, the commenter did not indicate the deficiencies or suggest additional requirements. If you need additional guidance on compliance with this provision, you should contact the permitting authority.

Comment: One commenter supports the approach of listing the shutting down of the combustor as a potential—but not mandatory—corrective measure in response to exceeding an alarm set point. Several commenters suggest, however, that EPA should specify that corrective measures could include shutting off the hazardous waste feed rather than shutting down the combustor. Other commenters state that it is inappropriate to imply that shutting down the combustor must be part of a corrective measures program for responding to exceedance of a set point. These commenters believe that the requirement to take corrective action upon the alarm is sufficiently protective. The facility should determine if shutting down the combustor is a necessary response to avoid noncompliance with a standard.

Response: You must operate and maintain the fabric filter, electrostatic precipitator, or ionizing wet scrubber to ensure continuous compliance with the particulate matter, semivolatile metals, and low volatile metals emission standards. Your response to exceeding the alarm set point should depend on whether you may be close to exceeding an operating parameter limit (e.g., ash feedrate limit for an incinerator or liquid fuel boiler equipped with an electrostatic precipitator) or an emission standard. If so, corrective measures should include, as commenters suggest, cutting off the hazardous waste feed. Corrective measures could also include, however, shutting down the combustor as the ultimate immediate corrective measure if an emission standard may otherwise be exceeded. Consequently, the final rule continues to require you to alleviate the cause of the alarm by taking the necessary corrective measure(s) which may include shutting down the combustor. This provision does not imply that shutting down the combustor is the default corrective measure. Rather, it implies that the ultimate immediate response, absent other effective corrective measures, would be to shut down the combustor.

Comment: One commenter states that periods of time when the combustor is operating but the bag leak detection system or particulate matter detection system is malfunctioning should not be considered exceedances of the set-point.

Response: If the bag leak detection system or particulate matter detection system is malfunctioning, the source cannot determine whether it is operating within the alarm set point. Accordingly, it is reasonable to consider periods when the bag leak detection system or particulate matter detection system is malfunctioning as exceedances of the set point.

B. Compliance Assurance Issues for Fabric Filters

Comment: One commenter states that establishing the set point for the bag leak detection system at twice the detector response achieved during bag cleaning as recommended by EPA guidance would not be sensitive enough to detect gradual degradation of the fabric filter, nor would it be low enough to require the operator of the source to take corrective measures that would ensure effective operation of the baghouse over time.

Response: The commenter expresses the same concern that EPA raised at proposal. See 69 FR at 21347. We have concluded, however, that it may be problematic to establish an alarm set point for fabric filters based on operations during the comprehensive performance test. This is because, as noted in earlier responses and at 69 FR at 21233, it is much more difficult to ''detune'' a fabric filter than an electrostatic precipitator to maximize emissions during the performance test.[193] Consequently, emissions from fabric filters that have not been detuned during the performance test may not be representative of the range of normal emissions caused by factors such as bag aging. Baghouse performance degrades over time as bags age. In addition, establishing the alarm set point based on operations during the performance test for baghouses that have not been detuned would establish more stringent compliance requirements on sources that perform the best—the lower the emissions, the lower the alarm set point. This would unfairly penalize the best performing sources.

For these reasons, the final rule requires you to establish the alarm set-point for bag house detection systems using principles provided in USEPA, ''Fabric Filter Bag Leak Detection Guidance,'' (EPA–454/R–98–015, September 1997).

Comment: One commenter states that the bag leak detection system requirement should not apply to the coal mill baghouse for cement kilns with indirect-fired coal mill systems where a fraction of kiln gas is taken

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[193] One approach to detune a fabric filter to simulate the extreme high range of normal operations would be to install a butterfly valve that allows a portion of the combustion gas to by-pass a section of the baghouse.

from the preheater and routed to the coal mill and subsequently to a baghouse before entering the stack. The commenter notes that the PM in this gas is nearly exclusively coal dust, and the baghouse is substantially smaller than the baghouse for the kiln.

Response: We believe that a bag leak detection system is a reasonable approach to monitor emissions for the coal mill baghouse to ensure compliance with the particulate matter (and semivolatile and low volatile metals) emission standards. These systems are inexpensive to install and operate. Annualized costs are approximately $24,000.[194] Although the commenter did not suggest an alternative monitoring approach, and we are not aware of a less expensive and effective approach, we note that sources may petition the permitting authority under § 63.1209(g)(1) to request an alternative monitoring approach.

C. Compliance Issues for Electrostatic Precipitators and Ionizing Wet Scrubbers

Comment: Several commenters believe that a particulate matter detection system may not be necessary for monitoring of electrostatic precipitators and ionizing wet scrubbers. Commenters state that site-specific operating parameter limits linked to the automatic waste feed cutoff system can effectively monitor and ensure the performance of electrostatic precipitators and ionizing wet scrubbers. Particulate matter detection systems on cement kilns would have to operate in a high moisture stack environment (all kilns burning hazardous waste that are equipped with electrostatic precipitators are wet process kilns), with the potential for condensation and/or water droplet interference. Commenters state that when water droplets are present, many of these devices are not applicable.

Response: The final rule provides sources equipped with electrostatic precipitators or ionizing wet scrubbers the alternative of using a particulate matter detection system or establishing site-specific operating parameter limits for compliance assurance. If a particulate matter detection system is used, corrective measures must be taken if the alarm set point is exceeded. If the source elects to establish site-specific operating parameter limits, the limits must be linked to the automatic waste feed cutoff system.

In response to commenters' concern that high moisture stack gas may be problematic for particulate matter detection systems, we note that extractive light-scattering detectors and beta gauge detectors can effectively operate in high moisture environments. We acknowledge, however, that the cost of these extractive detector systems is substantially higher than transmissometers or in situ light-scattering detectors.

Comment: One commenter states that EPA must set minimum total power requirements for both ionizing wet scrubbers and electrostatic precipitators because allowing permit officials to establish compliance operating parameters on a site-specific basis frustrates the intention of the CAA by obviating the requirements for federal standards. The commenter asserts that a minimum total power requirement is monitorable, recordable, and reportable, three requirements that are necessary for these facilities to come into, and remain in compliance with, their Title V operating permits.

Other commenters state that electrostatic devices are not easily characterized by operating parameters in a ''one-size-fits-all'' fashion. The significant operating parameters for electrostatic devices are secondary voltage, secondary current, and secondary power (the product of the first two items). The relationship between these parameters and performance of the unit differ between applications and unit types. For example, inlet field power can increase as unit performance appears to decrease. In this case, an operating parameter other than secondary power by field would be more appropriate. The commenter notes that, in its various proposals over the years, EPA has discussed a number of approaches to establish operating parameter limits for electrostatic devices, including: Minimum total secondary power; minimum secondary power by field; pattern of increasing power from inlet to outlet field; and minimum secondary power of the last ⅓ of fields (or the last field). Commenters have also proposed: minimum specific power (secondary power divided by flue gas flow rate); minimum secondary voltage and/or secondary current; and total secondary voltage and/or secondary current. The commenter concludes that it is not surprising that there is so little agreement on the right approach, because different units and applications respond differently. EPA's proposal to let facilities and local regulators determine the best approach is far wiser than regulating from a distance.

Response: We agree with the commenters that state that it is not practicable to establish operating parameter limits that would effectively ensure performance of all electrostatic devices. Accordingly, the final rule continues to allow sources to establish site-specific operating parameter limits for these devices.

We disagree with the commenter's assertion that site-specific operating parameter limits obviate the requirements for federal standards. The site-specific operating parameter limits merely reflect the truism that no two sources are identical and so what each needs to do to comply with the uniform standards may differ. The final rule provides consistent, federally-enforceable emission standards. Necessary flexibility in compliance assurance for those emission standards does not undermine the uniformity of those standards. In addition, we disagree with the commenter's concern that without a minimum power limit, there will be no monitorable, recordable, and reportable Title V permit limits for electrostatic devices. To the contrary, site-specific operating parameter limits can and will be monitored, recorded, reported, and linked to the automatic waste feed cut-off system. And, if a source elects to use a particulate matter detection system in lieu of establishing site-specific operating parameter limits, the detector response will be monitored, recorded, reported, and linked to requirements to take corrective measures if the alarm set point is exceeded.

Comment: One commenter asserts that the use of electrostatic precipitator total power input data (sum of the product of kilovolts times milliamps for each electrostatic precipitator field) is one acceptable approach as a site-specific parameter to monitor electrostatic precipitator performance. Limits on power input for each field (or particular fields) are not warranted.

Response: A limit on total power input to a multifield electrostatic device is generally not an acceptable operating parameter for compliance assurance. We have documented that when total power input was held constant for a four-field electrostatic precipitator while the power input to the fourth field was decreased, emissions of particulate matter doubled from 0.06 gr/dscf to 0.12 gr/dscf. See 66 FR at 35143 (July 3, 2001). Thus, if the total power input during the comprehensive performance test were used as the operating parameter limit, particulate matter emissions could exceed the emission

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[194] USEPA, ''Technical Support Document for HWC MACT Standards, Volume IV: Compliance with the HWC MACT Standards,'' September 2005, Appendix C.

standard because of changes in other parameters that were not limited even though total power input did not exceed the parametric limit.

Notwithstanding our concern that a limit on total power input to a multifield electrostatic device is generally not an effective operating parameter for compliance assurance, this does not preclude you from documenting to the permitting authority that total power input is an effective compliance assurance parameter for your source. See § 63.1209(m)(1)(iv).

Comment: Several commenters suggest that the rule should offer various approaches to establish an achievable particulate matter detection system alarm level on a site-specific basis in lieu of the approach we proposed (i.e., average detector response during the comprehensive performance test): (1) Use the 2 times the maximum peak height or 3 times the baseline concepts developed in EPA's bag leak detection guidance documents; (2) allow spiking to set the alarm set point given that PS 11 allows for spiking as a way to calibrate PM CEMs; (3) establish the limit as the 99th percentile upper prediction limit of the average response during each performance test run instead of the average of the test run averages; (4) allow upward extrapolation from the average of the test run averages to some percentage of the particulate matter emissions standard (fraction could be variable depending upon how close to the standard the facility is during the compliance test); or (5) set the alarm point at the maximum test run.

Response: We agree with several of the commenters' suggestions: explicitly allowing spiking (and emission control device detuning) during the comprehensive performance test to maximize controllable operating parameters to simulate the full range of normal operations; and upward extrapolation of the detector response. See discussion below.

The final rule is consistent with commenters' suggestion to establish the alarm level for particulate matter detection systems on fabric filters based on the concepts in the Agency's guidance document on bag leak detection systems. Commenters made this suggestion in response to our request for comments on requiring particulate matter detection systems on fabric filters and establishing the alarm level based on the detector response during the comprehensive performance test. See 69 FR at 21347. The final rule requires bag leak detection systems on all fabric filters and suggests that you establish the alarm level using concepts in the bag leak detection system guidance. [195]

Neither the suggestion to establish the alarm level at the 99th percentile upper prediction limit (UPL99) based on the average response during the comprehensive performance test runs nor the suggestion to establish the alarm level at the maximum test run response would control PM emissions at the level achieved during the performance test or provide some assurance that the PM standard was not being exceeded, unless the detector response is correlated to PM concentrations. For example, if the detector response does not relate linearly to PM concentration (or if the response changes w/changes in particulate characteristics), the UPL99 detector response could relate to a much higher (e.g., 99.9th percentile) PM concentration. In addition, even if the detector response were correlated to PM concentration, there is no assurance that the correlation would be consistent over the range of the average detector response during the performance test to the UPL99 detector response. Note that under PS–11 for PM CEMS, even after complying with rigorous procedures to correlate the detector response to PM concentrations, the detector response may be extrapolated only to 125% of the highest PM concentration used for the correlation. Thus, the final rule does not use these approaches to establish the alarm level.

If you elect to use a particulate matter detection system in lieu of site-specific operating parameters for your electrostatic precipitator or ionizing wet scrubber, you must establish the alarm level using either of two approaches. See Appendix C of USEPA, ''Technical Support Document for HWC MACT Standards, Volume IV: Compliance with the HWV MACT Standards,'' September 2005. Under either approach, you may maximize controllable operating parameters during the comprehensive performance test to simulate the full range of normal operations (*e.g.*, by spiking the ash feedrate and/or detuning the electrostatic device).[196]

You may establish the alarm set-point as the average detector response of the test condition averages during the comprehensive performance test.

Alternatively, you may establish the alarm set point by extrapolating the detector response. Under the extrapolation approach, you must approximate the correlation between the detector response and particulate matter emission concentrations during an initial correlation test. You may extrapolate the detector response achieved during the comprehensive performance test (*i.e.*, average of the test condition averages) to the higher of: (1) A response that corresponds to 50% of the particulate matter emission standard; or (2) a response that correlates to 125% of the highest particulate matter concentration used to develop the correlation.

To establish an approximate correlation of the detector response to particulate matter emission concentrations, you should use as guidance Performance Specification–11 for PM CEMS (40 CFR Part 60, Appendix B), except that you need only conduct only 5 runs to establish the initial correlation rather than a minimum of 15 runs required by PS–11. In addition, the final rule requires you to conduct an annual Relative Response Audit (RRA) for quality assurance as required by Procedure 2—Quality Assurance Requirements for Particulate Matter Continuous Emission Monitoring Systems at Stationary Sources, Appendix F, Part 60.[197] The RRA is required on only a 3-year interval, however, after you pass two sequential annual RRAs.

The rule requires only minimal correlation testing because the particulate matter detection system is used for compliance assurance only—as an indicator for reasonable assurance that an emission standard is not exceeded. The particulate matter detection system is not used for compliance monitoring—as an indicator of continuous compliance with an

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[195] Note that a bag leak detection system is a type of particulate matter detection system for purposes of this discussion. A triboelectric detector is normally used for a bag leak detector system because it is very inexpensive and has a low detection limit. A triboelectric detector meets the criterion for a particulate matter detector in a particulate matter detection system in that it detects relative mass emissions of particulate matter within the range of normal emission concentrations. (Note further, however, that a triboelectric detector cannot be correlated to particulate matter concentrations and thus cannot be used as a particulate matter CEMS. Note also that a triboelectric detector cannot be used on sources equipped with electronic control devices.) The alarm level for a bag leak detection system would be established using the concepts discussed in the Agency's guidance document on bag leak detection systems. The alarm level for a particulate matter detection system used on a fabric filter, however, (preferable with a detector other than a tribolectric device that could be correlated to PM concentrations) would be established based on the detector response during the comprehensive performance test.

[196] Note, however, that bypassing or detuning an emission control system could cause PM stratification and could make it difficult to pass the PS–11 performance criteria you use as guidelines for a PMDS.)

[197] You perform an RRA by collecting three simultaneous reference method PM concentration measurements and PM CEMS measurements at the as-found source operating conditions and PM concentration.

emission standard. Because particulate matter detection system correlation testing and quality assurance is much less rigorous than the requirements of PS–11 for a PM CEMS, the particulate matter detection system response cannot be used as credible evidence of exceedance of the emission standard.

D. Fugitive Emissions

Comment: A commenter does not support EPA's proposed approach to allow alternative techniques that can be demonstrated to prevent fugitive emissions without the use of instantaneous pressure limits given that the CAA requires continuous compliance with the standards and given positive pressure events can result in fugitive emissions, irrespective of facility design.

Response: Rotary kilns can be designed to prevent fugitive emissions during positive pressure events. As stated in the February 14, 2002 final rule, and subsequently in the April 20, 2004 proposed rule, there are state-of-the-art rotary kiln seal designs (such as those with shrouded and pressurized seals) which are capable of handling positive pressures without fugitive releases. See 67 FR at 6973 and 69 FR at 21340. We have included documentation of such kiln designs in the docket.[198] Instantaneous combustion zone pressure limits thus may not be necessary to assure continuous compliance with these fugitive emission control requirements. Our approach to allow alternative techniques that have been demonstrated to prevent fugitive emissions is therefore reasonable and appropriate. We note that these alternative techniques must be reviewed and approved by the appropriate delegated regulatory official.[199]

Comment: A commenter disagrees with EPA's clarification that fugitive emission control requirements apply only to fugitives attributable to the hazardous waste, given that the CAA does not distinguish between HAP emissions that come from hazardous waste streams and other HAP emissions.

Response: The fugitive emission control requirements in today's final rule originated from the RCRA hazardous waste combustion fugitive emission control requirements for incinerators and boilers and industrial furnaces.[200] The primary focus of these RCRA requirements is to ensure hazardous waste treatment operations are conducted in a manner protective of human health and the environment.[201] It is therefore appropriate to clarify that the intent of this requirement is to control fugitive emission releases from the combustion of hazardous waste.

Furthermore, MACT requirements for source categories that do not combust hazardous waste (e.g., industrial boilers, Portland cement kilns, and commercial and industrial solid waste incinerators) do not have combustion chamber fugitive emission control requirements for the non-hazardous waste inputs or outputs (e.g., clinker product for cement kilns or coal and natural gas fuels for industrial boilers). We have previously taken the position that emissions not affected by the combustion of hazardous waste (e.g., clinker coolers, raw material handling operations, etc.) are regulated pursuant to the applicable nonazardous waste MACT rules.[202], [203] We conclude the clarification that the fugitive emission control requirements applies only to fugitive emissions that result from the combustion of hazardous waste is appropriate because it regulates emissions attributable to nonhazardous waste streams to the same level of stringency that otherwise would apply if the source did not combust hazardous waste.[204]

Comment: A commenter states that the instantaneous monitoring requirements are inappropriate because (1) EPA has not demonstrated that the average of the top 12% of boilers are capable of operating with no instantaneous deviations from the negative pressure requirements; and (2) these requirements, though not standards themselves, effectively increase the stringency of the standard itself beyond what even the best available technology can achieve.

Response: As previously discussed, the fugitive emission control requirements included in today's rule originated from the RCRA hazardous waste combustion chamber fugitive emission control requirements. These provisions allow sources to control fugitive emissions by ''maintaining the combustion zone pressure lower than atmospheric pressure, or an alternative means of control equivalent to maintenance of combustion zone pressure lower than atmospheric pressure.'' All sources that must comply with the provisions of this rule are, or were, required to control fugitive emissions from the combustion unit pursuant to RCRA.

The monitoring requirements in today's rule do not increase the stringency of the standard beyond what the best available technology can achieve. Although we do not have data that confirm negative pressure is being maintained on an instantaneous basis (as we define it)[205] for at least 12 percent of the boilers, we believe this is current practice and readily achievable by most sources.[206] These requirements have been in force for many years, and there is no basis for stating that they are unachievable (EPA is not aware of industrywide noncompliance with these provisions, the necessary premise of the comment). First, maintaining negative pressure is the option that most boilers elect to implement to demonstrate compliance with the RCRA fugitive emission control requirements. Second, negative pressure is readily achieved on an instantaneous basis in boilers through use of induced draft fans. Third, the requirements we are finalizing today for boilers are identical to the fugitive emission control requirements that hazardous waste incinerators, cement kilns, and lightweight aggregate kilns are currently complying with pursuant to the EEE interim standard regulations. See § 63.1206(c)(5). Most of these sources maintain negative combustion chamber pressure through use of induced draft fans, providing further evidence that continuously maintaining combustion

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[198] See USEPA, ''Technical Support Document for the HWC MACT Standards, Volume IV: Compliance With the HWC MACT Standards,'' September 2005, Section 10.

[199] See § 63.1206(c)(5)(i)(C) and (D).

[200] See § 266.102(e)(7) and § 264.345(d).

[201] Section 3004(a) of RCRA requires the Agency to promulgate standards for hazardous waste treatment, storage, and disposal facilities as necessary to protect human health and the environment. The standards for hazardous waste incinerators generally rest on this authority. § 3004(q) of RCRA requires the Agency to promulgate standards for emissions from facilities that burn hazardous waste fuels (*e.g.*, cement and lightweight aggregate kilns, boilers, and hydrochloric acid production furnaces) as necessary to protect human health and the environment.

[202] See 69 FR at 21203 and 64 FR at 52871, and § 63.1206(b)(1)(ii).

[203] Portland cement manufacturing facilities that combust hazardous waste are subject to both Subpart EEE and Subpart LLL, and hydrochloric acid production facilities that combust hazardous waste may be subject to both Subpart EEE and Subpart NNNNN. In these instances Subpart EEE controls HAP emissions from the cement kiln and hydrochloric acid production furnace stack (and also fugitive emissions from the combustion chamber), while Subparts LLL and NNNNN would control HAP emissions from other operations that are not directly related to the combustion of hazardous waste (e.g., clinker cooler emissions for cement production facilities, and hydrochloric acid product transportation and storage for hydrochloric acid production facilities).

[204] This issue has little relevance given that the measures taken to control the fugitive emissions from the combustion of hazardous waste will also control the fugitive emission associated with other feedstreams.

[205] The February 14, 2002 Final Amendments Rule clarifies that that a reasonable pressure monitoring frequency that could meet the intent of ''instantaneous'' would be once every second. See 67 FR at 6974.

[206] Commenters did not provide data to the contrary.

zone pressure lower than ambient pressure is readily achievable by well designed and operated boilers.[207]

We note that use of instantaneous pressure monitoring is not a requirement. A source can elect to implement any of the four compliance options to control combustion system leaks as well as request to use alternative monitoring approaches. See §§ 63.1206(c)(5) and 63.1209(g). The instantaneous pressure monitoring option offers sources a method that satisfies the intent of the rule that can be applied at numerous sources. The inclusion of this requirement in today's rule is thus an attempt to simplify the review process for both regulators and affected sources; the absence of prescriptive compliance options in this case may likely result in time-consuming site-specific negotiations that would prolong the review and approval of comprehensive performance test workplans.

Comment: A commenter believes that requiring an instantaneous waste-feed cutoff when these pressure excursions occur is short-sighted and will result in greater HAP emissions. The commenter recommends EPA instead allow the use of reasonable pressure averaging periods in lieu of instantaneous pressure requirements.

Response: As discussed in the February 14, 2002 Final Amendments Rule, automatic waste feed cutoffs are appropriate non-compliance deterrents, and are necessary whenever an operating limit is exceeded. See 67 FR at 6973. Pressure excursions that result in combustion system leaks (and subsequently lead to automatic waste feed cutoffs) should be prevented by maintaining negative pressure in the combustion zone. We agree that needless triggering of automatic waste feed cutoffs due to short term pressure fluctuations that do not result in combustion system leaks would provide less environmental protection, not more. Today's rule offers three alternative options that do not require the use of instantaneous pressure monitoring to control combustion system leaks. See § 63.1206(c)(5). The use of averaging periods in these alternatives is not prohibited. Sources that elect to use an alternative compliance option must demonstrate that the alternative method is equivalent to maintaining combustion zone pressure lower than ambient pressure or, that the alternative approach prevents fugitive emissions.

E. Notification of Intent To Comply and Compliance Progress Report

1. Notice of Intent To Comply

In the NPRM, we proposed to re-institute the Notification of Intent to Comply (NIC) because we felt that it offered many benefits in the early stages of MACT compliance. As discussed in the 1998 ''fast track'' rule (63 FR 33782) and in the proposal, the NIC serves several purposes: as a planning and communication tool in the early implementation stages, to compensate for lost public participation opportunities when using the RCRA streamlined permit modification procedure to make upgrades for MACT compliance, and as a means to share information and provide public participation opportunities that would be lost when new units are not required to comply with certain RCRA permit requirements and performance standards. Please refer to the proposal at 69 FR 21313–21316 for additional discussion of the regulatory history, purpose, and implementation of the NIC provisions.

Overall, most commenters supported our decision to finalize NIC provisions. However, they also feel that the NIC should only be required for sources that have not completed a NIC previously (i.e., Phase 2 sources or Phase 1 sources that did not meet the previous NIC deadline) and for sources that need to make upgrades to comply with the final standards (i.e., either Phase 1 or Phase 2). They suggest that if sources do not need to make upgrades, then they should not be required to complete the NIC process, if they had done so previously. To require a second NIC would only add to the administrative burden and is not in line with Agency efforts to reduce reporting burdens. We agree that if Phase 1 sources do not need to make upgrades to comply with the Replacement Standards and if they completed the NIC process before, then it is not necessary to do so again.

In addition to the comment discussed above, a few commenters proposed that for sources who must still comply with the NIC because they wish to make upgrades, that the NIC public notice be combined with the Title V re-opening or renewal public notice. They point out that sources with existing Title V permits will have their permits re-opened or renewed to incorporate the new applicable requirements (i.e., Phase 1 Replacement or even Phase 2 Standards) shortly after the NIC public notice and meeting are to occur. Title V permit re-openings and renewals require: public notice, a minimum of 30 days for comment, and an opportunity to request a hearing.

While we do agree that the Title V re-opening and renewal requirements provide adequate information to the public and an opportunity for the public to comment and request a hearing, we are concerned that the timing requirements for the NIC may not correspond with the timing requirements for title V permit reopenings, revisions, and renewals. The public review of the draft NIC and subsequent public meeting are scheduled to occur 9 and 10 months, respectively, after the rule's effective date. On the other hand, Title V permits for major sources that have a remaining permit term of greater than 3 years from the rule's promulgation date will need to be re-opened, but this re-opening may not occur until 18 months beyond the promulgation date of the rule. Also, Title V permits that have a remaining permit term of less than 3 years from the rule's promulgation date will need to be renewed, but the timing of the renewal is contingent upon the individual permit term, not the timing requirements for public review of the draft NIC and public meeting. Thus, we do not believe there is ample opportunity to combine the requirements of the NIC and Title V process for the vast majority of sources.[208] Also, those sources that need to make upgrades to comply with the final standards and that need to modify any applicable conditions in their RCRA permit will not be able to request the streamlined modification procedure (see 40 CFR 270.42(j)) until they meet the NIC requirements. So the earlier they comply with the NIC requirements, the earlier they can begin upgrading their combustion units.

Another commenter suggested a change to the regulations at § 63.1210(c)(1) to account for sources that will cease burning hazardous waste prior to or on the compliance date. The regulations, as proposed, require sources to hold an informal public meeting to discuss anticipated activities described in the draft NIC even if they plan to cease burning hazardous waste. The commenter also suggested a similar change to § 63.1210(b)(2) that requires the draft NIC be made available for public review no later than 30 days

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[207] The commenter did not provide information that would lead us to conclude that these requirements are harder to implement for boilers than for incinerators, cement kilns, and lightweight aggregate kilns.

[208] We recognize that there may be instances when states can coordinate the Title V permit re-opening, revision, and renewal process with the NIC timeframe requirements. Where this is possible, we encourage states (or other permitting authorities) to coordinate the two processes. By coordinating the two, duplication with respect to material content and public participation would be eliminated for both sources and states.

prior to the public meeting. We agree with the commenter that it does not make sense to require sources that intend to cease burning hazardous waste to submit a NIC that discusses anticipated activities that will allow them to achieve compliance with the standards. We also agree that it is not necessary for those sources to hold an informal public meeting, since there are no MACT compliance activities to discuss. However, we believe that the public should be provided notice of the draft NIC so that they are aware of the source's intentions to cease burning and the steps (and key dates) the source will undertake to stop hazardous waste combustion activities.

With regard to Phase 2 sources, we had proposed that all Phase 2 sources comply with the same NIC requirements as the Phase 1 sources. Commenters did not express opinions in favor or against the NIC for Phase 2 sources. We believe that the NIC is beneficial in several respects. As mentioned previously, it serves as a planning and communication tool in the early implementation stages, it compensates for lost public participation opportunities when using the RCRA streamlined permit modification procedure to make upgrades for MACT compliance, and it is a tool to share information and provide public participation opportunities that would be lost when new units are not required to comply with certain RCRA permit requirements and performance standards. Ultimately, it creates more public confidence in the permitting process and so promotes a more stable regulatory environment.

For today's rule, we are finalizing our decision to re-institute the NIC provisions for Phase 1 and Phase 2 sources. We are including a few minor changes and clarifications to improve the proposed regulatory language based on commenters' suggestions. Section 63.1210(b) is revised so that Phase 1 sources that previously complied with the NIC requirements, and that do not need to make upgrades to comply with the Replacement Standards, are not required to comply with the NIC again. Sections 63.1210(b)(1)(iv) and (b)(2) have been revised and (c)(5) has been added so that sources that intend to cease burning hazardous waste prior to or on the compliance date are only required to prepare a (draft) NIC, make a draft of the NIC available for public review no later than 9 months after the effective date of the rule, and submit a final NIC to the Administrator no later than one year following the effective date of the rule. Last, we have revised language in § 63.1210(b) based upon a commenter's concerns that the term you ''will'' implies that sources are required meet their ''estimated'' dates for achieving key activities. We have removed ''will'' and replaced it with ''anticipate'' to more accurately represent the objective of the NIC, which is for sources to communicate their plans for complying with the standards in two years.

2. Compliance Progress Report

In the proposal, we explained why we thought a compliance progress report would be beneficial. In short, we believed it would help regulatory agencies determine whether Phase 1 and Phase 2 sources were making sufficient headway in their efforts to meet the compliance date. The progress report would be due to the regulatory agency at the midway point of the 3 year compliance period and would serve to update the information the source provided in its NIC. However, because we do not have any experience to draw upon regarding the value of the progress report, we requested comment on whether or not it should be required.

In response to our request for comment, all commenters were opposed to the progress report. They cited several reasons, with the most consistent one being that the progress report serves no useful purpose and imposes unnecessary additional burdens on sources. As we discussed above, sources and regulatory agencies will be focusing on the NIC as well as initial Title V applications, re-openings, revisions, and renewals during this three year compliance period. We agree with the commenter who noted that there is already significant interaction between sources and regulatory authorities during this period. Furthermore, we learned through implementation of the Interim Standards that some regulatory agencies found it difficult to manage the notices, applications, requests, and test plans that were due prior to the compliance date. Therefore, we have decided not to finalize any compliance progress report requirements for today's rule.

F. Startup, Shutdown, and Malfunction Plan

Comment: One commenter states that an exceedance of a standard or operating requirement during a malfunction should be a violation not only because source owners and operators need an incentive to minimize exceedances caused by malfunctions, but also because an exemption for malfunction periods would violate the plain language of the CAA. The commenter notes that an emission standard is defined by 42 U.S.C. § 7602(k) as a standard that ''limits the quantity, rate, or concentration of emissions of air pollutants on a continuous basis, including any requirement relating to the operation of maintenance of a source to assure continuous emission reduction, and any design, equipment, work practice or operational standard * * *.'' The commenter concludes that a standard that contains a malfunction exemption does not apply ''on a continuous basis'' as required by the statute. Likewise, the commenter concludes that an exemption for startup and shutdown periods would also violate this unambiguous statutory language.

The commenter also notes that, although some courts have held that a technology-based standard must provide some kind of an exemption for unavoidable technology failures, the rationale for such an exemption is that the underlying standard is based on the performance of a particular control technology that cannot be expected to function properly all of the time. The commenter believes that neither the rationale nor the exemption apply to section 112(d) standards, which are not based on the performance of any particular technology but instead must reflect the ''maximum degree of reduction'' that can be achieved, irrespective of the measures used by a source to achieve that reduction. CAA § 112(d)(2).

The commenter states that, even assuming for the sake of argument that EPA has authority to depart from the statutory language and carve out a startup, shutdown, and malfunction exemption, any such exemption must be narrowly drafted to apply only where a source demonstrates that a violation was unavoidable. See, e.g., *Marathon Oil*, 564 F.2d at 1272–73. As EPA recognizes, emission exceedances that occur during SSM events are frequently avoidable. See 69 FR at 21339/3 (noting that ''proper operation and maintenance of equipment'' helps avoid exceedances during startup, shutdown, and malfunction events), 69 FR at 21339/2 (describing the industry view that ''some'' exceedances that occur due to malfunctions are unavoidable). Thus, the commenter concludes that, even if a Marathon Oil-type exemption applies to a § 112(d) standard, it would be unlawful and arbitrary for EPA to exempt sources from liability for all emission exceedances occurring during startup, shutdown, and malfunction events. Rather, such an exemption could only apply where a source demonstrates that a given exceedance was unavoidable.

Many other commenters state that it would be illegal to require compliance with the emission standards and operating requirements during startup, shutdown, and malfunction events. The commenters note that EPA and the courts have long recognized that technology fails at times, despite a source's best efforts to maintain compliance. For this reason, the courts have recognized that technology-based standards such as EPA's § 112(d)(2) MACT standards must account for such unavoidable technology failures if the standards are to be truly ''achievable.'' Thus, the standards must excuse noncompliance with the actual emission standards during startup, shutdown, and malfunction events.

These commenters also note that EPA took the position in the September 1999 final MACT rule for hazardous waste combustors that exceedance of an operating requirement during startup, shutdown, or malfunction events was a violation if hazardous waste remained in the combustion chamber. The commenters note that industry groups challenged the rule, and while the D.C. Circuit did not reach this issue because it vacated the emission standards, it pointed out that ''industry petitioners may be correct that EPA should have exempted HWCs from regulatory limits during periods of startup, shutdown, and malfunction, permitting sources to return to compliance by following the steps of a startup, shutdown, and malfunction plan filed with the Agency.'' *CKRC* v. *EPA*, 255 F.3d 855, 872 (2001). Commenters conclude that, after reading this language, EPA officials wisely decided that hazardous waste combustors should not be required to meet the MACT emission standards and operating limits during startup, shutdown, and malfunction events.

Response: We agree with commenters who state that sources must be exempt from technology-based emission standards and operating limits during startup, shutdown, and malfunction events. Technology is imperfect and can malfunction for reasons that are not reasonably preventable. The regulations must provide relief for such situations. We believe that existing case law supports this position. See, e.g., *Chemical Mfr's Ass'n* v. *EPA*, 870 F. 2d at 228–230 (daily maximum limitations established at 99th percentile reasonable because rules also provide for upset defense for unavoidable *exceedances*); *Marathon Oil* v. *EPA*, 541 F. 2d at 1272–73 (acknowledged by commenter). As commenters noted, the D.C. Circuit also intimated in *CKRC* that some type of exception from compliance with standards during startup, shutdown and malfunction periods was required.

We do not agree with the commenter who contends that the § 112(d) MACT standards are not technology-based standards because they are not based on the performance of any particular technology but instead must reflect the ''maximum degree of reduction'' that can be achieved, irrespective of the measures used by a source to achieve that reduction. On the contrary, the standards must reflect the average performance of the best performing sources, which performance is achieved using technical controls—air pollution control devices, and for some pollutants, hazardous waste feedrate control. Those controls can fail for reasons that are not reasonably preventable. We note further that the situation was the same in the Clean Water Act cases which the commenter seeks to distinguish. Like section 112(d) standards, Clean Water Act standards are technology-based (reflecting Best Practicable Technology or Best Available Technology, see CWA sections 304 (b) and 301 (b)) and do not require use of any particular type of technology. See also *Mossville*, 370 F. 3d at 1242 (EPA must account for foreseeable variability in establishing MACT floor standards).

We agree with the commenter who states that any exemption from the emission standards and operating requirements during malfunctions must apply only where a source demonstrates that a violation was unavoidable. We note that the term malfunction is defined in § 63.2 as ''any sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner which causes, or has the potential to cause, the emission limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.'' We believe this definition largely addresses the commenter's concern.

We acknowledge, however, that emissions can increase during malfunctions and potentially exceed the standards and agree that exceedances must be minimized. Accordingly, the final rule (and the current rule for incinerators, cement kilns, and lightweight aggregate kilns) requires that sources maintain compliance with the automatic hazardous waste feed cutoff system during malfunctions and notify the permitting authority if they have 10 or more exceedances of an emission standard or operating limit during a 6-month block period when hazardous waste is in the combustion chamber. See § 63.1206(c)(2)(v). This will alert the permitting authority that the source's operation and maintenance plan may not be adequate to maintain compliance with the emission standards and that the authority may need to direct the source to revise the plan under § 63.6(e)(3)(vi). Finally, we note that sources must report all excess emissions semiannually under § 63.10(e)(3) if an emission standard or operating limit is exceeded, including during malfunctions.

Comment: One commenter states that any exemption for emission exceedances during startup, shutdown, or malfunction events would violate the RCRA mandate for standards necessary ''to protect human health and the environment.'' 42 U.S.C. 6924(a). The commenter reasons that, because EPA's RCRA standards are health-based rather than technology-based, no unavoidability defense is available. Given that EPA concludes that the hazardous waste combustor MACT rule satisfies both its CAA and RCRA mandates, the emission standards and operating requirements cannot be waived during startup, shutdown, and malfunction events.

Response: We agree that the RCRA mandate to ensure protection of human health and the environment applies at all times, including during startup, shutdown, and malfunction events. Accordingly, the existing MACT requirements for incinerators, cement kilns, and lightweight aggregate kilns give sources the option of continuing to comply with RCRA permit requirements to control emission during these events, or to comply with special MACT requirements that are designed to be proactive and reactive and intended to be equivalent to the incentive to minimize emissions during these events provided by the RCRA requirements. See existing § 63.1206(c)(2)(ii). The special MACT requirements require sources to include proactive measures in the startup, shutdown, and malfunction plan to minimize the frequency and severity of malfunctions and to submit the startup, shutdown, and malfunction plan to the permitting authority for review and approval. We proposed to require boilers and hydrochloric acid production furnaces to comply with those same provisions providing for equivalence between the two sets of requirements, and promulgate those provisions today.

Comment: One commenter states that the rule should clarify the definitions of startup, shutdown, and malfunctions to preclude sources from improperly classifying as unavoidable exceedances those exceedances that could have been avoided had the source implemented an appropriate operation and maintenance plan. Many other commenters state that the current definitions in § 63.2 clearly define these terms.

Response: We believe the definitions of startup, shutdown, and malfunction are clearly defined in § 63.2, and combined with the startup, shutdown, and malfunction plan requirements, will preclude sources from improperly classifying as malfunctions events that could have been reasonably prevented by following appropriate procedures in the operation and maintenance plan. As discussed above, the definition of malfunction clearly states that failures that are caused in part by poor maintenance or careless operation are not malfunctions.

Comment: One commenter states that all stack bypasses, automatic waste feed cutoffs, and excursions from the operating parameter limits should be considered malfunctions.

Response: All failures resulting in stack bypasses, automatic waste feed cutoff, and excursions from the operating parameter limits are not malfunctions. As discussed above, failures caused in part by poor maintenance or careless operation are not malfunctions.

Comment: One commenter states that the rule should require sources to expand the startup, shutdown, and malfunction plan to address specific proactive measures that the source has considered and is taking to minimize the frequency and severity of malfunctions. Many other commenters believe that it is not necessary to expand the scope of the startup, shutdown, and malfunction plan beyond that required under § 63.6(e)(3) for other MACT source categories.

Response: We do not believe that it is necessary to expand the scope of the startup, shutdown, and malfunction plan generically for all hazardous waste combustors to address specific proactive measures that the source has considered and is taking to minimize the frequency and severity of malfunctions. Imposing additional requirements in particular situations is appropriate, however. For example, as discussed above, this expanded plan is required for sources that elect to meet the RCRA mandate using provisions of the startup, shutdown, and malfunction plan. See § 63.1206(c)(2)(ii). In addition, the plan with expanded scope may be appropriate for sources that have demonstrated an inability to minimize malfunctions. Consequently, the permitting authority should consider expanding the scope of the startup, shutdown, and malfunction plan on a site-specific basis under authority of § 63.6(e)(3)(vii) if the source has excessive exceedances during malfunctions. See § 63.1206(c)(2)(v)(A)(*3*) defining excessive exceedances during malfunctions and requiring reporting of the exceedances in the excess emissions report required under § 63.10(e)(3).

Comment: Two commenters state that all startup, shutdown, and malfunction plans should be submitted for review and approval by the delegated authority and made available for a 60-day public review period. Review and approval of the plans is needed in light of EPA's acknowledgment that most excess emissions would occur during startup, shutdown, and malfunctions. One of these commenters also believes that the regulations should provide for the public review period to be extended as necessary to accommodate a thorough public review. The reviewing authority should be required to provide a written response to public comments explaining any decision to reject a public comment suggesting ways for a facility to limit emissions during startup, shutdown, and malfunction events.

Many other commenters have concerns with requiring review and approval of startup, shutdown, and malfunction plans, except as required under § 63.1206(c)(2)(ii) for sources that elect to meet the RCRA mandate using provisions of the startup, shutdown, and malfunction plan as discussed above.

Response: Commenters express the same views here that they expressed under the rulemaking the Agency recently completed to revise the startup, shutdown, and malfunction plan requirements of the General Provisions applicable to all MACT source categories. See 68 FR at 32589–93 (May 30, 2003).

EPA concluded in that final rule that the Administrator may at any time request in writing that the owner or operator submit a copy of any startup, shutdown, and malfunction plan (or a portion thereof). Upon receipt of such a request, the owner or operator must promptly submit a copy of the requested plan (or a portion thereof) to the Administrator. In addition, the Administrator must request that the owner or operator submit a particular startup, shutdown, or malfunction plan (or a portion thereof) whenever a member of the public submits a specific and reasonable request to examine or to receive a copy of that plan or portion of a plan.

These provisions to provide the Administrator and the public with access to startup, shutdown, and malfunction plans, coupled with the provisions of § 63.6(e)(3)(vii) under which the Administrator must require the source to make changes to a deficient plan, should ensure that startup, shutdown, and malfunction plans are complete and accurate. We note that under § 63.6(e)(3)(vii) the Administrator must require the source to revise the plan if the plan: (1) does not address a startup, shutdown, or malfunction event that has occurred; (2) fails to operate the source (including associated air pollution control and monitoring equipment) during a startup, shutdown, or malfunction event in a manner consistent with the general duty to minimize emissions; (3) does not provide adequate procedures for correcting malfunctioning process and/or air pollution control and monitoring equipment as quickly as practicable; or (4) includes an event that does not meet the definition of startup, shutdown, or malfunction listed in § 63.2.

The commenter advocating that all hazardous waste combustors should be required to submit their startup, shutdown, and malfunction plans for review and approval did not explain why the concerns the Agency expressed in the General Provisions rulemaking (see 68 FR at 32589–93) are not valid for hazardous waste combustors. Accordingly, we do not believe it is appropriate to deviate from the General Provisions to require that all hazardous waste combustors submit their startup, shutdown, and malfunction plans for review.

G. Public Notice of Test Plans

1. What Are the Revised Public Notice Requirements for Test Plans?

Prior to the proposal, it was brought to our attention that the Agency did not provide any direction in the 1999 final rule regarding how and when sources should notify the public, what the notification should include, or where and for how long performance test plans should be made available. Consequently, we proposed to add clarifying language to the § 63.1207(e)(2) public notification requirement for approved performance test and CMS performance evaluation test plans because we believe that providing opportunities for timely and adequate public notice is necessary to fully inform nearby communities of a source's plans to initiate important waste management activities. The proposed clarifications are based upon the *RCRA Expanded Public Participation Rule* (60 FR 63417, December 11, 1995) requirements for public notification of an impending trial burn test. As a result, we did not feel that the clarifications imposed any new or additional requirements upon sources that will conduct a MACT comprehensive performance test or confirmatory performance test.

Commenters generally supported the clarifications to the public notice.[209] However, they suggested a change to the proposed requirement to provide notice of test plan approval no later than 60 days prior to conducting the test. The basis for suggesting a change is that many sources had not received approval of their test plans 60 days prior to the deadline for initiating their test under the Interim Standards. Moreover, several sources did not receive approval until well after the deadline for initiating the test. The problem created for these sources is that the required 60 day notification of the approved test plan effectively determines when the source will be able to begin its test. In other words, its test would need to be postponed until the approved test plan had been noticed for 60 days. Thus, commenters provided several possible alternatives.

One alternative that would avoid causing delays to testing is to require the public notice when the source submits its test plan. Although this fulfills the notification requirement, this alternative has a shortfall: The notice would occur at least one year (barring any extensions) in advance of the test and given this long period of time, the test plan is likely to be modified prior to approval. A second alternative is to provide notice of the test plan 60 days before the test as before, but regardless of approval status. This alternative is improved over the first, but still faces the same problem of potentially not offering the public an opportunity to view a final approved plan. A third alternative is to issue notice of the test plan as soon as it is approved. With this alternative, the public will have the most up-to-date information; however, it may not be until a few days prior to commencement of the test. Ideally, the second and third alternatives could be combined to provide the best possible chance of providing the public with an approved test plan in a reasonable period of time prior to the test. On the other hand, that would potentially require the facility to issue two notices if the test plan is not approved 60 days prior to the test. We do not believe this would be reasonable given that sources will be focused on activities associated with the impending test.

In consideration of practicality, we believe that the second alternative provides an adequate solution. As we mentioned, the drawback is that the public may not have the opportunity to view an approved test plan. However, we believe it is more important that the public be aware of a source's plans (*i.e.*, how and when) for conducting the performance test.[210] This way, if they have questions, there will be 60 days in which they may contact the regulatory authority or the source before the test is scheduled to begin. This alternative will also eliminate the conflict associated with the confirmatory performance test. The regulations at § 63.1207(e)(1)(ii) specify that a source must submit to the regulatory authority its notice of intent to conduct a confirmatory performance test and the applicable test plans at least 60 calendar days prior to the date the test is to begin. Since we are no longer requiring that the test plans be approved before issuing public notice, sources would then provide notice of their confirmatory performance test plan to the public at the same time they submit their notice of intent and test plans to the regulatory authority. Therefore, we are requiring that sources issue the public notice of test plans 60 days in advance of commencing the performance test, whether their test plans have been approved or not. The regulations at § 63.1207(e)(2) have been revised accordingly.

One last concern related to the public notice of approved test plans involves sources that choose to conduct a performance test without an approved test plan (*e.g.*, both time extensions provided by §§ 63.7(h) and 63.1207(e)(3) have expired or due to other circumstances, the source has elected to begin the test without approval). Because we did not believe any sources would choose or need to do so, we did not propose any guidance or regulations specific to issuing notice to the public of their test plans. Nevertheless, a few commenters raised this possibility indirectly in their discussion of the problematic 60 day notice of approved test plan requirement. The revised proposal addresses this concern by no longer requiring that test plans be approved before issuing public notice. Thus, sources that choose to begin their test without an approved plan will have complied with the requirement to issue public notice. Irrespective of the public notice requirements for noticing test plans, we expect that sources will notify their regulatory authority of their decision to proceed with their test in the absence of plan approval.

2. What Are the Revised Public Notice Requirements for the Petition To Waive a Performance Test?

In the Final Amendments Rule (67 FR 6968, February 14, 2002), the Agency did not provide direction regarding how, when, where, and what should be included in the public notice for a petition for time extension if the Administrator fails to approve or deny test plans.[211] In the proposal, we believed it important to provide clarification regarding when the notice must be issued and what it should contain. Thus, we proposed to revise paragraph § 63.1207(e)(3)(iv).

We received only one comment in response to the proposed requirements. The commenter did not express any concern over the requirements themselves, but rather suggested a change to terminology used. The commenter feels that the terms ''to waive a performance test'' or ''waiver'' as used in § 63.1207(e)(3)(iv) could be confusing to readers when we are actually referring to a time extension for commencing the test. Although we agree the terminology could be confusing, 40 CFR 63.1207(e)(3) clearly uses the term ''waiver'' in the context of an extension of time to conduct the performance test at a later date, implying that the deadline can be waived in this specific situation. The use of the term waiver is derived from the General Provisions requirements for requesting a waiver of performance tests (§ 63.7(h)). Thus, § 63.7(h)(3) provides the basis by which sources may petition, in the form of a waiver, for a time extension under § 63.1207(e)(3). In consideration of the above and that the existing regulations of § 63.1207(e)(3)(i)-(iii) consistently use the term waiver, we do not feel that a change to § 63.1207(e)(3)(iv) is warranted.

H. Using Method 23 Instead of Method 0023A

Comment. Most commenters support our proposal to allow the use of Method 23 instead of Method 0023A if a source includes this request in the comprehensive test plan to the permitting authority. Some commenters believe that Method 23 should be

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[209] See 69 FR 21347–21349.

[210] We expect that some source's test plans may be modified after notice is issued and prior to approval or commencement of their test. However, even under the previous regulations, test plans could be modified after they had been approved and public noticed. It is often a necessary consequence as sources continue to prepare the combustion unit for the test.

[211] Sections 63.1207(e)(2) and (e)(3) each require public notice, but neither had provided any direction on how, when, where, and what should be included in their respective notices until today's final rule.

allowed in all cases without prior approval or on a source category basis.

Response. We proposed to allow sources to use Method 23 for dioxin and furan testing instead of SW–846 Method 0023A in situations where the enhanced procedures found in Method 0023A would not increase measurement accuracy. We proposed this change in the July 3, 2001, proposed rule, and again in the April 20, 2004, proposal. See 66 FR at 35137 and 69 FR at 21342.

The final rule promulgates this change as proposed. See § 63.1208(b)(1)(i). You may use Method 23 in lieu of Method 0023A after justifying use of Method 23 as part of your performance test plan that must be reviewed and approved the delegated permitting authority. You may be approved to use Method 23 considering factors including whether previous Method 0023A analyses document that dioxin/furan are not detected, are detected at low levels in the front half of Method 0023A, or are detected at levels well below the emission standard, and the design and operation of the combustor has not changed in a manner that could increase dioxin/furan emissions. We note that coal-fired boilers and combustors equipped with activated carbon injection systems may not be able to support use of Method 23, however, because these sources' stack gas is likely to contain carbonaceous particulate. Thus, these sources are likely to benefit the most from using Method 0023A.

The final rule does not automatically allow use of Method 23 for particular source categories because we cannot assess whether all sources in a category meet the conditions for use of Method 23—generally that quality assurance may not be improved—such as those listed above. These determinations can only be made on a site specific basis by the permitting authority most familiar with the particular source.

Comment: Commenters do not believe that an additional petition process (*i.e.*, under § 63.1209(g)(1)) is necessary before allowing use of Method 23. Instead, EPA should require that the use of Method 23 should be submitted with the test plan to the regulatory agency for approval.

Response: We agree that a separate petition is unnecessary. Sources should include a justification to use Method 23 in the performance test plan that is submitted for review and approval. This will allow the permitting authority to determine whether use of Method 23 is appropriate for the source.

Comment: Two commenters state that ''the justification of the use of Method 23 will not be by the existing system of a petition to EPA, but will be included as a part of the performance test plan that is submitted to the delegated regulatory authority for review and approval. This means that the expertise, training, and decision-making will not be consistent across the country. This is especially a problem because of the severe resource, training and staff reductions among the delegated regulatory authorities across the country and from region to region. The decision to allow or disallow use of Method 23 should come specifically, for each case, from EPA consideration of the submitted justification, based on the knowledge and expertise of trained and experienced EPA staff. This is important for uniformly applying the testing requirements all across the country.''

Response: We disagree, and we believe the responses to comments in today's rule make clear when Method 23 is an acceptable substitute for Method 0023A. If the source has carbon in the flue gas, as is the case with coal-fired boilers, boilers with carbon injection, and other sources likely to have a substantial amount of carbonaceous particulate matter in the flue gas, Method 0023A will generally be preferable because it includes procedures to account for dioxin and furan bound to carbonaceous particulate matter found in the probe and filter. In other situations, Method 23 will generally give the same results at a lower cost.

I. Extrapolating Feedrate Limits for Compliance With the Liquid Fuel Boiler Mercury and Semivolatile Metal Standards

Comment: One commenter questions whether allowing sources to extrapolate metal feedrates downward from the levels achieved during the comprehensive performance test to establish a metal feedrate limit will ensure compliance with the emission standards.

Response: The mercury and semivolatile metals standards for liquid fuel boilers are annual average emission limits where compliance is established by a rolling average mercury feedrate limit with an averaging period not to exceed an annual rolling average (updated hourly).[212] We use this approach because the emissions data used to establish the standards are more representative of normal emissions than compliance test emissions.[213]

As we explained at proposal, to ensure compliance with the mercury and semivolatile metal emission standards for liquid fuel boilers, you must document during the comprehensive performance test a system removal efficiency for the metals and back-calculate from the emission standard a maximum metal feedrate limit that must not be exceeded on an (not to exceed) annual rolling average. See 69 FR at 21311–12. If your source is not equipped with an emission control system (such as activated carbon to control mercury) for the metals in question, however, you must assume zero system removal efficiency. This is because, although a source that is not equipped with an emission control system may be able to document a positive system removal efficiency in a single test, that removal efficiency is not likely to be reproducible. Rather, it is likely to be an artifact of the calculation of emissions and feeds rather than a removal efficiency that can reliably be repeated.

To ensure that you can calculate a valid, reproducible system removal efficiency for sources equipped with a control system that effectively controls the metal in question, you may need to spike metals in the feed during the comprehensive performance test at levels that may result in emissions that are higher than the standard. This is appropriate because compliance with an emission standard derived from normal emissions data is based on compliance with an (not to exceed) annual average feedrate limit calculated as prescribed here, rather than compliance with the emission standard during the comprehensive performance test.[214]

The commenter is concerned that downward extrapolation from the levels achieved during the comprehensive performance test to establish a metal feedrate limit may not ensure

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[212] If you select an averaging period for the feedrate limit that is greater than a 12-hour rolling average, you must calculate the initial rolling average as though you had selected a 12-hour rolling average, as provided by § 63.1209 (b)(5)(i). This is reasonable because allowing a longer period of time before calculating the initial rolling average would not effectively ensure compliance with the feedrate limit. You must calculate rolling averages thereafter as the average of the available one-minute values until enough one-minute values are available to calculate the rolling average period you select. We note that this is an approach allowed for calculating rolling averages under different modes of operation at § 63.1209(q)(2)(ii). At that time and thereafter, you update the rolling average feedrate each hour with a 60-minute average feedrate.

[213] See USEPA, ''Technical Support Document for HWC MACT Standards, Volume III: Selection of HWC MACT Standards,'' September 2005, Section 13.

[214] The emission standard accounts for long-term variability by incorporating an (not to exceed) annual averaging period that is implemented by an (not to exceed) annual average chlorine feedrate limit. Thus, because the emission level achieved during the performance test relates to daily (or hourly) variability, an exceedance of the emission standard during the test is not a violation.

compliance with the standard because system removal efficiency may be lower at lower feedrates.

This is a valid concern, and we have investigated it since proposal. We conclude that downward extrapolation of feedrates for the purpose of complying with the mercury and semivolatile metals emission standards for liquid fuel boilers will ensure compliance with the emission standards under the conditions discussed below.

We investigated the theoretical relationship between stack gas emissions and feedrate considering vapor phase metal equilibrium, the chlorine, mercury, and semivolatile metal feedrates for liquid fuel boilers in our data base, and the mercury and semivolatile emission standards for liquid fuel boilers.[215] We considered sources equipped with dry particulate matter controls and sources equipped with wet particulate matter controls.

Sources Equipped with Dry Controls. For sources equipped with dry controls other than activated carbon, mercury is not controlled. Thus, you must assume zero system removal efficiency. Consequently, if you are in the low Btu subcategory and comply with the mercury standard expressed as a mass concentration (µg/dscm), the mercury feedrate limit expressed as an MTEC (maximum theoretical emission concentration, µg/dscm) is equivalent to the emission standard.[216] If you are in the high Btu subcategory and comply with the mercury standard expressed as a hazardous waste thermal emission concentration (lb/MM Btu), the mercury feedrate limit expressed as a hazardous waste thermal feed concentration (lb/MM Btu) is also equivalent to the emission standard.

For semivolatile metals, the theoretical relationship between emissions and feedrate indicates that downward extrapolation introduces only a trivial error'0.17% at an emission rate 100 times the standard irrespective of the level of chlorine present. Id. Nonetheless, to ensure the error is minimal and to be practicable, you should limit semivolatile emissions during the comprehensive performance test to five times the emission standard.

Sources Equipped with Wet Scrubbers. For sources equipped with wet scrubbers, we conclude that the approach we use for semivolatile metals for dry scrubbers will also be appropriate to extrapolate a semivolatile metal feedrate limit for wet scrubbers. To ensure that downward extrapolation of the feedrate limit is conservative and to be practicable, you should limit semivolatile metal emissions during the comprehensive performance test to five times the emission standard.

For mercury, ensuring control with wet systems is more complicated because the level of chlorine present affects the formation of mercuric chloride which is soluble in water and easily controlled by wet scrubbers. Elemental mercury has very low solubility in scrubber water and is not controlled. The worst-case situation for conversion of elemental mercury to soluble mercuric chloride would be when the chlorine MTEC is lowest and the mercury MTEC is highest. We conclude that downward extrapolation of mercury feedrates is conservative for feedstreams that contain virtually no chlorine, *e.g.*, below an MTEC of 100 µg/dscm. In addition, we conclude that downward extrapolation is appropriate[217] for boilers feeding chlorinated feedstreams provided that during the performance test: (1) Scrubber blowdown has been minimized and the scrubber water has reached steady-state levels of mercury prior to the test (*e.g.*, by spiking the scrubber water); (2) scrubber water pH is minimized (*i.e.*, you establish a minimum pH operating limit based on the performance test as though you were establishing a compliance parameter for the total chlorine emission standard); and (3) temperature of the scrubber water is maximized (*i.e.*, you establish a maximum scrubber water temperature limit).

J. Temporary Compliance With Alternative, Otherwise Applicable MACT Standards

Comment: One commenter requests clarification on the requirements applicable to a source that switches to an alternative mode of operation when hazardous waste is no longer in the combustion chamber under the provisions of § 63.1206(b)(1)(ii). The commenter suggests that § 63.1206(b)(1)(ii) can imply that the complete compliance strategy needs to be switched over to the alternative section 112 or 129 requirements, even though compliance with the Subpart EEE requirements for monitoring, notification, reporting, and recordkeeping remains environmentally protective under Subpart EEE. For example, the commenter notes that § 63.1206(b)(1)(ii) could be incorrectly interpreted to require a source to comply with illogical requirements when the source temporarily switches to alternative, otherwise applicable standards, including standards testing and opacity monitoring under the alternative section 112 or 129 requirements. The commenter states that this interpretation makes little sense because a source that temporarily changes its mode of operation will continue to do testing under Subpart EEE, Part 63, or, in the case of opacity, the alternative section 112 requirements for cement kilns would necessarily require duplicate systems and compliance with redundant limits because a source may already be using a bag leak detection system or a particulate matter detection system. The commenter suggests only requiring sources to comply with the otherwise applicable emission standards under the alternative section 112 or 129 requirements while still operating under the various associated compliance requirements of Subpart EEE, part 63.

Response: The commenter requests clarification of § 63.1206(b)(1)(ii), which states that if a source is not feeding hazardous waste to the combustor and the hazardous waste residence time has expired (*i.e.*, the hazardous waste feed to the combustor has been cut off for a period of time not less than the hazardous waste residence time), then the source may elect to comply temporarily with alternative, otherwise applicable standards promulgated under the authority of sections 112 and 129 of the Clean Air Act.[218] As we have explained in previous notices,[219] sources that elect to invoke § 63.1206(b)(1)(ii) to become temporarily exempt from the emission standards and operating requirements of Subpart EEE, Part 63, remain an affected source under Subpart EEE (and only Subpart EEE) until the source is no longer an affected source by meeting the requirements specified in Table 1 of § 63.1200. Of course, a source can elect not to use the alternative requirements for compliance during periods when

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[215] USEPA, ''Technical Support Document for HWC MACT Standards, Volume IV: Compliance with the HWC MACT Standards,'' September 2005, Section 2.5 and Appendix B.

[216] Note, however, that you convert the MTEC (µg/dscm) to a mass feedrate (lb/hr) by considering the average gas flowrate of the test run averages during the comprehensive performance test to simply implementation and compliance.

[217] Mercury SRE is constant as the mercury feedrate decreases.

[218] Examples include 40 CFR part 60, subparts CCCC and DDDD for commercial and industrial solid waste incinerators, 40 CFR part 63, subpart LLL for Portland cement manufacturing facilities, 40 CFR part 63, subpart DDDDD for industrial/commercial/institutional boilers and process heaters, and 40 CFR part 63, subpart NNNNN for hydrochloric acid production facilities.

[219] This provision has been discussed in several **Federal Register** notices including 64 FR at 52904 (September 30, 1999), 66 FR at 35090, 35145 (July 3, 2001), 67 FR at 6979 (February 14, 2002), and 69 FR at 21203 (April 20, 2004).

they are not feeding hazardous waste, but, if so, the source must comply with all of the operating and monitoring requirements and emission standards of Subpart EEE at all times.[220] To implement § 63.1206(b)(1)(ii) a source defines the period of compliance with the otherwise applicable sections 112 and 129 requirements as an alternative mode of operation under § 63.1209(q). In order to be exempt from the emission standards and operating requirements of Subpart EEE, a source documents in the operating record that they are complying with the otherwise applicable Section 112 and 129 requirements specified under § 63.1209(q).

The commenter recommends that the complete compliance strategy need not be switched over to the alternative section 112 and 129 requirements when temporarily switching to the alternative standards. In general, we disagree. The intent of § 63.1206(b)(1)(ii) is to ensure that a source is complying with all requirements of sections 112 and 129 as an alternative mode of operation in lieu of the requirements under Subpart EEE. In the 1999 final rule we stated that the source must comply with all otherwise applicable standards under the authority of sections 112 and 129. Specifically, the source must comply with all of the applicable notification requirements of the alternative regulation, comply with all of the monitoring, recordkeeping, and testing requirements of the alternative regulation, modify the Notice of Compliance (or Documentation of Compliance) to include the alternative mode(s) of operation, and note in the operating record the beginning and end of each period when complying with the alternative regulation. See 64 FR at 52904. A source that elects to comply with otherwise applicable standards under § 63.1206(b)(1)(ii) must specify all requirements of those standards, not only the emission standards applicable under the sections 112 and 129 standards, but also the associated monitoring and compliance requirements and notification, reporting, and recordkeeping requirements in the operating record under § 63.1209(q).

The commenter suggests that a source should be able to comply with the otherwise applicable emission standards, while continuing to operate under the associated compliance requirements for the HAP under Subpart EEE. An example would be a cement kiln source complying with the dioxin and furan monitoring requirements under § 63.1209(k) of Subpart EEE for the dioxin and furan standards under § 63.1343(d) under Subpart LLL. We did not determine, when promulgating the provisions of §§ 63.1206(b)(1)(ii) and 63.1209(q)(1), that the monitoring provisions under Subpart EEE are equivalent to the associated monitoring requirements under the otherwise applicable 112 and 129 standards, or indeed, whether they are even well-matched. Such a determination would require notice and opportunity for comment, which we have not provided. However, this should not be interpreted to mean that a similar determination could not be made on a site-specific basis given that the MACT general provisions allow a source to request alternative monitoring procedures under § 63.8(f)(4). Certainly, a source can apply under this provision that the compliance requirements under Subpart EEE satisfy the associated monitoring requirements under the otherwise applicable 112 and 129 standards.

We also disagree with the commenter that emissions testing under the alternative standards of sections 112 and 129 is an example of an illogical requirement under § 63.1206(b)(1)(ii). Performance testing generally is required to demonstrate compliance with the emission standards and to establish limits on specified operating parameters to ensure compliance is maintained. In order to take advantage of the alternative under § 63.1206(b)(1)(ii), a source needs to show that compliance with and establish operating parameter limits for the otherwise applicable standards of sections 112 and 129. Thus, testing in order to establish operating parameter limits will be necessary. However, this does not mean that a separate performance test with the alternative sections 112 or 129 standards is necessarily required. We note that a source can make use of the performance test waiver provision under § 63.7(h) of the general provisions to request that the performance test under the alternative sections 112 and 129 standards be waived because the source is meeting the relevant standard(s) on a continuous basis by continuing to comply with Subpart EEE for the relevant HAP. This approach may be practicable for sources that can demonstrate that their level of performance during testing under Subpart EEE, including the associated operating and monitoring limits, will undoubtedly ensure continuous compliance with the emissions standards and the associated operating limits of alternative sections 112 and 129 standards.

Finally, the commenter notes that Subpart LLL (the alternative section 112 standards for cement kilns) includes opacity monitoring while Subpart EEE may not. The commenter states that this unnecessarily would require duplicate systems and compliance with redundant limits because of the bag leak detection and particulate matter detection system requirements under Subpart EEE. We respond that Subpart LLL specifies opacity as a standard (see § 63.1343(b)(2)), and, therefore, cement kilns subject to Subpart EEE must comply with the opacity standard when electing to comply temporarily with the requirements of Subpart LLL. We note that the opacity standard under Subpart EEE does not apply to cement kilns that are equipped with a bag leak detection system under § 63.1206(c)(8) and to sources using a particulate matter detection system under § 63.1206(c)(9). However, a cement kiln may use an opacity monitor that meets the detection limit requirements as the detector for a bag leak detection system or particulate matter detection system. See Part Four, Section VIII.A-C of the preamble.

K. Periodic DRE Testing and Limits on Minimum Combustion Chamber Temperature for Cement Kilns

Comment: Several commenters oppose the need for cement kilns that burn at locations other than the normal flame zone to demonstrate compliance with the destruction and removal efficiency (DRE) standard during each comprehensive performance test. These commenters recommend that EPA remove the requirement of § 63.1206(b)(7)(ii) for cement kilns citing that existing rule provisions (i.e., the requirements under § 63.1206(b)(5) pertaining to changes that may adversely affect compliance) are sufficient to require additional DRE testing after changes are made that may adversely affect combustion efficiency. Commenters question EPA's position that cement kilns that burn hazardous waste at locations other than the normal flame zone demonstrate a variability in DRE sufficient to justify the expense of re-testing for DRE with each performance test. Commenters point to EPA's data base that includes DRE results from over 30 tests with nearly 250 runs showing consistent DRE results, including sources burning hazardous waste at locations other than the normal flame zone, being achieved by cement kilns. The commenters note several burdens associated with DRE

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[220] However, the operating requirements do not apply during startup, shutdown, or malfunction provided that hazardous waste is not in the combustion chamber. See § 63.1206(b)(1)(i).

testing that do not result in improved environmental benefit including the purchase of expensive exotic virgin chemicals for performance testing, the risks to workers and contractors associated with the handling of these chemicals, and increasing the length of operation at stressful kiln operating conditions necessary to conduct DRE testing at minimum combustion chamber temperatures. Alternatively, commenters recommend that EPA revise the DRE requirements such that periodic testing is no longer required for cement kilns (that burn at locations other than the normal flame zone) after they have successfully achieved the DRE standard over multiple testing cycles (e.g., two or three) under similar testing regimes. That is, the source should only be required to demonstrate compliance with the DRE standard a maximum of two or three times until the source (that burns at locations other than the normal flame zone) modifies the system in a manner that could affect the ability of it to achieve the DRE standard.

Response: We are revising the requirements of § 63.1206(b)(7)(ii) such that cement kilns that feed hazardous waste at locations other than the normal flame zone need only demonstrate compliance with the DRE standard during three consecutive comprehensive performance tests provided that the source has successfully demonstrated compliance with the DRE standard in each test and that the design, operation, and maintenance features of each of the three tests are similar. These revisions do not affect sources that burn hazardous waste only in the normal flame zone.[221]

Prior to today's change, we required sources that feed hazardous waste in locations other than the flame zone to perform periodic DRE testing every 5 years to ensure that the DRE standard continues to be achieved over the life of the unit. See § 63.1206(b)(7)(ii). We justified this requirement because of concerns that sources that feed hazardous waste at locations other than the flame zone have a greater potential of varying DRE performance due to their hazardous waste firing practices. As we stated in the 1999 rule, we were concerned that the DRE may vary over time due to the design and operation of the hazardous waste firing system, and that those variations may not be identical or limited through operating limits set during a single DRE test (similar to what we concluded for sources that burn hazardous waste only in the normal flame zone). See 64 FR at 52850.

Commenters now question the need for subsequent DRE testing at cement kilns that feed hazardous waste at locations other than the normal flame zone once a cement kiln demonstrates compliance with the MACT DRE standard. The regulatory requirement for the destruction and removal efficiency standard has proved to be an effective method to determine appropriate process controls necessary for the combustion of hazardous waste. We are not convinced that only one DRE test is sufficient to ensure that a cement kiln that burns hazardous waste at locations other than the normal flame zone will continue to meet the DRE standard because temperatures are lower and gas residence times are shorter at the other firing locations. This is especially true given the industry trend to convert to the more thermally efficient preheater/precalciner kiln manufacturing process.[222] Precalciner kilns use a secondary firing system (i.e., flash furnace) at the base of the preheater tower to calcine the raw material feed outside the rotary kiln. This results in two separate combustion processes that must be controlled '' one in the kiln and the other in the flash furnace. The gas temperature necessary for calcining the limestone raw material in the flash furnace is lower than the temperature required making the clinker product. We conclude, therefore, that it is necessary, in spite of the concerns raised by commenters, to retain periodic DRE testing to ensure continued compliance with the DRE standard necessary for the control of nondioxin/furan organic HAP.

We also acknowledge, however, the concerns raised by the commenters. Our DRE data base of operating cement kilns includes results from approximately 25 DRE tests and nearly 200 runs.[223] All data show compliance with the DRE standard. Of these, approximately one-quarter of the data are from cement kilns that burned hazardous waste at locations other than the normal flame zone (e.g., injecting waste at midkiln in a wet process kiln), but we do not have DRE results from every operating cement kiln. Considering available DRE data and the concerns of the commenters, we believe that DRE testing during three consecutive comprehensive performance tests is sufficient to provide needed certainty about DRE performance while reducing the overall costs and toxic chemical handling concerns to the regulated source. Thus, we are revising the requirements of § 63.1206(b)(7)(ii) such that cement kilns that feed hazardous waste at locations other than the normal flame zone need only demonstrate compliance with the DRE standard during three consecutive comprehensive performance tests provided that the source has successfully demonstrated compliance with the DRE standard in each test and that the design, operation, and maintenance features of each of the three tests are similar. If a facility wishes to operate under new operating parameter limits that could be expected to affect the ability to meet the DRE standard, then the source would need to conduct another DRE test. Once the facility has conducted another three DRE tests under the new operating limits, then subsequent DRE testing would not be required. Accordingly, we are revising the requirements of § 63.1206(b)(7)(ii).

Comment: Several commenters support EPA's proposal to delete the requirement to establish an operating limit on the minimum combustion chamber temperature for dioxin/furans under § 63.1209(k)(1) for cement kilns. These commenters point to the high temperatures of approximately 2500°F required to make the clinker product. These high temperatures are fixed by the reaction kinetics and thermodynamics occurring in the burning zone and cannot be reduced below minimum values at the whim of the operator and still make a marketable product. In addition to deleting the minimum combustion chamber temperature limit for dioxin/furans, commenters also recommend, for similar reasons, that EPA delete the minimum combustion chamber temperature requirement under § 63.1209(j)(1) associated with the destruction and removal efficiency standand. Commenters note that demonstrating the minimum temperature requires operating under stressful operating conditions that can

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[221] The DRE demonstration for these sources need be made only once during the operational life of a source, either before or during the initial comprehensive performance test, provided that the design, operation, or maintenance features do not change in a manner that could reasonably be expected to affect the ability to meet the DRE standard. See §§ 63.1206(b)(7) and 63.1207(c)(2)(ii). The source would ensure continued compliance by operating under the operating parameter limits established during this DRE test.

[222] For example, Ash Grove Cement in Chanute, KS replaced their two wet process cement kilns with one preheater/precalciner kiln in 2001. Holcim Inc in Holly Hill, SC has also recently constructed a new preheater/precalciner kiln to replace two wet process cement kilns. Keystone Cement Company in Bath, PA is considering replacing their two wet process cement kilns with a new preheater/precalciner kiln. See docket item OAR–2004–0022–0384.

[223] U.S. EPA, ''Final Technical Support Document for HWC MACT Standards, Volume III: Selection of MACT Standards and Technologies,'' Section 23.4, September 2005.

lead to upset conditions and potentially damage the integrity of the manufacturing equipment. Other commenters oppose, however, deletion of the minimum combustion chamber temperature limit for cement kilns. These commenters state that all combustion sources, including cement kilns, must meet a minimum combustion chamber temperature limit to control dioxin/furans and organic HAP emissions given that some cement kilns feed hazardous waste at locations other than the high temperature clinker-forming zone of the kiln.

Response: We are deleting as proposed the requirement to establish a minimum combustion chamber temperature limit for dioxin/furan under § 63.1209(k)(2) for cement kilns. See 69 FR at 21343. However, we retain the requirement for cement kilns to establish and comply with a minimum combustion chamber temperature limit for the destruction and removal efficiency standard under § 63.1209(j)(1).[224]

As discussed in the 1999 rule, nondioxin/furan organic hazardous air pollutants are controlled by the DRE standard and the carbon monoxide and hydrocarbon standards. See 64 FR at 52848–52852. This standard was not reopened in the present rulemaking. We note, however, that the DRE standard determines appropriate process controls necessary for the combustion of hazardous waste. Establishing and monitoring a minimum temperature of the combustion chamber is a principal factor in ensuring combustion efficiency and destruction of toxic organic compounds. As discussed in the previous response, we believe this is especially true given the industry trend to convert to the more thermally efficient preheater/precalciner kiln manufacturing process, which use two separate combustion processes. We conclude that it is necessary, in spite of the concerns raised by commenters, to retain the minimum combustion chamber temperature limit as related to the DRE standard to ensure that combustion efficiency within the entire kiln system is maintained for the control of nondioxin/furan organic HAP.

However, we acknowledge the difficulties that cement kiln operators face in establishing a minimum combustion chamber temperature limit, including the stressful operating conditions necessary to establish the limit. As we stated at proposal, our data indicate that limiting the gas temperature at the inlet to the particulate matter control device is a critical parameter in controlling dioxin/furan emissions in cement kilns. See 69 FR at 21344. Therefore, we believe that an operating limit on the minimum combustion chamber temperature is less important to ensure compliance with the dioxin/furan standard than to ensure compliance with the DRE standard. Thus, we remove the requirement to establish a minimum combustion chamber temperature limit for dioxin/furan under § 63.1209(k)(2) for cement kilns. This change does not affect the other operating parameter limits under § 63.1209(k) that must be established for dioxin/furans, including a limit on the gas temperature at the inlet to the particulate matter control device.

Comment: One commenter supports the use of previous minimum combustion zone temperature data, regardless of the test age, in lieu of conducting new, stressful DRE testing. That is, if a cement kiln is required to conduct future DRE tests, then the source should not have to re-establish a minimum combustion chamber temperature limit during the new test. Rather, the source should have the option to submit minimum combustion chamber temperature results in lieu of re-establishing the limit.

Response: We reject the commenter's suggestion for reasons discussed above. We believe that it is necessary to retain the link between the minimum combustion chamber temperature limit and the DRE test itself, which will ensure that the combustion efficiency of the entire system will be maintained for the control of nondioxin/furan organic HAP.

Comment: One commenter supports deletion of the minimum combustion chamber temperature requirement for dioxin/furan under § 63.1209(k)(2) for lightweight aggregate kilns.

Response: We reject the commenter's suggestion. Our data base of dioxin/furan emissions data shows substantial variability in test results at each source.[225] This may indicate that factors other than limiting kiln exit gas temperatures may be influencing significantly dioxin/furan formation in lightweight aggregate kilns. As such, we conclude that removing the minimum combustion chamber temperature limit would not be appropriate at this time due to the uncertain nature of dioxin/furan formation in lightweight aggregate kilns. Thus, we are retaining the requirement to establish a minimum combustion chamber temperature limit for dioxin/furans under § 63.1209(k)(2) and § 63.1209(j)(1) for lightweight aggregate kilns.

L. One Time Dioxin and Furan Test for Sources Not Subject to a Numerical Limit for Dioxin and Furan

Comment. Commenters support the one-time dioxin/furan test for sources not subject to a numerical dioxin and furan standard. Commenters agree that previous testing should be allowed to document the one time test.

Response. The final rule requires sources that are not subject to a standard with numerical dioxin and furan levels[226] to conduct a one-time dioxin and furan test as part of their initial comprehensive performance testing: lightweight aggregate kilns that elect to control the gas temperature at the kiln exit rather than comply with a dioxin/furan standard of 0.20 ng TEQ/dscm, solid fuel boilers, liquid fuel boilers with wet or no air pollution control systems, and HCl production furnaces. We will use these data as part of the process of addressing residual risk under CAA section 112(f) and evaluating future MACT standards under section 112(d)(6). The results may also be used as part of the RCRA omnibus permitting process.

Comment. EPA proposed that source not subject to a numerical dioxin and furan limit conduct a dioxin and furan test under worst-case conditions. Commenters state that operating under worst-case conditions is inconsistent with the CAA Section 112(f) process, which is to consider actual (i.e., normal) emissions. Commenters suggest that we require the tests be conducted under normal to above normal conditions.

Response. Section 112 (f) standards evaluate allowable emission levels, although actual emissions levels may also be considered. See 70 FR at 19998–

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[224] Under the interim standards, cement kilns must establish and continuously monitor limits on minimum gas temperature in the combustion zone for both the dioxin/furan and DRE standards. As discussed in the preceding paragraph, a source may not need to conduct DRE testing during each comprehensive performance test. If DRE testing is required, then the source will need to establish a minimum combustion zone temperature limit as required under the DRE standard. However, if DRE testing is not required, then (according to the changes made today) the cement kiln will not be required to establish the minimum combustion chamber temperature limit under the dioxin/furan standard during a subsequent comprehensive performance test. The minimum combustion chamber temperature operating limit established during previous testing remains in effect, however.

[225] For example, dioxin/furan emissions from source number 307 range from a low of 0.024 to a high of 57.9 ng TEQ/dscm. See ''Source Category Summary Sheets'' available in the docket or USEPA, ''Final Technical Support Document for HWC MACT Standards, Volume II: HWC Data Base,'' September 2005.

[226] These sources do, however, need to comply with the carbon monoxide or hydrocarbon standards, as well as the DRE standard as surrogates to comply with today's dioxin and furan emissions control requirements.

19999 (April 15, 2005). Although we agree with the commenter that, in general, emissions in the range of normal to maximum are considered for section 112(f) determinations, we believe that dioxin/furan testing to provide information of use in section 112(f) residual risk determinations should be conducted under conditions where controllable operating conditions are maximized to reflect the full range of expected variability of those parameters which can be controlled. This is because dioxin/furan emissions may relate exponentially with the operating conditions that affect formation. We believe that dioxin/furan emissions relate exponentially with gas temperature at the inlet to an ESP or fabric filter,[227] and are concerned that emissions may also relate exponentially with the operating parameters (discussed below) that affect emissions from sources subject to the one-time dioxin/furan emissions test. Emissions testing under operating conditions that are in the range of ''normal to above normal'' may be exponentially lower than emissions under operating conditions reflecting maximum daily variability of the source. Since testing under normal operating conditions makes no effort to assess operating variability, emissions during such testing would fail to reflect expected daily maximum operating variability and so would not represent time-weighted average emissions and would under-represent health risk from chronic exposure.

Although we acknowledge that sources will not exhibit maximum operating variability each day of operation, we believe that it is important to assess the upper range of emissions that these sources may emit to properly evaluate under section 112(f) whether the MACT standards for dioxin/furan for these sources (i.e., absent a numerical emission standard) protect public health with an ample margin of safety.[228]

In addition, we note that emissions reflecting daily maximum variability would be most useful for section 112(d)(6) determinations in the future because they would represent the full range of emissions variability that results from controllable operating conditions.

For these reasons, the final rule requires sources to test under feed and operating conditions that are most likely to reflect maximized expected daily variability of dioxin/furan emissions, as proposed. Such testing is similar to a comprehensive performance test to demonstrate compliance with a numerical dioxin/furan emission standard where operating limits would be established based on operations during the test. As a practical matter, however, we note that many of the operating parameters discussed below, although controllable to some extent, cannot be quantified and cannot be controlled to replicate the condition in a future test. In addition, some operating parameters we identify may not have as strong a relationship to dioxin/furan emissions as others. Consequently, the operating conditions are generally described subjectively.

Based on currently available research, you should consider the following factors to ensure that you conduct the test under operating conditions that seek to fully reflect maximum daily variability of dioxin/furan emissions: (1) Dioxin/furan testing should be conducted at the point in the maintenance cycle for a boiler when the boiler tubes are more fouled and soot-laden, and not after maintenance involving soot or ash removal from the tubes; (2) dioxin/furan testing should be performed following (or during) a period of feeding normal or greater quantities of metals; (3) dioxin/furan testing should be performed while feeding normal or greater quantities of chlorine; (4) the flue gas temperature in some portion of the heat recovery section of a boiler should be within the dioxin formation temperature window of 750 to 400°F during the testing; (5) the testing should not be conducted under optimal combustion conditions (e.g., combustion chamber temperature should be in the range of normal to the operating limit; hazardous waste feedrate and combustor through put should be in the range of normal to maximum); (6) for units equipped with wet air pollution control systems, the testing should be conducted after a high solids loading has developed in the scrubber system (consistent with normal operating cycles); and (7) for solid fuel boilers, the sulfur content of the coal should be equivalent to or lower than normal coal sulfur levels (within the range of sulfur levels that the source utilizes), and the gas temperature at the inlet to the electrostatic precipitator or fabric filter should be close to the operating limit. In addition, unless sulfur compounds are routinely fed to the boler, dioxin/furan testing should not be performed after a period of firing high sulfur fuel or injection of sulfur additives. See 69 FR at 21308 for more information.

Comment: Commenters state that we should delete the one-time testing requirement for dioxin and furans. The Clean Air Act at Section 114(a)(1)(D) allows EPA to request ''any person'' to sample emissions. Applying the Section 114 authority to an entire subcategory of sources is overly broad, particularly in the context of having already established appropriate surrogates for dioxin and furan in a MACT rule. Commenters are not aware of EPA taking this approach in previous efforts. (Section 114 requests have focused on collecting existing information from sources facing future MACT standards). Commenters oppose this approach because it established a precedent they do not favor, and will bring about significant costs and difficulties to provide the data. They suggest that we delete the proposed requirements for a one-time dioxin and furan test.

Response: We believe that section 114(a)(1)(D) of the Clean Air Act provides us the authority to require sources to conduct a one time test to generate data which can be used in making later section 112 (f) determinations for the source category. The results of the testing may also inform the section 112(d)(6) review and the RCRA omnibus permitting processes. The fact that section 114 specifically indicates that a purpose of gathering information under section 114 is to assist in developing national rules indicates that the provision can have wide sweep extending to all sources in a category. See 69 FR at 21307–308 for a full explanation.

We believe a dioxin and furan test costs approximately $10,000 when conducted along with other testing. We do not believe this cost is significant, and sources must only perform this test once, not more frequently as would be the case to ensure compliance with a standard. We also allow sources to use prior testing to meet this requirement, and allow sources to use ''data in lieu'' so they can test one source if they have more than one of the same identical sources.

We do not believe that obtaining these data will be difficult, and note that the permitting authority can assist sources in planning their tests.

M. Miscellaneous Compliance Issues

Comment: Several commenters state that § 63.1206(c)(3)(iv) requiring an automatic waste feed cutoff (AWFCO) if

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[227] See USEPA, ''Technical Support Document for HWC MACT Standards, Volume IV: Compliance,'' July 1999, Chapter 3.

[228] Dioxin/furan are some of the most toxic compounds known due to their bioaccumulation potential and wide range of health effects, including carcinogenesis, at exceedingly low doses. Exposure via indirect pathways is a chief reason that Congress singled out dioxin/furan for priority MACT control in CAA section 112(c)(6). See S. Rep. No. 128, 101st Cong. 1st Sess. at 154–155.

a parameter linked to the AWFCO is exceeded should be revised to reflect § 63.1206(c)(2)(v)(A)(1). Section 63.1206(c)(2)(v)(A)(1) states that, if the AWFCO is affected by a malfunction such that the malfunction itself prevents immediate and automatic cutoff of the hazardous waste feed, you must cease feeding hazardous waste as quickly as possible.

Response: We agree with commenters in principle, but note that the automatic waste feed cutoff system may fail for reasons other than a malfunction. That is, equipment or other failures are malfunctions only if they meet the definition of malfunction at § 63.2. Failures that result from improper maintenance or operation are not malfunctions. Consequently, the final rule revises § 63.1206(c)(3)(iv) to state that if the AWFCO is affected by a failure such that the failure itself prevents immediate and automatic cutoff of the hazardous waste feed, you must cease feeding hazardous waste as quickly as possible. Revised § 63.1206(c)(3)(iv) does not refer to malfunctions, however, because the AWFCO system may fail for reasons other than a malfunction. The reference in § 63.1206(c)(2)(v)(A)(1) to malfunctions is appropriate because that paragraph addresses requirements during malfunctions.

Comment: Several commenters note that the proposed rule did not include a sunset provision for the Interim Standards applicable to incinerators, cement kilns, and lightweight aggregate kilns after the compliance date of the standards we promulgate today (i.e., the ''permanent replacement standards''). Commenters are concerned that, although the Agency intends for the replacement standards to be more stringent than the Interim Standards, that may not be the case in all situations because of the different format used for some of the replacement standards. For example, several of the replacement standards for cement kilns and lightweight aggregate kilns are expressed as hazardous waste thermal emissions.

Response: Although we are promulgating the replacement standards in a format that ensures they are not less stringent than the Interim Standards, we agree with commenters that not sunsetting the Interim Standards may lead to confusion as to which standards apply. Consequently, we include a sunset provision in today's rule for the Interim Standards. The Interim Standards will be superseded by the final rule promulgated today on the compliance date.

We note, however, that the Interim Standards for total chlorine continue to apply to sources that establish health-based limits for total chlorine under § 63.1215. Consequently, we have incorporated the total chlorine Interim Standards in § 63.1215 as they apply as a cap to the health-based emission limits.

Comment: Several commenters state that the rule should allow extrapolation of ash and chlorine feedrates to establish feedrate limits corresponding to the particulate matter and total chlorine standards. Commenters believe the rationale we use to allow extrapolation of metals feedrates is also applicable to ash and chlorine.

Response: The final rule does not allow you to extrapolate ash and chlorine feedrates achieved during the comprehensive performance test to establish feedrate limits comparable to the particulate matter and total chlorine emission standards.

We do not allow extrapolation of ash to the particulate matter emission standard because particulate matter (i.e., soot) may form in the combustor, particularly at times of unstable combustion conditions. Consequently, extrapolating from ash feedrates may underestimate particulate matter emissions and may not ensure compliance with the particulate matter emission standard.

We do not allow extrapolation of chlorine feedrates to the total chlorine emission standard because chlorine feedrate is an operating parameter limit to ensure compliance with the semivolatile metal emission standard. Because an increase in chlorine feedrate can increase the volatility of semivolatile metals and we do not know the precise relationship among chlorine feedrate, metal volatility, and metals emissions, extrapolating the chlorine feedrate achieved during the comprehensive performance test to a feedrate comparable to the total chlorine emission standard may not ensure compliance with the semivolatile metal emission standard. If a source complies with the semivolatile metals emission standard under § 63.1207(m)(2) where the performance test is waived, however, by assuming zero system removal efficiency and limiting the semivolatile feedrate (expressed as a maximum theoretical emission concentration) to the level of the emission standard, the source may request under § 63.1209(g)(1) to extrapolate chlorine feedrates during the comprehensive performance test up to the total chlorine emission standard.

Comment: Several commenters state that the proposed regulatory language under §§ 63.1206(b)(9)(i) and 63.1206(b)(10)(i) is inconsistent with the proposed preamble, which states that sources should be allowed to petition for alternative standards provided they submit information showing that HAP contributions to emissions from the raw materials are preventing the source from achieving the emissions standard though the source is using MACT control.[229] The commenters state that the proposed regulatory language, despite the intent signaled in the proposed preamble, inappropriately excludes the provisions of §§ 63.1206(b)(9)(i) and 63.1206(b)(10)(i) as an alternative option when complying with the replacement emission standards under §§ 63.1220 and 63.1221.

Response: We agree with the commenters. The proposed regulatory text inadvertently excluded the alternative standard provisions from use by cement and lightweight aggregate kilns under the replacement standards. Accordingly, we are revising the introductory text of §§ 63.1206(b)(9)(i) and 63.1206(b)(10)(i) by making the alternative standards available under the replacement standards.

Comment: One commenter states that the availability of the alternative standard for mercury under § 63.1206(b)(10)(i) should not be conditioned upon mercury being present only at levels below the detection limit in raw materials, as specified under § 63.1206(b)(10)(i)(B). The commenter suggests that the approach for mercury should be the same as for other HAP such as semi- and low volatile metals under § 63.1206(b)(10)(i)(A).

Response: The commenter misreads the alternative standard provisions under § 63.1206(b)(10)(i). We note that § 63.1206(b)(10) includes two separate provisions for cement kilns. The first provision allows sources to petition for an alternative standard when a source cannot achieve a standard because of HAP metal or chlorine concentrations in their raw material feedstocks cause an exceedance of a standard despite the source's use of MACT control. See § 63.1206(b)(10)(i)(A). The term ''regulated metals'' specified in § 63.1206(b)(10)(i)(A) includes mercury, semivolatile metals, and low volatile metals. The second provision allows a source to petition for an alternative mercury standard when mercury is not present at detectable levels in the source's raw materials. § 63.1206(b)(10)(i)(B). These two provisions are indeed separate as

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[229] For example, see 69 FR at 21268.

discussed in the 1999 rule. See 64 FR at 52962–967. Also note that the conjunction separating paragraphs (b)(10)(i)(A) and (b)(10)(i)(B) is ''or,'' not ''and.''

Given the potential confusion of the term ''regulated metals,'' we are clarifying the regulatory text by specifying the three metal HAP volatility groups that comprise the term ''regulated metals.'' See revised § 63.1206(b)(10)(i)(A). Finally, given that the alternative standard provisions are similar for lightweight aggregate kilns, we are also clarifying §§ 63.1206(b)(9)(i)(A) and (b)(9)(iv).

IX. Site-Specific Risk Assessment Under RCRA

A. What Is the Site-Specific Risk Assessment Policy?

The Site-Specific Risk Assessment (SSRA) Policy has undergone several revisions since its inception in the 1993 draft Combustion Strategy. Currently, it is the same policy as we expressed in the 1999 final rule preamble. In the 1999 rule, we recommended that for hazardous waste combustors subject to the Phase 1 MACT standards, permitting authorities should evaluate the need for an SSRA on a case-by-case basis. Further, while SSRAs are not anticipated to be necessary for every facility, they should be conducted where there is some reason to believe that operation in accordance with the MACT standards alone may not be protective of human health and the environment. For hazardous waste combustors not subject to the Phase 1 standards, we continued to recommend that SSRAs be conducted as part of the RCRA permitting process. See 64 FR 52841. Since 1999, we have provided additional clarification of the appropriate use of the SSRA policy and technical guidance in an April 10, 2003 memorandum from OSWER's Assistant Administrator to the EPA Regional Administrators entitled, ''Use of the Site-Specific Risk Assessment Policy and Guidance for Hazardous Waste Combustion Facilities'' (see Docket # OAR–2004–0022–0083). Most importantly, in this memorandum we reiterated that where a permitting authority concludes that a risk assessment is necessary for a particular combustor, the basis for this decision must be substantiated in each case. The factual and technical basis for any decisions to conduct a risk assessment must be included in the administrative record for the facility per 40 CFR 124.7, 124.8, 124.9, and 124.18. In addition, if the facility, or any other party, files comments on a draft permit decision objecting to the permitting authority's conclusions regarding the need for a risk assessment, the permitting authority must respond fully to the comments. Any permit conditions determined to be necessary based either on the SSRA, or because the facility declined to conduct an SSRA, also must be documented and supported in the administrative record.

Today, we are codifying additional regulatory language providing authority for SSRAs while maintaining the same basic SSRA policy. It is important to note that all of the requirements of Part 124 referred to above will continue to apply to actions taken in accordance with the additional regulatory language we are codifying. The SSRA regulatory provisions, which establish that the need for an SSRA should be determined on a case-by-case basis, apply equally to both Phase 1 and Phase 2 sources.

B. Why Might SSRAs Continue To Be Necessary for Sources Complying With Phase 1 Replacement Standards and Phase 2 Standards?

EPA conducted a national evaluation of human health and ecological risk for the MACT standards as proposed in the 1996 NPRM and then revised the evaluation to include more facilities for the 1999 final rulemaking. Based on the results of the final national risk evaluation for hazardous air pollutants (excluding non-dioxin products of incomplete combustion), we concluded that sources complying with the MACT standards generally would not pose an unacceptable risk to human health or the environment. For today's final rule, we did not conduct another national risk assessment as we did for the 1999 rule. Rather, for both the April 20, 2004 NPRM and today's final rule we conducted a comparative risk analysis, comparing the Phase 1 Replacement and Phase 2 Standards to the 1999-promulgated Phase 1 Standards, to determine if there were any significant differences that might influence or impact the potential risk. Similar to the proposal, the comparative analysis conducted for today's final rule focused on several key characteristics: emission rates, stack height, stack gas buoyancy, meteorological conditions (which include a number of variables), population parameters including density and radial distribution, and correlations among the characteristics themselves. The results of the comparative analysis suggest that the MACT standards for both Phase 1 and Phase 2 sources are generally protective. Therefore, separate national emissions standards under RCRA are unnecessary. See Part Seven: How Does the Final Rule Meet the RCRA Protectiveness Mandate? Although we have concluded that the Phase 1 Replacement and Phase 2 standards are generally protective, as we discussed in the 2004 proposal (69 FR 21325), there may be instances where we cannot assure that emissions from each source will be protective of human health and the environment, and therefore an SSRA may be necessary. Furthermore, it should be noted that, just as for the risk assessment for the 1999 rule, the comparative analysis does not account for cumulative emissions at a source or background exposures from other sources.

Before discussing factors that may lead permit authorities to consider whether or not to conduct an SSRA, it should be noted that the Agency generally does not expect that facilities that have conducted risk assessments will have to repeat them. As we explained in the 1999 final rule preamble, changes to comply with the MACT standards should not cause an increase in risk for the vast majority of facilities given that the changes will likely be the addition of pollution control equipment or a reduction in the hazardous waste being burned (see 64 FR 52842). Instances where a facility may need to repeat a risk assessment would be related to changes in conditions that would likely lead to increased risk. For example, if the only changes at a facility relate to the exposed population (a new housing development is constructed within a few square miles of the source), what was once determined to be protective under a previous risk assessment may now be beyond acceptable levels. Another example would be where a hazardous waste burning cement kiln that previously monitored hydrocarbons in the main stack elects to install a mid-kiln sampling port for carbon monoxide or hydrocarbon monitoring to avoid restrictions on hydrocarbon levels in the main stack. Thus, the stack hydrocarbon emissions may increase (64 FR 52843, footnote 29). In such situations, we would anticipate that the risk assessment would not have to be entirely redone. It may be as limited as collecting relevant new data for comparison purposes, leading to a decision not to repeat any portion of a risk assessment. Or, it may be more inclusive such that modifications would be made to specific inputs to or aspects of the risk assessment using data from a previous risk assessment, risk burn or comprehensive performance test. In recognition of this, we have added an additional factor to the list of factors at § 270.10(l)(1) to indicate that a previously conducted risk assessment would be relevant in evaluating changes in conditions that may lead to increased risk. The factor reads as follows: ''Adequacy of any previously conducted risk assessment, given any subsequent changes in conditions likely to affect risk.'' The following discussion is intended mainly to address facilities that have not yet conducted an SSRA (i.e., where it has been determined that one is needed).

In the proposal we discussed our conclusion that almost all of the proposed standards for Phase 1 sources were equivalent to or more stringent than the 1999 final standards, with the exception of the mercury standard for new and existing LWAKs and the total chlorine standard for new LWAKs. However, there are additional standards for Phase 1 sources finalized in today's rulemaking that are less stringent than the 1999 final standards. In addition to those discussed in the proposal, the following standards are less stringent than the 1999 final standards: mercury for new cement kilns and semi-volatile metals for existing cement kilns; dioxin/furan for existing and new LWAKs, mercury for existing and new LWAKs, and total chlorine for existing and new LWAKs. Because these standards exceed the levels which were evaluated in the 1999 national risk assessment, especially with respect to mercury and dioxin/furan standards for which the national risk assessment showed high end risks at or near levels of concern, permit authorities may decide on a case-by-case basis that an SSRA is appropriate to determine whether the less stringent Replacement standards are protective. In addition, the comparative analysis results suggest concern regarding the dioxin/furan standard for LWAKs and thus, permit authorities may consider site-specific factors in determining whether the standard is sufficiently protective.

Specific to Phase 2 sources, we mentioned earlier that we conducted the same comparative risk analysis for Phase 2 sources as we did for Phase 1 sources (i.e., by comparing the Phase 2 standards to the 1999 final standards for Phase 1 sources). Although several MACT standards for Phase 2 sources are more stringent than the BIF standards under RCRA, there are a few MACT standards that may be cause for concern on a case-by-case basis, as they are either less stringent than some of the 1999 final standards or the comparative risk analysis suggests concern. They are: The particulate matter standard (and certain metals such as antimony and thallium), mercury standard, and total chlorine standard for solid fuel-fired boilers (SFBs); the dioxin/furan standard (carbon monoxide or total hydrocarbon as surrogate controls, versus a numerical standard) for HCl production furnaces; and the dioxin/furan standard for liquid fuel-fired boilers (LFBs) with dry APCDs. In addition, dioxin/furan emissions data for LFBs with wet or no APCDs indicate an observed level (1.4 ng TEQ/dscm) of more than three times the highest dioxin/furan standard evaluated in the 1999 national risk assessment (69 FR 21285).[230] Thus, these standards may warrant site-specific risk consideration, especially with respect to the dioxin/furan standards. That is, due to the complexity of the dioxin/furan formation mechanism and given the toxicity of dioxin/furans,[231] an SSRA may be needed based on the specific emission levels of each source not subject to a numerical standard. For additional discussion on the protectiveness of standards, please refer to Part Seven: How Does the Final Rule Meet the RCRA Protectiveness Mandate?

There are also site-specific factors beyond the standards that can be important to the SSRA decision making process. As discussed in the proposal, examples include a source's proximity to a water body or endangered species habitat, repeated occurrences of contaminant advisories for nearby water bodies, the number of hazardous air pollutant emission sources within a facility and the surrounding community, whether or not the waste feed to the combustor is made up of persistent, bioaccumulative or toxic contaminants, and sensitive receptors with potentially significantly different exposure pathways, such as Native Americans (69 FR 21326). Also, there are several uncertainties inherent in the 1999 national risk assessment.[232] Thus, the same uncertainties related to the fate and transport of mercury in the environment and the biological significance of mercury exposures in fish (i.e., once mercury has been transformed into methylmercury, it can be ingested by the lower trophic level organisms where it can bioaccumulate in fish tissue), as well as the risk posed by non-dioxin products of incomplete combustion, remain today and may influence a permitting authority's decision. Last, we are finalizing the option for Phase 2 area sources to comply with specific MACT standards as provided by CAA § 112(c)(6) specific pollutants authority. These area sources may need to conduct an SSRA for the remaining RCRA standards that they choose to comply with (i.e., since they do not address the potential risk from indirect exposures to long-term deposition of metals onto soils and surface waters).[233]

In addition to the examples provided in the previous paragraph, we also expressed that an SSRA may be necessary with respect to the proposed thermal emission standards. With respect to Phase 1 sources, we had noted in the proposal that the thermal emission standards for semi-volatile and low volatile metals for cement kilns and LWAKs may be of concern because they directly address emissions attributable to hazardous waste versus a source's total HAP metal emissions. See 69 FR 21326. However, we are requiring sources to comply with both the thermal emission standards and the Interim Standards in today's final rulemaking, since compliance with the thermal emission standards may not always assure compliance with the Interim Standards. As a result, the thermal emission standards for cement kilns and LWAKs no longer pose the uncertainties that they had in the proposal.[234] In regard to Phase 2 sources, the concern at the time of proposal was with respect to the thermal emission standards for liquid fuel-fired boilers. However, the comparative analysis for today's final rulemaking for liquid fuel-fired boilers, which is based on total stack emissions from these sources while assuming compliance with the thermal standards, does not suggest that risks for LFBs are cause for concern (except as otherwise noted, e.g., dioxins).

C. What Changes Are EPA Finalizing With Respect to the Site-Specific Risk Assessment Policy?

In the 1999 final rule preamble, we included a revised site-specific risk assessment (SSRA) policy recommendation to account for promulgation of the new technology-based CAA MACT standards for Phase

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[230] The comparative analysis did not specifically suggest concern as it has for other source categories, but per the reference to the proposal, we have some concern regarding the protectiveness of the standard.

[231] There is ongoing uncertainty in cancer and other health effects levels for chlorinated dioxins and furans.

[232] Uncertainties stem from a lack of information regarding the behavior of mercury in the environment and a lack of sufficient emissions data and parameter values (e.g., bioaccumulation values) for nondioxin products of incomplete combustion. See 64 FR 52840–52841.

[233] Currently, there are only five area sources that this may apply to; they are interim status units in the process of conducting an SSRA as part of their final permits.

[234] An exception would be the semivolatile metal Interim standard for existing cement kilns, which is less stringent than the 1999 final standard. As we noted, permit authorities may consider the need for an SSRA as a result.

1 sources. We recommended that permitting authorities evaluate the need for an SSRA on a case-by-case basis for hazardous waste combustors subject to the Phase 1 MACT standards. For hazardous waste combustors not subject to the Phase 1 standards, we continued to recommend that SSRAs be conducted as part of the RCRA permitting process if necessary to protect human health and the environment. We indicated that the RCRA omnibus provision authorized permit authorities to require applicants to submit SSRA results where an SSRA was determined to be necessary. For the reasons described in the previous subsection, we believe that additional controls may be necessary on a site-specific basis to ensure that adequate protection is achieved in accordance with RCRA.

Consequently, because SSRAs are likely to continue to be necessary at some facilities (mainly those that have not previously conducted an SSRA), we concluded that it is more appropriate to include a regulatory provision that explicitly provides for the permit authority to require SSRAs on a case-by-case basis and add conditions to RCRA permits based on SSRA results. Therefore, instead of relying on RCRA § 3005(c)(3) and its associated regulations at § 270.10(k) when permitting authorities conduct or require a risk assessment on a site-specific basis (i.e., as applicable to those newly entering the RCRA permit process), we had proposed to codify the authorities provided by sections 3004(a) and (q) and 3005(b). See proposed regulations at 69 FR 21383–21384, §§ 270.10(l) and 270.32(b)(3). In proposing to codify these authorities, we stated that we were not requiring that SSRAs automatically be conducted for hazardous waste combustion units, but that the decision of whether or not a risk assessment is necessary must be made based upon relevant factors associated with an individual combustion unit and that there are combustion units for which an SSRA will not be necessary. Further, we explained that the proposed language would provide notice to the regulated community that an SSRA may be necessary to support a source's permit, while reminding the permit agency of the need to evaluate whether an SSRA would be necessary on a site-specific basis.

Despite our efforts to explain that by codifying these provisions, we are only modifying the statutory authority under which we implement the SSRA policy while maintaining the same SSRA policy from a substantive standpoint, commenters generally opposed EPA's proposed codification. The comment most frequently presented was that the proposed regulatory language is not helpful to anyone (i.e., regulated community, the public or permitting agencies), is redundant with the omnibus authority, and sets an extremely low hurdle for regulators to require SSRAs.

We disagree that the new regulatory language is not helpful and that it sets an extremely low hurdle for regulators to require SSRAs. We believe that the new provisions are beneficial in two ways: (1) They provide notice to the regulated community and public that an SSRA may be necessary to support a source's permit; and (2) they remind the permitting agencies of the importance of evaluating whether an SSRA would be necessary on a site-specific basis. The new regulatory provision in no way expands or supplements the authority on which EPA had previously relied—i.e., omnibus and § 270.10(k), thus it does not provide any more or less authority to permit authorities (i.e., lower or raise the hurdle) to require SSRAs. We agree that, because the proposed language provides permitting authorities with no greater authority than the omnibus authority, it is somewhat duplicative of § 270.10(k). However, as noted, EPA believes this provision offers important benefits to both the agency and the regulated community, and as explained further below, EPA has adopted a slightly modified version of the proposal pursuant to RCRA § 3004(a) and § 3005(b). See also discussion in subsection F.

Another common view expressed by commenters is that, although extensive risk assessments that have been performed for more than a decade, showing lack of risk to human health and the environment, EPA continues to require SSRAs without a technical evaluation of the historical results. To the contrary, EPA Regional permit writers have found that certain chemicals (especially dioxin and mercury)[235] pose excess risk in certain circumstances—even under the Interim Standards—and consequently find it necessary to assess risk to human health and the environment based on site-specific conditions at the facility. In EPA Regions 7 and 10 for example, some facilities have RCRA risk-based permit conditions that establish more frequent sampling or limits on feed rate for specified metals to ensure that ecologically sensitive areas are not adversely impacted.

Many commenters also state that CAA § 112(f) residual risk process is the appropriate method to assess risk for hazardous waste combustors complying with MACT, not RCRA risk assessments. Specifically, one commenter argued that EPA lacked statutory authority to rely on the omnibus provisions to require SSRA and SSRA-based controls on the grounds that § 112(f) of the Clean Air Act establishes a specific provision to control any residual risk from combustor emissions. We disagree with commenters for two reasons. First, as we explained in the 1999 final rule preamble, the omnibus provision is a RCRA statutory requirement and the CAA does not override RCRA. Promulgation of the MACT standards, therefore, does not duplicate, supersede, or otherwise modify the omnibus provision or its applicability to the sources covered by today's rule. Second, the SSRA under RCRA is usually conducted prior to issuance of the final permit. The CAA residual risk determination is generally made eight years after promulgation of the MACT standards for a source category. Accordingly, a permit authority currently facing a permit decision could not rely on these yet unwritten residual risk standards to resolve its identified concern that the MACT standard may not be sufficiently protective at an individual site. In addition, even though we believe that § 3005(c)(3) and its associated regulations provide the authority to require and perform SSRAs and to write permit conditions based on SSRA results, we are not relying on these provisions as the authority for § 270.10(l). Rather, we are relying on §§ 3004(a) and (q) and 3005(b). See 69 FR 21327.

With respect to the costs incurred when conducting an SSRA, several commenters raised the concern that our approximations do not include portions of actual costs (e.g., data gathering, QA/QC, and third party consultants, risk assessors, and plant personnel time to coordinate and review SSRA efforts and collect facility data), thus resulting in artificially low costs. Commenters cited additional reasons why they feel that EPA's cost estimates are too low including our assumptions that: (1) SSRAs are a one-time or infrequent cost; (2) most SSRAs fall under ''normal'' versus ''unusual'' situations; and (3) the cost of conducting a risk burn during a

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[235] Dioxin is a common risk driver due to ongoing uncertainty in cancer and other health effects levels for chlorinated dioxins and furans. Mercury is also a common risk driver due to uncertainties implicit in the quantitative mercury analysis. See discussion in Part Seven, Section II. and 65 FR 52997. Thus, it is not uncommon for permit authorities to require risk-based RCRA permit limits (based on risk assessment results) to control emissions of these pollutants.

trial burn adds only 20% more to the cost.

Regarding the comment that we did not include actual costs for our estimates of overall costs to conduct an SSRA, we agree that some costs were overlooked. We did include the costs related to conducting an SSRA under ''normal'' and ''unusual'' conditions, SSRA data collection in conjunction with a regular performance burn, and a full independent risk burn including protocol, sampling, analysis, and report. However, we did not capture facility time associated with data collection and management related to the SSRA. Consequently, we have revised our cost estimate for performing these activities; see chapter 4 of the background document entitled, Assessment of the Potential Costs, Benefits, and Other Impacts of the Hazardous Waste Combustion MACT Replacement Standards—Final Rule, October 12, 2005.

In response to the broader comment that our cost estimates are too low (for several reasons mentioned previously), we agree that our estimate of a 20% additional cost to conduct a risk burn with a trial burn may have been conservative and therefore, we have adjusted our previous estimate to include a range of 20% to 40%. The total SSRA cost range has also been updated from $141K–$370K to $157K–$815K.[236] With respect to our assumption that the majority of SSRAs are conducted under ''normal'' conditions (lending to overall lower cost estimates), we do believe that the majority of future SSRAs will fall under the ''normal'' conditions.[237] We believe this is appropriate due to: lack of new facilities coming on-line for which there is no previous test data; availability of commercial modeling software; and finalization of the ''Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities'' guidance, or ''HHRAP'' guidance. However, we do recognize that some facilities can be more complex than others in the hazardous waste combustion universe. Therefore, we have identified a portion of facilities that are likely to incur ''unusual'' costs for a future SSRA and have revised our cost analysis to reflect inclusion of these higher-cost facilities. See background document, Assessment of the Potential Costs, Benefits, and Other Impacts of the Hazardous Waste Combustion MACT Replacement Standards—Final Rule, October 12, 2005.

Also, we maintain our assumption that SSRAs generally represent a one-time cost unless a facility significantly changes its operations or if receptors change such that an increase in risk is anticipated as a result. Even so, as explained earlier in subsection B., we would anticipate that the risk assessment would not have to be entirely redone. It may be as limited as collecting relevant new data for comparison purposes, leading to a decision not to repeat any portion of a risk assessment. Or, it may be more inclusive such that modifications would be made to specific inputs to or aspects of the risk assessment using data from a previous risk assessment, risk burn or comprehensive performance test. With respect to chemical weapons demilitarization facilities, we recognize that due to their specialized waste streams and multiple treatment units, SSRAs, in many cases, are not one-time events and as a result, their SSRA costs are relatively high. The high costs can be attributed to the necessity for each chemical weapons demilitarization facility to perform surrogate trial burns and then agent trial burns for each furnace and each agent campaign (e.g., GB (Sarin), VX, and HD (Sulfur Mustard)). For example, a chemical weapons demilitarization facility would conduct GB trial burns on all the furnaces and then complete destruction of the GB stockpile, followed by VX trial burns and VX stockpile and finally, the HD trial burns and the HD stockpile. This effectively extends the input to the risk assessment of the trial burn data over most of the operational life of the facility.

Last, several commenters raised the concern that EPA's proposal to codify the authority to require SSRAs on a case-by-case basis and add conditions to RCRA permits based on SSRA results, violates the due process protections afforded under the current structure, where SSRAs are required and performed pursuant to RCRA § 3005(c)(3) omnibus authority. Commenters were further concerned that the proposed language in § 270.10(l) would remove existing procedural safeguards by allowing the Agency to require a very expensive SSRA before the draft permit is even issued, thus violating EPA's own procedural standards as well as due process. It appears as though commenters believe that the procedures (and procedural protections) currently applicable whenever an SSRA is conducted are unique to circumstances in which the permitting authority proceeds under the authority of RCRA § 3005(c)(3)—the ''omnibus'' provision. This is incorrect. All of the specific procedural requirements the commenters have raised would be applicable whether the permitting authority proceeded under § 270.10(l), as EPA proposed, or pursuant to RCRA § 3005(c)(3) and § 270.10(k), as is the current practice.

All of the requirements established in Part 124 continue to apply, whether EPA proceeds under § 270.10(l) or under § 270.10(k). As we discussed in the proposal, the basis for the decision to conduct a risk assessment, or to request additional information to evaluate risk or determine whether a risk assessment is necessary, must be included in the administrative record for the facility and made available to the public during the comment period for the draft permit. See 40 CFR 124.7 [statement of basis]; 124.9 [administrative record for draft permit]; 124.18 [administrative record for final permit]. If the facility, or any other party, files comments on a draft permit decision objecting to the permitting authority's conclusions regarding the need for a risk assessment, the permitting authority must respond fully to the comments. Any permit conditions determined to be necessary based either on the SSRA, or because the facility declined to conduct an SSRA, also must be documented and supported in the administrative record.

The commenters' concern that § 270.10(l) allows the permitting authority to require the SSRA prior to the issuance of a draft permit, and therefore the applicant would have no opportunity to comment or challenge that determination, is equally unfounded. There is effectively no practical or substantive distinction between the circumstance when a permit authority communicates the decision that an SSRA is necessary to issue the permit prior to issuing the draft permit, or as part of the draft permit. In either case, if a facility refuses to provide a risk assessment or data to support a risk assessment requested under this provision, the regulations at part 124 make clear that the appropriate recourse is for the permit authority to deny the permit (See 40 CFR 124.3(d); 124.6(b) and 270.10(c). The basis for the denial would essentially be the same in either case—that the information before the agency gives rise to a concern that the MACT may not be sufficiently protective,

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[236] The high end of this range applies only to those systems operating under ''unusual conditions'' (the available data suggest that there are only five such facilities).

[237] Normal conditions assume use of previously collected performance burn data, use of standard commercial modeling software that meet Agency guidance, and limited interactions with State and Federal oversight authorities. Unusual conditions assume the need for site-specific modeling, extensive interactions with stakeholders and regulators, an extended time frame, and targeted ecological analyses.

which the agency is unable to dispel based on the information before it. Consequently, the permit authority cannot determine that the permit meets RCRA's standard for permit issuance. An as noted above, all of the requirements of Part 124 would apply to actions taken in accordance with § 270.10(l). For additional discussion on this issue, please refer to the Response to Comments background document for this final rule.[238]

Despite the many reasons offered by commenters opposing our proposal, we continue to believe that our proposed approach is appropriate. As discussed in the proposal (69 FR 21327) and in the previous subsection, although the Phase 1 Replacement and Phase 2 standards provide a high level of protection (i.e., they are generally protective) to human health and the environment, thereby allowing us to nationally defer the RCRA emission requirements to MACT, additional controls may be necessary on an individual source basis to ensure that adequate protection is achieved in accordance with RCRA. Until today, we have relied exclusively upon RCRA § 3005(c)(3) and its associated regulations at § 270.10(k) when conducting or requiring an SSRA. We continue to believe that § 3005(c)(3) and its associated regulations provide the authority to require and perform SSRAs and to write permit conditions based on SSRA results. In fact, as the next subsection will explain, EPA will likely continue to include permit conditions based on the omnibus authority in some circumstances when conducting these activities, and state agencies in states with authorized programs will continue to rely on their own authorized equivalent. However, because SSRAs are likely to continue to be necessary at some facilities, we are finalizing the authority to require them on a case-by-case basis and add conditions to RCRA permits based on SSRA results under the authority of RCRA §§ 3004(a) and (q) and 3005(c). Therefore, we are finalizing §§ 270.10(l) and 270.32(b)(3) with some minor modifications to provide further clarification of the Agency's intent.

D. How Will the New SSRA Regulatory Provisions Work?

The new regulatory provisions are finalized under both base program authority (§ 3004(a) and § 3005(b)) and HSWA authority (§ 3004(q)). That is, changes made to regulations applicable to boilers are promulgated under HSWA authority, whereas changes made to regulations applicable to incinerators are promulgated under non-HSWA authority. Consequently, when it is determined that an SSRA is needed, the applicability of these provisions will vary according to the type of combustion unit (whether it is regulated under 3004(q), or only 3004(a) and 3005(b)), and the authorization status of the state. Depending on the facts, the new authority would be applicable, or the omnibus provision would remain the principal authority for requiring SSRAs and imposing risk-based conditions where appropriate. See 69 FR 21327.

According to the state authorization section of this preamble (see Part Five, Section IV.), EPA does not consider these provisions to be either more or less stringent than the pre-existing federal program, since they simply make explicit an authority that has been and remains available under the omnibus authority and its implementing regulations. Thus, states with authorized equivalents to the federal omnibus authority will not be required to adopt these provisions, so long as they interpret their omnibus authority broadly enough to require risk assessments where necessary.[239]

The provisions of §§ 270.10(l) and 270.32(b)(3) adopted in today's rule are substantially similar to the provisions EPA proposed. Section 270.10(l) continues to explicitly provide that a permit authority has the authority to evaluate, on a case-by-case basis, the need for an SSRA. EPA has also retained its proposed language that explicitly provides that, where an SSRA is determined to be necessary, the permit authority may require a permittee or an applicant to conduct an SSRA, or to provide the regulatory agency with the information necessary to conduct an SSRA on behalf of the permittee/applicant. The final provision also essentially retains the standard laid out in the proposal: that a permit authority may decide that an SSRA is warranted based on a conclusion that additional controls beyond those required pursuant to 40 CFR parts 63, 264, 265, or 266 may be needed to ensure protection of human health and the environment under RCRA. In § 270.32(b)(3), EPA has also explicitly codified the authority for permit authorities to require that the applicant provide information, if needed, to make the decision of whether an SSRA should be required.

However, EPA has adopted some further clarifications to the final provisions in response to comments. In response to comments that the regulatory language EPA had proposed still fails to provide the regulated community with adequate notice that an SSRA might be required, and what that might entail, EPA has included additional language to address those issues. Specifically, EPA has included a sentence stating that the information required under § 270.10(l) can include the information necessary to evaluate the potential risk to human health and/or the environment resulting from both direct and indirect exposure pathways. EPA has also added language to remind permit authorities that the determination that the MACT standards may not be sufficiently protective is to be based only on factors relevant to the potential risk from the hazardous waste combustion unit at the site, and has provided a list of factors to guide the permit authority in making that determination. See subsections E. and F. for further discussion. The applicability language of §§ 270.19, 270.22, 270.62, and 270.66 also has been amended to allow a permit authority that has determined that an SSRA is necessary to continue to apply the relevant requirements of these sections on a case-by-case basis and as they relate to the performance of the SSRA after the source has demonstrated compliance with the MACT standards.

As previously noted, the requirements at 40 CFR Part 124 continue to apply to actions taken to implement § 270.10(l). Thus, if the permitting authority concludes that a risk assessment or additional information is necessary for a particular combustor, the permitting authority must provide the factual and technical basis for its decision in the permit's administrative record and must make it available to the public during the comment period for the draft permit. If the facility or any other party files comments on a draft permit decision objecting to the permitting authority's conclusions regarding the need for an SSRA, the authority must respond fully to the comments. In addition, the SSRA must be included in the administrative record and made available to the public during the comment period. Any additional conditions and limitations determined to be necessary as a result of the SSRA must be documented and supported in the administrative record as well.[240]

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[238] See final Response to Comment to the HWC MACT Standards, Volume 5, Miscellaneous.

[239] Authorized states are required to modify their programs only when EPA enacts federal requirements that are more stringent or broader in scope than existing federal requirements. This applies to regulations promulgated under both HSWA and non-HSWA authorities.

[240] Additional clarification on the appropriate use of the SSRA policy and technical guidance is provided in the April 10, 2003 memorandum from Marianne Lamont Horinko entitled "Use of the Site-

E. What Were Commenters' Reactions to EPA's Proposed Decision Not To Provide National Criteria for Determining When an SSRA Is or Is Not Necessary?

In the proposal, we stated that we were not proposing national criteria (e.g., guiding factors) for determining when an SSRA is necessary. Although we had developed a list of qualitative guiding factors for permit authorities to consult when considering the need for an SSRA in the September 1999 final rulemaking (revised from the April 1996 NPRM), we never intended for them to comprise an exclusive list for several reasons. Mainly, we felt that the complexity of multi-pathway risk assessments precluded the conversion of the qualitative guiding factors into more definitive criteria. See 69 FR 21328.

Commenters generally agreed that the risk assessment guidance and policy should not be codified. They agreed in principle that it is important to keep the decision to require an SSRA flexible because factors vary from facility to facility. However, several commenters raised the concern that the proposed language of § 270.10 (l) was too vague. For example, one commenter suggested that any additional guidance clarifying how risk assessments should be performed and that providing standards or goals to be achieved by the operating conditions would be helpful. Another commenter felt that EPA should identify specific factors that the regions and authorized states should consider, and specific criteria that should be met, before requiring an SSRA or additional emission controls or other standards. We agree with commenters that additional guidance would be beneficial and have taken a number of actions in this regard. First, EPA is adopting a more detailed regulatory provision that provides a non-exclusive list of guiding factors for permit authorities to use in determining whether the MACT will be sufficiently protective at an individual site, and consequently, whether an SSRA is warranted. Section 270.10(l) now requires that the permit writer's evaluation of whether compliance with the standards of 40 CFR part 63, Subpart EEE alone is protective of human health or the environment be based on factors relevant to the potential risk from a hazardous waste combustion unit, including, as appropriate, any of the specifically enumerated factors. These factors reflect the eight guiding factors that EPA has discussed in several rule preambles. See 61 FR 17372, 64 FR 52842, and 69 FR 21328. However, EPA has also incorporated a few minor revisions to reflect the standards promulgated today, and to reflect the fact that the factors will be codified.

EPA has revised the language of the factors so that the language is consistent between the provisions. Consistency of phrasing is generally more important in regulations, which are binding, than in guidance. For example, some of the factors listed in the 1999 preamble used the phrase ''presence or absence'' while other used the phrase ''identities and quantities.'' EPA has adopted the phrase ''identities and quantities,'' on the grounds that it more precisely expresses the concept intended by both phrases. EPA has also made minor revisions to reduce redundant text, and to shorten the provisions, in the interests of clarity. For example, rather than addressing the proximity of receptors in two factors, EPA addresses this issue in a single factor. However, nothing contained in either of the original factors was deleted as part of this revision. None of the revisions described here substantively change the issues to be considered from those contained in the original eight guiding factors.

In addition to these minor technical revisions, EPA has included language to clarify that one potentially relevant factor for consideration is the ''identities and quantities of persistent, bioaccumulative or toxic pollutants considering enforceable controls in place to limit those pollutants.'' This reflects changes made between the proposed and final MACT standards (e.g., the proposed rule called for beyond-the-floor dioxin limits for some sources; those were not promulgated in the final rule).

Another change is the EPA has deleted the factor that listed ''concerns raised by the public.'' The regulation will allow the decision to be based on any one of the listed factors, and public concern, unaccompanied by an identifiable risk, would not provide an adequate basis for determining that an SSRA was warranted.

Finally, as discussed previously in subsection B., EPA has added an additional factor to indicate that a previously conducted risk assessment would be relevant in evaluating changes in conditions that may lead to increased risk. The factor reads as follows: ''Adequacy of any previously conducted risk assessment, given any subsequent changes in conditions likely to affect risk.'' See § 270.10(l)(1).

One commenter raised the concern that the eight guiding factors the Agency specified in its **Federal Register** notice at 64 FR 52842 (September 30, 1999) did not adequately focus on the central question of whether there are likely to be emissions that would be uncontrolled under the Subpart EEE final rule. They argued that, as an example, under guiding factor #5, if the waste containing highly toxic constituents are being addressed by the Subpart EEE standards, the fact that there might be such wastes should not justify an SSRA. The commenter apparently misunderstands that the factors were not intended to function as stand-alone criteria for requiring an SSRA—i.e., to use their example, the commenter believes that the mere fact that highly toxic constituents are present in the waste would justify an SSRA without consideration of whether the MACT emission standards were sufficiently protective. This is an incorrect reading of EPA's proposed regulation. Rather, the factors were always intended to function as considerations that might be relevant to the determination of whether the MACT was sufficiently protective. However, the regulatory structure EPA has adopted in the final rule makes perfectly clear that the critical determination is that ''compliance with the standards of 40 CFR part 63, Subpart EEE alone may not be protective of human health or the environment.'' Further, the provision states that this determination is to be based only on factors relevant to the potential risk from the hazardous waste combustion unit, including, as appropriate, the listed factors. EPA believes that these provisions make clear that the determination of whether to require an SSRA is to be based on consideration of the conditions at the facility site, including, for example, an evaluation of all enforceable controls in place to limit emissions. Further discussion of EPA's revised provisions can be found in subsection F.

Second, as discussed in more detail below, EPA is issuing a revised risk assessment guidance document that we believe will provide additional insight to help users. While clearly delineating between risk management and risk assessment, the HHRAP explains in great detail a recommended process for performing and reporting on cost-effective, scientifically defensible risk assessments. It includes numerous recommended defaults, while at the same time is flexible enough to incorporate site-specific values. Although the HHRAP provides numerous recommendations, it remains merely guidance and consequently leaves the final decisions up to the permitting authority. We believe that

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Specific Risk Assessment Policy and Guidance for Hazardous Waste Combustion Facilities.'' (See Docket # OAR–2004–0022–0083).

the revised HHRAP guidance will provide further assistance to permit writers, risk assessors and facilities in determining whether or not to conduct an SSRA and what and how much information is required for the SSRA.

F. What Are EPA's Responses to the Cement Kiln Recycling Coalition's Comments on the Proposal and What is EPA's Final Decision on CKRC's Petition?

In the proposal, we provided a lengthy discussion in response to CKRC's petition for rulemaking (69 FR 21325–21331). In its petition, CKRC presented two requests with respect to SSRAs: (1) That EPA repeal the existing SSRA policy and technical guidance because CKRC believes that the policy and guidance ''are regulations issued without appropriate notice and comment rulemaking procedures''; and (2) after EPA repeals the policy and guidance, ''should EPA believe it can establish the need to require SSRAs in certain situations, CKRC urges EPA undertake an appropriate notice and comment rulemaking process seeking to promulgate regulations establishing such requirements.'' Additionally, CKRC stated that it does ''not believe that these SSRAs are in any event necessary or appropriate'' and that they disagree with EPA's use of the RCRA omnibus provision as the authority to conduct SSRAs. Finally, CKRC raised three general concerns: (1) Whether an SSRA is needed for hazardous waste combustors that will be receiving a RCRA permit when the combustor is in full compliance with the RCRA boiler and industrial furnace regulations and/or with the MACT regulations; (2) how an SSRA should be conducted; and (3) what is the threshold level for a ''yes'' or ''no'' decision that additional risk-based permit conditions are necessary. We believe our tentative decision in the proposal addressed each request and concern presented in their petition. However, in its comments, CKRC has restated many of the same issues with new emphasis. Thus, we believe it is appropriate to address their major comments in the following paragraphs.[240a]

1. Whether SSRAs Are Necessary for Facilities in Full Compliance With BIF or MACT Regulations

In its comments, CKRC continues to question the need for any SSRAs at facilities that are in full compliance with the MACT EEE standards. CKRC also states that ''[our] Petition challenged EPA to explain why, if there is any need for SSRAs at all under RCRA, there is a rational basis for why it has limited the entire SSRA program to hazardous waste combustors.'' They argue that, ''The point is that if the ''omnibus'' words in RCRA mean what EPA says they mean for hazardous waste combustors, why do they not mean the same thing for all of the other TSD facilities that also pose the same kind of ''what-if'' hypotheticals that EPA throws out in its preamble?''

As discussed above in subsection B., and in greater detail below, EPA believes that risk assessments will continue to be necessary at some facilities. For example, based on the inconclusive results from the national risk assessment conducted for the 1999 final rule and the comparative risk analysis conducted for today's rule, EPA is not able to conclude that all MACT standards will be sufficiently protective for every facility (e.g., non-dioxin PICs not previously modeled, no numerical dioxin/furan emission standard for solid fuel-fired boilers, liquid fuel-fired boilers with wet or no APCDs, and hydrochloric acid production furnaces, etc.). EPA also provided examples of site-specific factors that might lead risk assessors to decide that the MACT standards may not be sufficiently protective, and therefore an SSRA may be necessary (e.g., if a source's emissions are comprised of persistent bioaccumulative or toxic contaminants). EPA also discussed this issue at length in both the 2004 proposal, and the 1999 rule preamble. See 69 FR 21326 and 64 FR 52842. Given these uncertainties, the SSRA provides significant support for the Agency's 1006(b) determination supporting the elimination of separate RCRA emission standards for MACT EEE facilities.

We disagree that our discussion of standards (and site-specific factors) that may warrant a risk evaluation at certain types of facilities are mere ''what-if'' hypotheticals. The examples that we discussed in both the earlier preambles and above were based on the 1999 national risk assessment and a comparative risk analysis, which concluded that either there was not enough information to make a definitive protectiveness determination or that uncertainty in cancer and other health effects levels of dioxin and furans, for instance, make it difficult to draw conclusions about potential risks. Furthermore, the discussions with respect to the protectiveness of certain standards (i.e., some are less stringent today than the 1999 standards) in subsection B., present a reasonable basis for permitting authorities to consider whether or not risk should be evaluated. In support of our position that the examples we have provided in the 1999 final rule preamble, the 2004 proposed rule preamble, and this final rule, are more than ''what-if'' hypotheticals, we have placed copies of completed risk assessments where risk-based limits were found to be necessary in the docket for today's final rule (see OAR–2004–0022).

The CKRC fails to acknowledge that there are many aspects of hazardous waste combustors and the combustion process itself, which make this category of TSD facilities different from others, and which factor heavily into our SSRA policy. Consider that many combustion facilities feed a wide array of waste streams comprised of many hazardous constituents. The combustion of these constituents results in complex chemical processes (which are difficult to predict) occurring throughout the combustion unit. The end product is stack emissions comprised of a variety of compounds different from those that enter the process, and thus are difficult to predict because they can vary greatly based on the many variables of the individual combustion unit, making them difficult to address (*i.e.*, there are no specific emissions standards to limit certain compounds such as products of incomplete combustion). For example, in attempting to maximize the destruction of organic compounds, products of incomplete combustion are often generated as a consequence. Further, due to stack dispersion, hazardous waste combustors have the potential to affect several square miles. Other types of TSD facilities' operations typically do not encompass such complex processes or have the potential to adversely affect receptors for several square miles.

It should be noted that hazardous waste combustors are not the only type of TSD subjected to site-specific evaluations of risk. We take a site-specific approach to regulating miscellaneous units under Part 264, subpart X. Because it is not possible to develop performance standards and emission limits for each type of treatment unit that may fall under this broad category, we rely on general environmental performance standards to meet our mandate under §§ 3004 (a) and (q) that standards governing the operation of hazardous waste facilities be protective of human health and the environment. For example, § 264.601(c) requires ''Prevention of any release that may have adverse effects on human

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[240a] CKRC provided numerous comments organized by subtitles. Rather than relying on this format in the preamble, we have organized the comments and responses according to the concerns initially raised in the petition, and consistent with the discussion presented in the proposal.

health or the environment due to migration of waste constituents in the air, considering: * * * (6) the potential for health risks caused by human exposure to waste constituents; and * * *'' For all intents and purposes, subparts X units are subject to SSRAs as well.

In addition, the question of whether an SSRA continues to be necessary is partly a function of the fact that EPA is seeking to rely on CAA MACT standards in order to eliminate RCRA emissions standards for these facilities. As noted above, because the MACT is technology-based, and because of uncertainties in our national risk assessments, permit writers' ability to conduct an SSRA in individual cases provides important support for our deferral.

RCRA §§ 3004(a) and (q) mandate that standards governing the operation of hazardous waste combustion facilities be protective of human health and the environment. To meet this mandate, we originally developed national combustion standards under RCRA, taking into account the potential risk posed by direct inhalation of the emissions from these sources. With advancements in risk assessment science since promulgation of the original national standards (*i.e.*, 1981 for incinerators and 1991 for boilers and industrial furnaces), it became apparent that the risk posed by indirect exposure (*e.g.*, ingestion of contaminants in the food chain) to long-term deposition of metals, dioxins/furans and other organic compounds onto soils and surface waters should be assessed in addition to the risk posed by direct inhalation exposure to these contaminants. We also recognized that the national assessments performed in support of the original hazardous waste combustor standards did not take into account unique and site-specific considerations which might influence the risk posed by a particular source. Therefore, until EPA was able to revise its regulations, to ensure the RCRA mandate was met on a facility-specific level for all hazardous waste combustors, we strongly recommended that site-specific risk assessments (SSRAs), including evaluations of risk resulting from both direct and indirect exposure pathways, be conducted as part of the RCRA permitting process. In those situations where the results of an SSRA showed that a facility's operations could pose an unacceptable risk (even after compliance with the RCRA national regulatory standards), additional risk based, site-specific permit conditions could be imposed pursuant to RCRA's omnibus authority, § 3005(c)(3).

Rather than establish separate emission standards under RCRA, EPA decided to coordinate its revisions to the RCRA emissions standards for hazardous waste combustors with the adoption of the MACT standards pursuant to § 112(d) of the CAA. See 64 FR 52832. In the rulemaking establishing the MACT standards for incinerators, cement kilns and lightweight aggregate kilns (Phase 1 sources), relying on RCRA § 1006(b), EPA determined that in most cases, the MACT standards would be sufficiently protective that separate RCRA emission standards and operating conditions would not need to be included in the facility's RCRA permit. However, for a variety of reasons, EPA lacked sufficient factual basis to conclude that a complete deferral of RCRA requirements could be supported for all facilities.

Section 1006(b) conditions EPA's authority to reduce or eliminate RCRA requirements on the Agency's ability to demonstrate that the integration meets RCRA's protectiveness mandate (42 U.S.C. 6005(b)(1)). See *Chemical Waste Management* v. *EPA*, 976 F.2d 2, 23, 25 (D.C. Cir. 1992). To support its RCRA § 1006(b) determination, EPA conducted a national evaluation of both direct and indirect human health and ecological risks to determine if the MACT standards would satisfy the RCRA mandate to protect human health and the environment. That evaluation, however, did not quantitatively assess the proposed standards with respect to mercury and nondioxin products of incomplete combustion. This was due to a lack of adequate information regarding the behavior of mercury in the environment and a lack of sufficient emissions data and parameter values (*e.g.*, bioaccumulation values) for nondioxin products of incomplete combustion. Since it was not possible to suitably evaluate the proposed standards for the potential risk posed by mercury and nondioxin products of incomplete combustion, in order to support our 1006(b) determination, we continued to recommend that SSRAs be conducted for some facilities as part of the permitting process until we could conduct a further assessment once final MACT standards were promulgated and implemented. Specifically, we recommended that for hazardous waste combustors subject to the Phase 1 MACT standards—hazardous waste burning incinerators, cement kilns and light-weight aggregate kilns—permitting authorities should evaluate the need for an SSRA on a case-by-case basis. We further stated that while SSRAs are not anticipated to be necessary for every facility, they should be conducted where there is some reason to believe that operation in accordance with the MACT standards alone may not be protective of human health and the environment. For hazardous waste combustors not subject to the Phase 1 standards, we continued to recommend that SSRAs be conducted as part of the RCRA permitting process. See 64 FR 52841. As discussed in subsection B., EPA believes that SSRAs may continue to be necessary for some Phase 1 facilities. For the Phase 2 sources, our comparative risk analysis generally indicates that, although the MACT standards for Phase 2 sources are appreciably more stringent than the current RCRA BIF standards, an SSRA may be necessary to confirm that a facility will operate in a way that is protective of human health and the environment.

Thus, for both Phase 1 and Phase 2 sources, we continue to believe that SSRAs may be necessary for some facilities.[241] We generally believe the MACT standards will be protective; in most cases they are substantially more protective than the existing RCRA part 264, 265, and 266 requirements. However, because HWCs manage hazardous waste and process it by burning and emitting the by-products into the air, a multitude of potential exposure pathways exist. These exposure pathways can also vary substantially based on site-specific factors associated with an individual combustion unit and the surrounding site. Such factors make it difficult for the Agency to conclude that a single, national risk assessment provides adequate factual support for its determination that the technology-based MACT standards will be sufficiently protective. This is further complicated by the fact that, for certain parameters, the Agency lacked sufficient information to quantitatively assess the risk, but is relying on a combination of quantitative and qualitative assessments of the MACT standards' protectiveness.

Nonetheless, EPA does not believe that the uncertainty is so great that it would preclude a deferral under 1006(b) for the affected categories of facilities; nor does EPA believe that these uncertainties necessarily support requiring a risk assessment for all such facilities. Conditions at the facility

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[241] As discussed in section B., we expect that facilities that have previously conducted an SSRA will not need to conduct another in consideration of today's final standards. Only those facilities newly subject to the RCRA permitting requirements, or existing sources where changes in conditions could lead to increased risk, may need to conduct or modify an existing SSRA.

might confirm that the MACT standards are sufficiently protective, without the need for a facility-wide risk assessment. For example, if the results of the MACT testing demonstrated that the facility's dioxin emissions fall below the levels estimated in the database EPA used for its comparative risk assessment, the uncertainties in EPA's comparative risk assessment would not, by itself, support a decision to require an SSRA. Such decisions require an evaluation of the conditions at the site, and EPA believes it important to retain the flexibility for permit authorities to take these conditions into account. Accordingly, EPA believes that the regulatory structure adopted in today's rule strikes the appropriate balance between these competing factors.

In response to EPA's statement in the proposal that non-HAP emissions, which were beyond the direct scope of MACT, may pose risk which could necessitate an SSRA (69 FR 21326), CKRC pointed out that the same could be said for other types of TSDs, such as landfills, land treatment systems, etcetera, and EPA has not addressed this point in its preamble. As previously noted, combustion units are distinct from other types of TSDs due to the wide array of waste streams being fed to the unit, the complex chemical processes throughout the combustion unit, stack emissions comprised of a wide variety of compounds that are difficult to address, and the potential to impact receptors for several square miles due to stack dispersion. A further distinction is that EPA is seeking to rely on the MACT standards to eliminate national RCRA stack emissions standards under § 1006(b). Unless EPA can affirmatively demonstrate that RCRA's protectiveness standards are met, the Agency cannot eliminate RCRA requirements. A number of uncertainties remain concerning the protectiveness of the MACT standards based on the uncertainties remaining in the supporting national risk assessment and comparative analysis, and the variability of site-specific factors from one facility to another. Permitting authorities' ability to resolve these uncertainties through the use of the SSRA, where appropriate, provides important support for the Agency's 1006(b) finding. Furthermore, as we have noted, under omnibus, to the extent permitting authorities believe there are problems with other types of TSDs, they can impose requirements and request additional information, including an SSRA in accordance with § 270.10(k). Also as previously noted, Part 264, subpart X specifically incorporates site-specific consideration of risk into its regulatory framework.

Next, CKRC comments that EPA has a non-discretionary duty under CAA § 112(f) to address and take care of any ''residual risk'' from MACT facilities in the future in any event. We discussed why we do not believe that the residual risk process should or can take the place of an SSRA under RCRA in subsection C. of this SSRA preamble, as well as in the 1999 rule preamble (64 FR 52843). In short, because the residual risk standards have not yet been established, permit writers cannot rely on this process in reaching current permitting decisions or in acting on currently pending permit applications.

2. Codification of EPA's Technical Guidance

In response to our explanation in the proposal that risk assessment guidelines should be flexible and reflect current science, CKRC gave three comments: (1) Not a word of the current SSRA guidelines has been changed in 3 years; (2) it is easy to write regulations that have provisions that might be applied differently in different situations, and at least many basic, fundamental points can go in regulations, while some details can be in guidance—EPA writes regulations accompanied by ''fill in the small details'' guidance all the time; and (3) EPA seems to have no real problems with regulatory fixes anyway. In addition, CKRC provides several comments related to the previous three throughout their comment document, which are addressed below.

None of these comments address the specific issue EPA raised, which is that, while it certainly is possible to codify our risk assessment guidance, for a variety of reasons, we disagree that it would be appropriate to issue these technical recommendations as a regulation. As we previously explained, risk assessment—especially multi-pathway, indirect exposure assessment—is a highly technical and evolving field. Any regulatory approach EPA might codify in this area is likely to become outdated, or at least artificially constraining, shortly after promulgation in ways that EPA cannot anticipate now. In support of this, we noted specific examples of problems we experienced in implementing the BIF regulations. See 69 FR 21330. Further, we explained that at the time of codification, BIF risk assessments were not intended to address indirect routes of exposure, thus making the parameters easier to implement. Today, however, risk assessments are more complex due to the necessary inclusion of multi-pathway and indirect exposure routes. Given the complexity of multi-pathway and indirect exposure assessments and the fact that risk science is continuously evolving, it would be difficult and again, overly constraining, to codify risk parameters today. We note as well, in this regard, that several commenters agreed that codification of EPA's risk assessment guidance would be too constraining for both the agency and the regulated community.

We also believe that a guidance approach is consistent with the fact that permit authorities must make site-specific decisions whether to do risk assessments at all. We think that it makes little sense to allow this kind of flexibility regarding whether to do a risk assessment and for what purposes, while prescribing how one must be conducted if one is required. In fact, permitting authorities, in some cases, have developed their own guidance methodologies responsive to the specific needs associated with their facilities. For example, North Carolina, Texas, and New York have each developed their own risk assessment methodologies. Further, facilities that choose to conduct SSRAs themselves can choose alternative approaches in applying methodologies as well. We think this flexibility employed in the field supports our judgment that risk assessment methodologies should not be codified. CKRC's comments failed to address any of these issues.

Turning to the remainder of CKRC's specific points—CKRC's assertion that the technical guidance has not been amended in the past three years is inaccurate. A revised HHRAP guidance, that has been amended to take into account the technical recommendations from both the public comments and peer review, is published in conjunction with this rule. In addition, as noted above, in some cases, permitting authorities have developed their own methodologies responsive to the specific needs associated with their facilities.

With respect to CKRC's third point, the regulatory corrections made to the MACT rules were necessary either to fix an error or omission or to resolve potential legal issues. To codify technical tools and chemical information pertinent to the risk process simply is not prudent, as this information is continually changing and would almost always be out of date. Granted, when this information is presented in guidance, it can just as easily become outdated, however, facilities and risk assessors are free to use the most up-to-date air modeling tools and toxicity values available (i.e., they would not be bound to regulations requiring the use of obsolete tools and information). We continue to believe that publishing our technical recommendations as regulation would remove much of the flexibility that is important in evaluating risk on a site-specific basis.

CKRC discounts EPA's statement that codification of risk assessment is the exception arguing that ''Neither TSCA or CERCLA, however, specifically commands EPA to define the type of information necessary for a permit application through the rulemaking process as RCRA does. Moreover, the TSCA and CERCLA examples EPA cites are not analogous to the situation where a permit applicant can be denied a permit—or at least strung through months or years of tortuous and costly submissions, revision, and resubmission—to obtain a permit.''

Even if TSCA and CERCLA were not considered to be analogous, that does not change EPA's fundamental rationale that codification of highly technical risk assessment guidance is not appropriate. EPA does not believe that RCRA § 3005(b) requires EPA to codify an exhaustive list of every possible piece of information that might be required in a permit. To some extent, that is the reason for having a permit process—to allow site specific conditions to be taken into account. Nevertheless, EPA has revised part 270, pursuant to RCRA § 3004(a) and § 3005(b) to specifically provide that a risk assessment may be necessary, where there is reason to believe that the MACT standards may not be sufficiently protective. This was done wholly to address the petitioner's concern that the current regulations do not adequately provide notice that an SSRA might be necessary as part of a permit application. This provision, while it does not provide as much detail as the petitioner wishes, clearly ''defines the type of information necessary for a permit application.''

CKRC complains that the Agency did not address in its proposed response the petitioner's discussion of the ''strong case law compelling the conclusion that 'guidance' documents EPA has issued for conducting SSRAs must be subjected to notice-and-comment rulemaking.'' EPA has chosen not to respond to CKRC's legal interpretation because we believe that it is clear that the guidance documents do not impose mandatory requirements, and therefore need not be issued by notice and comment rulemaking. Nevertheless, EPA notes that in the proposal, the Agency explained that we were in the process of reviewing the guidance documents, and, to the extent we found language that could be construed as limiting discretion, we committed to revise the documents to make clear that they are non-binding. See 69 FR 21329. We specifically noted that CKRC indicated in its petition that, in its view, the documents contain language that could be construed as mandatory. While EPA does not necessarily agree, and believes that, in context, it is clear that the recommendations in the documents are discretionary, EPA nonetheless reviewed the documents to ensure that they are carefully drafted. Consequently, under the standards articulated in *Appalachian Power Co.* v. *EPA*, 208 F.3d 1015 (D.C. Cir. 2000) and subsequent case law, the final HHRAP guidance is truly guidance and does not require notice-and-comment rulemaking. The HHRAP explains in great detail an acceptable process for performing and reporting on cost-effective, scientifically defensible risk assessments. It includes numerous recommended defaults, while at the same time provides the risk assessor or facility full opportunity to incorporate site-specific values in place of the defaults. The HHRAP offers numerous recommendations, but requires nothing. EPA has placed a copy of the final guidance document in the docket for today's action (see OAR–2004–0022).

CKRC believes that EPA's technical guidance imposes information requirements upon the RCRA permit applicant that are not contained in any regulations and in fact exceed by orders of magnitude any information requirements contained in the part 270 regulations. We disagree that anything contained in HHRAP is ''required'' in any way. Moreover, to the extent any individual facility believes the information requested is inappropriate or unnecessary, they can challenge that as part of the permitting process.

Lastly, CKRC argues that ''The procedures EPA has been using to issue and revise the SSRA guidance do not by any measure comply with the full panoply of procedures and protections offered by the APA process. Most critically, when EPA merely solicits comments on draft guidance documents, it has no duty to respond to comments and provide a rational basis and justification in defense of its choices in the face of comments. EPA is essentially running its entire SSRA program on the basis of ''draft'' guidance versions for which EPA has never to this day prepared any response to comments.'' As previously noted, EPA believes the final HHRAP is merely guidance and therefore, EPA is not required to proceed through notice and comment rulemaking pursuant to § 553 of the APA. However, because we want the HHRAP guidance to be useful and clear, we have solicited public review and comment. As a result, it has been improved over the years by including revisions to the guidance based upon feedback from users of the guidance and from experience in the field. A response to comments document has been prepared and released along with the final HHRAP and final MACT rules, even though the Agency was not required to do so. More to the point, because it is only guidance, sources will have the opportunity to raise questions or comments on anything in the guidance as part of the permitting process and the permitting authority will be required to respond to those comments as part of the permitting process. See 40 CFR part 124. Sources will also have the right to challenge the responses or use of the guidance as part of the permitting process.

3. Codification of Criteria for Determining That Additional Risk-Based Permit Conditions or an SSRA Is Necessary

CKRC argues that EPA's proposed regulatory changes should not be considered as a partial grant because EPA has not codified specific criteria in the proposed regulations for permit authorities to use to decide whether to require an SSRA; to set the risk levels that are deemed protective; or to otherwise provide any further definition as to what it means to protect human health and the environment.

In its petition, CKRC requested that after we repeal the policy and guidance (per the first request), ''should EPA believe it can establish the need to require SSRAs in certain situations, CKRC urges EPA to undertake an appropriate notice and comment rulemaking process seeking to promulgate regulations establishing such requirements.'' As discussed at length in both the proposal (69 FR 21325–21327) and the preceding paragraphs, we believe that we have established certain circumstances where the MACT standards may not be protective and that an SSRA may be warranted, based on relevant site-specific factors associated with an individual combustion unit. Consequently, we are finalizing regulations that explicitly authorize permitting authorities to conduct or require an SSRA on a site-specific basis. This, in our view, grants the second of CKRC's requests. Our response directly addresses a number of CKRC's concerns: (1) Through a notice and comment rulemaking process, EPA has established circumstances in which an SSRA may be necessary; and (2) EPA's regulations will now explicitly acknowledge that an SSRA might be necessary as part of the permitting process, thereby addressing the petitioner's concern that EPA's past approach of relying on RCRA's omnibus authority to implement this policy violates the requirements of RCRA § 3005(b). And as discussed further below, EPA has codified criteria for permit authorities to use to determine whether to require an SSRA.

While it does not provide exactly what CKRC requested, the regulated community has had a full opportunity to comment on the need for an SSRA both as part of the 1999 rulemaking and, again, as part of this rulemaking to adopt the provisions of § 270.10(l), which contain an explicit reference to the potential need for an SSRA as part of the permitting process pursuant to RCRA § 3004(a) and § 3005(b). As previously explained, § 270.10(k) does not explicitly mention the potential for an SSRA to be required. Although the rule does not identify a priori that an SSRA will be required in an individual circumstance, but defers that determination to the permitting process, the final rule reflects EPA's findings that an SSRA is not anticipated to be necessary in every circumstance—only where site-specific conditions give the permit authority reason to believe that additional controls beyond those required pursuant to 40 CFR parts 63, 264, 265, or 266 may be necessary to protect human health and the environment.

CKRC argues that EPA's decision not to codify national criteria renders the regulation impermissibly vague, and therefore, ''in their view totally deficient as a legal matter.'' The petitioner argues that the rule is essentially ''a bootstrap attempt to avoid rulemaking requirements by establishing 'rules' that give no more guidance or direction than general terms in the statute and in no way channel the decision maker's discretion or put the public on notice of anything.'' According to CKRC, this unbridled discretion is manifest in three ways: (1) No criteria explain how a permit writer is to decide whether to require an SSRA; need merely to conclude ''reason to believe''; (2) there are absolutely no limits on what type of information or assessments the permit writer may demand and the proposed reg. does not even hint at what type of information or assessments might be demanded; and (3) there is not a word of guidance or specification as to what it means to ''ensure protection of human health and the environment.'' The petitioner argues that as a consequence, the proposed § 270.10(l) would be struck down as a ''standardless regulation.''

EPA disagrees that the provisions at § 270.10(l) are impermissibly vague, or otherwise inconsistent with the cases the petitioner cites. In the cited cases the courts found that the regulated entity bore the entire burden of determining how to comply with the challenged regulation in the complete absence of a government-generated standard or guidance. See *Maryland* v. *EPA*, 530 F.2d 215, 220 (4th Cir. 1975); *South Terminal Corp* v. *EPA*, 504 F.2d 646, 670 (1st Cir. 1974). This is entirely distinct from the regulations codified at § 270.10(l).

In § 270.10(l) EPA identified the standard for when a risk assessment may be necessary: where the regulatory authority identifies factors or conditions at the facility that indicate that the MACT standards may not be sufficiently protective, and defers the articulation of the more precise requirement to the permitting process, where the onus falls on the permitting authority to identify the basis for its determination. Until the permitting authority provides this further guidance, the regulated entity incurs no obligation. The mere fact that specific factors or facility conditions that form the basis for the determination that an SSRA is warranted will be subsequently identified through the permitting process does not invalidate the regulation. See *Ethyl Corp* v. *EPA*, 306 F.3d 1144, 1149–1150 (D.C. Cir. 2002).

The regulation also identifies the categories of information that might be required for MACT EEE facilities: The information must be necessary to determine whether additional controls are needed to ensure protection of human health and the environment; it can include the information necessary to evaluate the potential risk from both direct and indirect exposure pathways; or it can include the information necessary to determine whether such an assessment is necessary. Here as well, EPA's reliance on the permitting process to provide further specification of the required information is not improper.

Moreover, as discussed above in subsection C., in response to commenters' concerns, EPA has revised § 270.10(l) to provide more detail, both with respect to the basis for the determination that an SSRA is necessary, and with respect to the type of information the permit authority might need. EPA has added language to remind permit authorities that the determination that the MACT standards may not be sufficiently protective is to be based only on factors relevant to the potential risk from the hazardous waste combustion unit at the site. EPA has also added language to § 270.10(l) to identify guiding factors for permitting authorities to consult in determining whether the MACT will be sufficiently protective at an individual site. Although the list of guiding factors is not all-inclusive, they offer a structure for risk managers (as well as the regulated community) to use to frame the evaluation of whether a combustor's potential risk may or may not be acceptable.

Finally, we note that, unlike the circumstances in the cited cases, § 270.10 is promulgated in the context of an existing permitting regime. The regulatory standards at 40 CFR part 124 provide further structure for both the regulated community and the permit authority. For similar reasons, EPA disagrees that the cited cases compel the Agency to establish risk levels that are deemed protective, or to otherwise provide any further definition as to what it means to protect human health and the environment. We discussed at length throughout the proposal the reasons we believe it would not be appropriate to codify either an exclusive set of national criteria for determining that an SSRA (or additional risk-based permit conditions) would be necessary, or a uniform risk level. The decision to require an SSRA is inherently site specific, thus permitting authorities need to have the flexibility to evaluate a range of factors that can vary from facility to facility. See 69 FR 21328–21331. CKRC has neither presented new factual or policy reasons that would cause the Agency to reconsider the tentative decisions presented in the proposal, nor specifically addressed the issues underlying EPA's decision. Instead, the petitioner has merely reiterated the concerns presented in its petition and its general disagreement with EPA's decision.

EPA also disagrees that its new regulatory structure grants permit writers unbridled discretion for many of the same reasons that EPA does not believe that § 270.10(l) is impermissibly vague. As EPA has previously explained, the requirements at Part 124 continue to apply to actions taken to implement § 270.10(l). Moreover, the language of § 270.10(l) makes clear that the onus initially falls on the permitting authority to identify the basis for its conclusion that the MACT standards may not be sufficiently protective. As both part 124 et. seq., and EPA's preamble discussions make clear, facilities will continue to have the opportunity to comment on and challenge the determination. See §§ 124.10, 124.11, and 124.19. The regulatory structure adopted in § 270.10(l) mirrors the structure Congress established in sections 3004 and 3005; although 3004 directs EPA to establish national standards, section 3005 recognizes that those standards will be applied on a case-by-case basis through the permitting process, to allow site-specific conditions to be taken into account, and to supplement those standards as necessary.

EPA has also provided recommendations through guidance on how an SSRA can be conducted. Although the recommendations are not binding, they provide risk managers (as well as the facility) with a starting point from which to determine whether a combustor's potential risk may or may not be acceptable.

CKRC argues that it appears that rather than following the statutory authorities and requirements to review and amend regulations every 3 years as necessary (RCRA § 2002(b)), EPA decided to take the easy way out and impose, through non-rulemaking ''guidance'', massive, costly, and confusing requirements leaving unbridled discretion to its permit writers.

We disagree that the Agency has attempted to avoid rulemaking in this context. EPA has conducted several rulemakings to amend our regulations. The first was in 1999, when we adopted revised emission standards under the authority of both § 112(d) of the CAA and RCRA to more rigorously control toxic emissions from burning hazardous waste in incinerators, cement kilns, and lightweight aggregate kilns. See 64 FR 52828. At the time, we noted that ''today's rule fulfills our 1993 and 1994 public commitments to upgrade emission standards for hazardous waste combustors.'' We have continued to revise our regulations consistent with and based on the facts before the Agency, taking into account the arguments presented in CKRC's petition. As explained above, we believe that the facts do not support granting all of CKRC's requests. Rather we believe that the MACT standards will generally be protective, and that permit authorities should reach the decision to require an SSRA based on a variety of factors and concerns specific to their sites. In addition, as previously addressed, we believe that our risk assessment guidance should remain as guidance. Several other commenters agree that the guidance should not be codified.

The petitioner argues that the regulation EPA has proposed to adopt is so vague, that it is essentially not a regulation, and that consequently, even if finalized, it would not be sufficient to comply with the requirement in RCRA § 3005(b) to specify in regulations, the information necessary to obtain a permit. They compare the level of detail in § 270.10(l) to the lengthy regulations (codified in 40 CFR part 270) specifying in great detail the information required when one is submitting a RCRA permit application, arguing that ''these regulations cover 75 pages of fine print in Code of Federal Regulations,'' to demonstrate that this regulation would be insufficient under RCRA § 3005(b). In further support of this argument, CKRC cites *Ethyl Corporation* v. *EPA*, 306 F.3d 1144 (D.C. Cir. 2002).

EPA disagrees that its regulations are in any way inconsistent with the decision in *Ethyl Corp.* At issue in that case was a regulation issued pursuant to section 206(d) of the CAA. Section 206(d) provides that EPA ''shall, by regulation, establish methods and procedures for making tests under this section.'' 42 U.S.C. 7525(d). The court found that ''with CAP 2000, [the challenged regulation] the EPA does not claim to have itself articulated even a vague durability test. Rather CAP 2000 requires that 'the manufacturer shall propose a durability program' for EPA approval. 40 CFR 86.182301(a). It thus falls on the forbidden side of the line.'' *Ethyl Corp.*, 306 F.3d at 323–324. The Court distinguished the challenged regulation from the situation in which an agency issues a ''vague'' regulation, and relies on subsequent proceedings to flesh out the specific details. And as the court explained, where ''Congress had not specified the level of specificity expected of the agency, we held that the agency was entitled to broad deference in picking the suitable level.'' 306 F.3d at 323 (citing *American Trucking Associations* v. *DOT*, 166 F.3d 374 (D.C. Cir. 1999) and *New Mexico* v. *EPA,* 114 F.3d 290 (D.C. Cir. 1997).

In § 270.10(l) EPA has articulated the standard for when a risk assessment may be necessary: where the regulatory authority has identified factors or conditions at the facility that indicate that the MACT standards may not be sufficiently protective. EPA has also adopted a list of factors on which permit writers are to rely in reaching this determination. EPA has also identified the categories of information that might be required for MACT EEE facilities: The information must be necessary to determine whether additional controls are needed to ensure protection of human health and the environment; it can include the information necessary to evaluate the potential risk from both direct and indirect exposure pathways; or it can include the information necessary to determine whether such an assessment is necessary. While it does not provide as much detail as the petitioner wishes, this provision unquestionably ''defines the type of information necessary for a permit application.''

Thus, the issue turns on the level of specificity that RCRA § 3005(b) requires, and EPA does not believe that RCRA § 3005(b) requires EPA to publish a list of every possible piece of information that might be required in a permit. Section 3005(b) merely establishes a broad directive that ''each application for a permit under this section shall contain such information as may be required under regulations promulgated by the Administrator,'' and that it shall include the information contained in subsections (1) and (2), leaving to EPA's discretion to determine the level of specificity at which to promulgate regulations. To some extent, this reflects the reason for having a permit process—to allow site specific conditions to be taken into account. The regulatory structure adopted in § 270.10 mirrors the structure Congress established in RCRA § 3004 and § 3005. Despite the petitioner's comparison to the length of part 270, the length of these provisions are not indicative of any determination of the precise level of detail that § 3005(b) requires, but reflects the fact that EPA has adopted requirements specific to individual types of units. Moreover, notwithstanding the petitioner's characterization, the language at § 270.10(l) is comparable to many other provisions in 40 CFR part 270. See, for example: §§ 270.14(b)(8); 270.16(h)(1)–(2); 270.22(a)(6)(i)(C); 270.22(c).

Lastly, CKRC argues that the proposed regulation is particularly problematic, because it extends beyond ''information'' that may already exist. CKRC says that it is one thing to demand that a party go out and gather existing information, but another thing to demand that an applicant conduct ''assessments.'' Moreover, nothing in the regulations prohibits a permit authority from demanding revised assessments, and even more revised assessments. We agree that permit authorities have the authority to require facilities to provide additional information beyond that which already exists. However, based on feedback from EPA Regional permit writers, SSRAs generally represent a one-time cost. We do not expect that facilities that have conducted risk assessments will have to repeat them. As discussed in the 1999 final rule preamble, changes to comply with the MACT standards should not cause an increase in risk for the vast majority of facilities given that the changes, in all probability, will be the addition of pollution control equipment or a reduction in the hazardous waste being burned (see 64 FR 52842). Instances where a facility may need to repeat a risk assessment would be related to changes in conditions that would likely lead to increased risk.[242] In such situations, we would anticipate that the risk assessment would not have to be entirely redone. It may be as limited as collecting relevant new data for comparison purposes, leading to a decision not to repeat any portion of a risk assessment. Or, it may be more inclusive such that modifications would be made to specific inputs to or aspects of the risk assessment using data from a previous risk assessment, risk burn or comprehensive performance test. As discussed in subsection B., we have added a new regulatory provision to indicate a previously conducted risk assessment would be relevant in evaluating changes in conditions that may lead to increased risk. The factor reads as follows: ''Adequacy of any previously conducted risk assessment, given any subsequent changes in conditions likely to affect risk.''

4. EPA's Cost Estimates for SSRAs

CKRC raised several objections to our cost estimates for conducting an SSRA, and provided higher cost estimates ($200K to $1M, with upper bound of $1.3M). We suggested in the proposal, that the higher cost figures provided by CKRC were likely incurred prior to the 1998 release of the Human Health Risk Assessment Protocol (HHRAP) guidance document. We believe our lower cost estimates can be attributed to the fact that we based them on the conduct of future SSRAs that will benefit from substantially better guidance and commercially available software.

Multiple issues regarding the cost information we provided in the proposal are raised by CKRC. The first of five issues is that CKRC believes that EPA's methods for calculating costs associated with future SSRAs do not include data gathering costs, QA/QC, third party consultants in addition to risk assessors and plant personnel time to coordinate and review SSRA efforts and collect facility data. We disagree with this statement in part; the estimates developed by the Agency do include data gathering costs, QA/QC, and third-party consultants. (Refer to the proposed rule's support document entitled: Preliminary Cost Assessment for Site Specific Risk Assessment, November 2003, Docket # OAR–2004–0022; and the Assessment of the Potential Costs, Benefits, and Other Impacts of the Hazardous Waste Combustion MACT Replacement Standards—Final Rule, October 12, 2005, for a description of how the estimates were arrived at.) However, we agree with CKRC that the method used to develop SSRA costs does not capture facility time associated with data collection and management related to the SSRA. Consequently, we have adjusted our SSRA cost estimates to account for these activities by incorporating costs associated with time needed for facility data collection and management efforts associated with the SSRA, and will assume that engineering staff are required to perform these tasks.

The second issue concerns the extent to which cement kiln SSRAs are consistent with EPA's ''normal'' assumptions. We do not question the accuracy of the costs submitted by CKRC. However, it is not clear that the costs submitted by CKRC represent typical future costs for SSRA implementation at all facilities in the universe. Certain of the CKRC cost estimates (e.g., those submitted by Ash Grove and Holcim) reflect implementation of SSRAs over a number of years in the 1990s, while SSRA implementation was in its early stages. In other cases (e.g., estimates provided by Solite) costs appear to be consistent with EPA estimates. While we do not dispute the accuracy of these costs, earlier costs are likely to reflect the deliberative process common with early SSRAs.

For the third issue, CKRC's points out that EPA's estimate of 20 percent additional cost for adding a risk burn during a trial burn may be low; CKRC asserts that additional test costs can add up to 40 percent depending on the circumstances. We agree with this and have adjusted the range of total SSRA costs as necessary to assure that a range of additional test costs for separate risk burns (20 to 40 percent incremental cost) are included. For revised figures, see background document, Assessment of the Potential Costs, Benefits, and Other Impacts of the Hazardous Waste Combustion MACT Replacement Standards—Final Rule, October 12, 2005.

CKRC's fourth issue is that EPA does not appear to include more than evaluations of stack emissions in its estimates of SSRA costs. We disagree with this comment. The estimates of SSRA costs developed by the Agency reflect total contractor costs for performing an SSRA at a facility under different sets of conditions, and are not limited to stack emissions.

In the fifth cost-related issue, CKRC asserts that EPA's average estimates might be reasonable if the SSRA process were limited to the submission and acceptance of one SSRA effort. CKRC contends, however, that its members' experiences with SSRAs have involved coordination with state and regional offices and multiple revisions and submissions. Again, we do not question the experiences and costs of specific facilities. However, we anticipate that the 2003 Memorandum, Use of the Site-Specific Risk Assessment Policy and Guidance for Hazardous Waste Combustion Facilities, and the Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities guidance, which is finalized and released in conjunction with today's rule, will provide facilities and regulators with a clearer understanding of SSRA policy and guidance and will support a more efficient SSRA process. EPA's future SSRA cost estimates are based on current or recent cost data from multiple practitioners, and likely reflect a more efficient process than that experienced by some CKRC members in the 1990s.

X. Permitting

As discussed in the proposal, we believe that the permitting approach we adopted in the 1999 final rule is still the most appropriate means to avoid duplication to the extent practicable and to streamline requirements. Thus, both Phase 1 and Phase 2 sources will comply with their RCRA emission limits and operating requirements until they demonstrate compliance with the MACT standards by conducting a comprehensive performance test (CPT), submitting a Notification of Compliance (NOC) documenting compliance to the Administrator or delegated state, and then requesting to have their RCRA permits modified to remove the duplicative RCRA requirements (unless a sunset clause had been added previously that inactivates specified requirements upon compliance with MACT).[243] Ultimately, the MACT air emissions and related operating requirements will reside in the CAA Title V permit, while all other aspects

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[242] For example, hazardous waste burning cement kilns that previously monitored hydrocarbons in the main stack may elect to install a mid-kiln sampling port for carbon monoxide or hydrocarbon monitoring to avoid restrictions on hydrocarbon levels in the main stack. Thus, their hydrocarbon emissions may increase. (64 FR 52843, footnote 29.) Another example would be if the only change at a facility relates to the exposed population; what was acceptable in a previous risk assessment may not be any longer.

[243] Although we expect that the vast majority of Phase 1 sources will have had their RCRA permits modified by the time this rule is promulgated, we acknowledge that there may be a few permits yet to be modified.

of the combustion unit and the facility (*e.g.*, corrective action, general facility standards, other combustor specific concerns such as material handling, risk-based emission limits and operating requirements, and other hazardous waste management units) will remain in the RCRA permit. A new pictorial timeline has been provided to highlight milestones of the MACT compliance process. See figure 1 at the end of this section.

A. What is the Statutory Authority for the RCRA Requirements Discussed in this Section?

EPA is finalizing amendments to modify RCRA permits in today's rule pursuant to sections 1006(b), 2002, 3004, 3005 and 7004(b) of RCRA. 42 U.S.C. §§ 6905(b), 6912, 6924, 6905, and 6074. Our approach is likewise consistent with section 112(n)(7) of the Clean Air Act which indicates that EPA should strive to harmonize requirements under section 112 and RCRA requirements for hazardous waste combustion sources. With respect to the regulatory framework that is discussed in this section, we are finalizing the process to eliminate the existing RCRA stack emissions national standards for hazardous air pollutant for Phase 2 sources as we had done for Phase 1 sources in the 1999 final rule. That is, after submittal of the NOC established by today's rule and, where applicable, once RCRA permit modifications are completed at individual facilities, RCRA national stack emission standards will no longer apply to these hazardous waste combustors (unless risk-based permit conditions are determined necessary).

We originally issued emission standards under the authority of section 3004(a) and (q) of RCRA, which calls for EPA to promulgate standards ''as may be necessary to protect human health and the environment.'' We believe that the final MACT standards are generally protective of human health and the environment, and that separate RCRA emission standards are not needed to protect human health and the environment. See Part Seven, How Does the Final Rule Meet the RCRA Protectiveness Mandate? for a discussion of this topic. RCRA section 1006(b) directs EPA to integrate the provisions of RCRA for purposes of administration and enforcement and to avoid duplication, to the maximum extent practicable, with the appropriate provisions of the Clean Air Act (and other federal statutes). This integration must be done in a way that is consistent with the goals and policies of these statutes. Therefore, based on its findings regarding the protectiveness of the MACT standards, and pursuant to section 1006(b), EPA is generally eliminating the existing RCRA stack emission standards to avoid duplication with the new MACT standards. The amendments made today to allow new combustion units to comply with the MACT standards upon start-up, versus the RCRA stack emissions national standards, are based on the principle of avoiding duplication between programs.

We are not stating that RCRA permit conditions to control emissions from these sources will never be necessary, only that the national RCRA standards appear to be unnecessary. Under the authority of RCRA's ''omnibus'' clause section 3005(c)(3); (see §§ 270.32(b)(2) and (b)(3)), RCRA permit authorities may impose additional terms and conditions on a site-specific basis as may be necessary to protect human health and the environment. Thus, if MACT standards are not protective in an individual instance, RCRA permit writers will establish permit limits that are protective.

In RCRA, Congress gave EPA broad authority to provide for public participation in the RCRA permitting process. Section 7004(b) of RCRA requires EPA to provide for, encourage and assist public participation in the development, revision, implementation, and enforcement of any regulation, guideline, information, or program under the Act.

B. Did Commenters Express any Concerns Regarding the Current Permitting Requirements?

Generally speaking, commenters favor maintaining the permitting approach and requirements referred to above. This approach was finalized in the 1999 rule and has been implemented, and in a few cases is currently being implemented, for Phase 1 sources complying with the Interim Standards Rule. However, several commenters raised similar concerns regarding certain aspects of the transition process from RCRA to MACT and Title V permitting.

1. Removal of Duplicative RCRA Permit Conditions

One comment is in regard to Phase 1 sources that have been fully transitioned (i.e., have had duplicative RCRA permit conditions and requirements removed or that have been ''sunsetted'') to compliance with the Interim Standards that may need to make upgrades to comply with the revised Phase 1 MACT Standards. The concern is that Phase 1 sources needing to make upgrades for MACT should be able to do so without a RCRA permit modification (unless risk-based conditions are present). We agree with the commenters that as long as the technology upgrades (e.g., equipment changes to upgrade air pollution control equipment) do not affect any remaining conditions in the RCRA permit, the regulations do not require a permit modification. For those Phase 1 sources that need to make upgrades to comply with the revised standards, they should address the specific upgrades in their draft Notification of Intent to Comply (NIC) and during the informal NIC public meeting so that the regulatory authority and public are aware of the source's activities and plans for compliance. We encourage early communication between the source and the RCRA permit writer to ensure a common understanding of whether a RCRA permit modification will be needed.

Additionally, Phase 1 sources must comply with the provisions of § 63.1206(b)(5) for changes in facility design. We do not anticipate that upgrades made to comply with the Replacement Standards will adversely affect a source's compliance with the Interim Standards. Therefore, consistent with § 63.1206(b)(5)(ii), sources must document the change in their operating record, revise their NOC and resubmit it to the permitting authority (per § 63.9(h)), and, as necessary, revise their start-up, shutdown, and malfunction plan.[244]

Several commenters felt that we should re-emphasize the importance of removing duplicative RCRA permit conditions and requirements. We agree with the commenters that this is an important action for regulatory agencies. In addition to comments received, we also have learned through the implementation process for the Interim Standards, that some state agencies are not removing duplicative requirements from the RCRA permit. We have clearly stated in several preambles and guidance documents that we believe it is appropriate to retain only the RCRA risk-based conditions that are more stringent than the applicable MACT limits (i.e., if the RCRA condition has been determined to limit risk to an acceptable level and is necessary to protect human health and the environment) in the RCRA permit after

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[244] The requirements in § 63.1206(b)(5)(ii) call for sources to revise (as necessary) the performance test plan, DOC, NOC, and start-up, shutdown, and malfunction plan. For sources complying with the Interim Standards, it is not necessary to revise the performance test plan or the DOC, since they were developed in preparation for compliance with the Interim Standards.

compliance with MACT.[245] However, we also acknowledge that in certain cases it may not be clear which compliance requirement is more stringent. For example, standards under MACT are expressed as concentration based limits (micrograms/dry standard cubic meter) while certain RCRA standards are expressed as mass emission rate limits (grams/second). Also, averaging times between the two programs differ: MACT requires hourly rolling averages whereas RCRA requires instantaneous values. This is an unfortunate consequence of moving compliance from a risk-based program to a technology-based program. Because we cannot definitively say when a RCRA requirement is more stringent than a MACT requirement and consistently apply it to all sources, we are relying on sources and permitting agencies to work together to determine which requirement is more stringent. If the MACT requirement is determined to be more stringent, the permitting agency can remove the requirement from the RCRA permit.

In adopting a permitting approach to place the MACT air emissions and related operating requirements in the CAA Title V permit and to keep all other aspects of the combustion unit and the facility in the RCRA permit, our intent was and still is, to minimize duplication to the extent practicable and to eliminate the potential for dual enforcement. We view it as an unnecessary duplication of effort between programs as well as an unnecessary expenditure of resources and costs for both facilities and regulatory authorities to maintain a RCRA permit and a Title V permit that contain duplicative requirements, when there are viable mechanisms (i.e., Class 1 modification procedure at 270.42 Appendix I, section A.8, or Class 2 or 3 if a state has not adopted the Class 1 procedure) in place to avoid doing so.

Nevertheless, we believe that states should have the flexibility to decide how they will allocate their resources, which is why we did not include a single transition approach for implementing agencies to follow in the 1999 rule or in today's rule. So, in such cases where a state agency chooses not to adopt the transition language (i.e. the Class 1 modification procedure at 270.42 Appendix I, section A.8) into their state requirements (e.g., because the state's procedures are broader in scope or more stringent than the federal requirements) or is unable to reach an agreement between its RCRA and air programs regarding which standards are more stringent, the Title V permitting authority should document these issues, including any continuing RCRA permit requirements, in the title V permit's statement of basis (40 CFR §§ 70.7(a)(5) and 71.7(a)(5)). This will help to ensure that the source is clear regarding its compliance obligations, which is a main goal of the Title V program. Further, for purposes of clarification and as a matter of courtesy, we urge regulatory authorities that choose to impose dual compliance requirements, to also provide a written justification to the source explaining the reasons for their decisions.

2. Transition of Interim Status Phase 2 Units From RCRA to CAA Permits

In response to our discussion in the proposal regarding RCRA permitting for interim status Phase 2 units (69 FR 21324), two commenters suggest that EPA establish policy and/or regulation that discourage further RCRA permitting work for interim status Phase 2 sources. Their comments are directed our statement in the proposal that the RCRA combustion permitting procedures in 40 CFR part 270 also continue to apply until you demonstrate compliance. As noted in this statement, we intended for Phase 2 sources to continue to be subject to RCRA permitting requirements for air emissions standards and related operating parameters, including trial burn planning and testing, until they have demonstrated compliance with the MACT standards by conducting a comprehensive performance test and submitting an NOC to the Agency. However, we also provided several factors that should be taken into consideration when determining whether to proceed with the RCRA permit process such as: the facility's permit status at the time the MACT rule becomes final, the facility's anticipated schedule for MACT compliance, the priorities and schedule of the regulatory agency, and the level of environmental concern at a given site (69 FR 21324).

To support their position, the commenters noted that time and resources would be conserved and duplicative and overlapping activities could be minimized if Phase 2 sources were permitted solely via Title V. Also, they argued that it would avoid expending resources to modify the RCRA permit once the source has demonstrated compliance with MACT. We agree with commenters that every effort should be made to conserve resources and avoid duplication to the extent possible. However, we do not believe it is appropriate to establish policy or regulation that permitting authorities must suspend the RCRA permit process (whether it pertains to interim status or renewals), especially in cases where considerable time and effort has been invested and the permit is close to final issuance. As before, we strongly encourage sources and regulatory authorities to work together to establish an approach that will provide for the most practical transition. For example, we strongly recommend that sunset provisions be included in a permit that will be issued well in advance of compliance with MACT to avoid duplication and a later modification to remove the duplicative RCRA conditions. Also, it would make more sense to transition a source to MACT compliance prior to issuing the RCRA permit if it will comply with MACT early.

3. Transition From Compliance With the Interim Standards to the Replacement Standards

A specific question that has been raised relates to the applicable standards and operating parameters that the source must comply with during the period between the rule's effective date for the Phase 1 Replacement Standards and submission of their new NOC. Upon the publication date of the rule, the Replacement Standards (and Phase 2 Standards) will become effective and sources will have 3 years to come into compliance. During this 3-year period, Phase I sources' existing title V permits will either be reopened to include the Replacement Standards, or the permitting authority will have incorporated the Replacement Standards during permit renewal. In this example, a Phase 1 source's Title V permit has been reopened, revised, or renewed and includes the Replacement Standards, the compliance date has not yet passed, no new documentation of compliance (DOC) for the replacement standards has been included in the operating record, and the source has not yet conducted a comprehensive performance test and submitted a new NOC (therefore it still has an NOC containing the operating parameters for compliance with the Interim Standards).

In the above scenario, the question asked is whether the source should comply with the Interim Standards in the current NOC or the Replacement Standards in the Title V permit. The

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[245] As an example, a RCRA permit could specify a higher minimum operating temperature than what is necessary for the facility to achieve compliance with MACT. The lower minimum operating temperature under MACT may be sufficient, unless the RCRA permit authority determines that the higher RCRA temperature is necessary to limit risk to an acceptable level for that facility. There should be a connection between the RCRA limit and protection of human health and the environment when retaining a RCRA limit.

source should comply with the Interim Standards until the compliance date of the Replacement Standards. Although the Title V permit now includes the Replacement Standards, the permit will also include the Replacement Standards' future compliance date. With regard to the transition from the Interim Standards NOC to the Replacement Standards DOC, we are revising the regulations at § 63.1211(c) to render the NOC, which documented compliance with the Interim Standards, inapplicable upon inclusion of the DOC for the Replacement Standards in the operating record by the compliance date. Thus, the source will not be placed in a situation where it must continue to ensure compliance with the operating parameters established in the NOC for the Interim Standards, while seeking to comply with the Replacement Standards and operating parameters in its DOC. Although it can be assumed that the source would still be able to comply with its Interim Standard-based NOC because the Replacement Standards are the same as or more stringent than the Interim Standards, we believe that the revision to render the previous NOC inapplicable provides a clearer and more sensible approach.

4. Changes to Title V Permits

Both the Replacement Standards and the Phase 2 Standards will necessitate permit reopenings or revisions to some existing title V permits; other permits will incorporate the requirements upon renewal. 40 CFR §§ 70.7 and 71.7 include the requirements for Title V permit revisions, reopenings, and renewals. Also, approved Title V permitting authorities may have additional requirements. Please refer to the appropriate permitting authority and its individual Title V permits program to determine the necessary requirements and procedures.

With respect to incorporating minor revisions into the Title V permit, one commenter had asked, for example, whether revisions made to the NOC to reflect minor operating changes could be incorporated into the permit by reference rather than through the reopening procedures. Determining the appropriate Title V permit reopening or revision requirements is based on the nature of the change and the source specific permit terms and conditions, and is therefore difficult to generalize. We recommend that sources work with their Title V permit authorities to determine the appropriate requirements and procedures that are applicable to any specific situation. However, we would like to note that, when incorporating requirements by reference into the Title V permit is appropriate, this does not necessarily obviate the need for permit revisions if the material incorporated by reference is subsequently revised. For more information on incorporation by reference, please refer to the Office of Air Quality Planning and Standards' ''White Paper Number 2 for Improved Implementation of the Part 70 Operating Permits Program'' (March 5, 1996), Section II.E.2.c. This paper can be found at: *http://www.epa.gov/ttn/oarpg/t5/memoranda/wtppr-2.pdf.*

C. Are There Any Changes to the Proposed Class 1 Permit Modification Procedure?

In the NPRM, we proposed a new Class 1, with prior Agency approval, permit modification procedure to help further minimize potential conflicts between the RCRA permit requirements and MACT requirements. See 69 FR 21384 and proposed § 270.42(k). During implementation of the Interim Standards for Phase 1 sources, it became evident that there are two significant instances where RCRA permit limits may overlap with MACT requirements: during initial (and future) performance testing and during the period between placement of the documentation of compliance (DOC) in the operating record and the final modification of the RCRA permit after receipt of the NOC. We discussed several existing approaches (e.g., a class 2 or 3 modification, request for approval submitted via the RCRA trial burn plan or coordinated MACT/RCRA test plan, or through a temporary authorization) for addressing these instances, noting that none provided an optimal solution.

All commenters agreed that the new Class 1 modification procedure is the appropriate and most efficient method to enable specific RCRA permit conditions to be waived during instances of overlap referred to above. However, a few commenters were concerned with the requirements in proposed § 270.42(k)(2)(ii) and (k)(3), that require sources to submit their permit modification request upon approval of the test plan and the requirement for the Director to approve or deny the request within 30 days, or within 60 days with an extension. This timeframe is feasible only for those sources that have received approval of their test plans at least 60 days prior to their scheduled date for commencing their performance test. We acknowledged the potential impracticality of this requirement in the proposal, but at the time believed that few sources, if any, would conduct their performance tests without an approved test plan. While this still may be true, we have learned that sources who received extensions for testing (so that they would have an approved plan), typically commenced their test shortly after approval. Consequently, this still would not allow enough time to review and approve the permit modification before the test begins. Thus, the new Class 1 modification would be of no benefit to facilities that conduct their tests without an approved test plan, or to facilities that received extensions and need to begin their tests upon or shortly after approval of the test plan. Also, we found one other circumstance where the timeframes could be problematic: If a permitting agency has allowed sources to begin pretesting/testing upon approval of the test plan. Again, a source would not be able to have RCRA permit requirements waived in time to begin its test.

We agree with commenters that the proposed requirements in 270.42(k)(2)(ii) and (iii) do not provide any flexibility to waive RCRA permit limits for sources that (1) do not have an approved test plan but choose to conduct their test; (2) are granted an extension to their test date because they do not yet have an approved test plan; and (3) may begin testing upon approval of their test plans. Our original intent to require prior Agency approval for the new Class 1 permit modification procedure was to ensure that the proposed test conditions would be sufficiently protective when specific RCRA requirements are waived and that a source has met the regulatory requirements for performance test plans. We still believe that review and approval is an important step; however, we also believe it should not be a barrier and therefore, should occur in advance of a source commencing its performance test. As a result, we have revised the proposed regulatory language in 270.42(k)(2)(i) to specify that sources submit their permit modification requests with their test plans, to allow potentially up to one year for approval (*i.e.,* the performance test plan is due one year before the test is to begin). Also, so that approval does not impede the commencement of the performance test, we have revised the proposed language in 270.42(k)(2)(ii) so that the Director can choose whether to issue approval of the permit modification request contingent upon approval of the performance test plan.[246] In that respect,

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[246] In all likelihood, we anticipate that the RCRA permit authority will have reviewed the modification request along with the test plans, worked with its Air counterparts and the source to resolve any concerns, and have prepared the permit

Continued

the RCRA permit authority would continue to have an extra measure of assurance in circumstances that may demand it.

D. What Permitting Approach Is EPA Finalizing for New Units?

1. Why Did EPA Propose a Separate Permitting Approach?

As discussed in the proposal, the current RCRA regulations at §§ 264.340, 265.340, 266.100, 270.19, 270.22, 270.62, and 270.66 do not address how or when new combustion units will comply with the MACT standards. Consequently, the part 270 regulations imply that a new unit must obtain a complete RCRA permit before it can demonstrate compliance with the MACT standards. It was never our intent for new units to develop a trial burn plan and provide suggested conditions for the various phases of operation in the RCRA permit application, given that these conditions will become inactive or need to be removed from their permits upon demonstrating compliance with MACT. To rectify our previous omission, we suggested several options that would allow units newly entering the RCRA permit process[247] (and that will comply with the Subpart EEE requirement upon start-up) to forego certain RCRA permit requirements and performance standards. In developing the options that would enable new units to forego certain RCRA requirements, we noted the importance of public participation opportunities under the MACT/CAA framework equivalent to those provided under the RCRA framework. Thus, each option was constructed in such a way that would streamline the RCRA requirements, but continue to provide early and frequent public participation commensurate with the requirements of the RCRA Expanded Public Participation Rule (60 FR 63417, December 11, 1995).

2. What Options Did EPA Propose for Permitting New Units?

In our preferred approach, we proposed that new units not be required to develop a trial burn plan and provide suggested conditions for the various phases of operation in their RCRA permit application. Instead, new units would only be required to address the remaining RCRA activities at the facility in their permit application (or modification request) including corrective action, general facility standards, other combustor specific concerns such as materials handling, risk-based emission limits and operating requirements, and other hazardous waste management units. While this approach appears to be ideal from the standpoint of reducing the regulatory burden to sources and RCRA permit authorities, we noted that even though a new unit will be required to meet the RCRA public participation requirements as part of the permit application process, the operations and emission information specific to the combustor would no longer be provided. Thus, we focused on certain compliance activities under the MACT/CAA framework (i.e., the Notification of Intent to Comply requirements) that would allow for combustor-specific information to be made available to the public as it would have been under the full RCRA permit process.

Regarding the three additional approaches or ‘‘options’’, each considered a different point in the RCRA permit process where a new unit could ‘‘transition’’ to compliance with the MACT standards (see 69 FR 21319). Under the first option, a new unit could transition to MACT compliance after it had submitted its RCRA Part B application. The Part B however, would not include the trial burn plan information. The new unit would only be required to discuss the compliance activities related to the combustor as part of the RCRA informal public meeting. In the second option, we proposed that a new unit would transition after its RCRA permit has been issued. Here, the new unit would be required to develop a trial burn plan which provided its proposed operations and emissions information and to discuss its compliance activities via the RCRA informal public meeting. Then, a permit would be issued, but it would not contain operating and emissions requirements in order to avoid a future modification to remove them. For the third option, the transition point would have been after the new unit places the DOC in its operating record, which is the compliance point for MACT. This option is more inclusive than the second because it requires the new unit to have a draft permit that covers the construction and shakedown period.

3. Which Option Is EPA Finalizing?

For today’s final rule, we are adopting our preferred, proposed approach: new units will not be required to follow the full RCRA permitting process for establishing combustor operations and emissions. Thus, new units are not subject to the combustor-specific RCRA permit requirements and performance standards (i.e., to develop a trial burn plan, provide suggested conditions for the various phases of operation in their permit application, and subsequently operate under those conditions). However, because these units remain hazardous waste treatment units, they are still required to obtain a RCRA permit, or to modify an existing RCRA permit to include a new unit, prior to construction. They need only address the remaining hazardous waste management activities at the facility in their permit application (or modification request) including corrective action, general facility standards, other combustor specific concerns such as materials handling, risk-based emission limits and operating requirements, and other hazardous waste management units. As we noted in the previous section and will discuss again more thoroughly in the next section, we are relying on the NIC process to provide the public with the combustor-specific information that previously would have been provided under the full RCRA permit process.

Almost all commenters supported our preferred approach to not require that new units complete the full RCRA permit process and to rely on the NIC requirements and the MACT/CAA framework to provide a level of public participation that is commensurate with the requirements under RCRA. Commenters generally agreed that our preferred approach achieves this goal while streamlining the RCRA permit process for new units. One commenter felt that the Title V and New Source Review programs (NSR) provide sufficient requirements to regulate new combustion units. We disagree that either or both of those programs fully address the hazardous waste and public participation components commensurate with that provided by the approach we are finalizing today. For instance, a unit may be constructed and operating before a Title V permit is issued, which directly conflicts with RCRA’s early public participation requirements. Also, in some instances, public participation may not be a required component of state issued NSR permits (see footnote regarding public participation and SIPs below). However, we do believe that the NSR program will play an important role regarding the exchange of information, as we will discuss in the section below. With respect to the remaining three options presented in the proposal (69 FR 21319–

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modification approval prior to issuance of the test plan approval.

[247] Units ‘‘newly’’ entering the RCRA permit process refers to a newly constructed facility, thus newly constructed hazardous waste combustion unit; an existing facility that constructs a new unit; or an existing facility that converts a non-hazardous fuel combustion unit to a hazardous waste fuel combustion unit.

21320) that suggested a transitional approach (i.e., each option explored progressive points in the RCRA permit process where facilities could transfer over to MACT without fully completing the RCRA process), nearly all commenters were in agreement that they would require more work to implement than is necessary and consequently oppose them.

4. How Will Permitting for New Units Work?

In the proposed rule, we created an approach that utilizes the NIC requirements and the MACT/CAA framework with the intent of ensuring that the requirements of the RCRA Expanded Public Participation Rule would continue to be fulfilled. The four requirements for public participation as they relate to hazardous waste combustion units are: (1) Permit applicants must hold an informal public meeting before applying for a permit; (2) permit agencies must announce the submission of a permit application which will tell community members where they can view the application while the agency reviews it; (3) permitting agencies may require a facility to set up an information repository at any point during the permitting process if warranted; and (4) permitting agencies must notify the public prior to a trial (or test) burn.

As discussed in the preamble to the proposal (69 FR 21318), we believe that the NIC process addresses the first two RCRA public participation requirements. The NIC process requires a source to make its draft NIC, which discusses the source's plan for coming into compliance with the MACT standards, available for public review and to hold an informal public meeting to discuss the activities contained in the NIC. While the NIC process gives the public an early opportunity to participate in the unit's compliance planning process early on, a few components are still missing before we can consider the first 2 RCRA public participation requirements to be fulfilled under the MACT framework. One component is that there is no permit action associated with the NIC requirements. However, the NSR program can provide a permit mechanism that will determine whether or not a source may be constructed.[248] The steps associated with obtaining an NSR permit, or a ''pre-construction'' permit, are similar, but not necessarily identical to that required under RCRA. They are: (1) Preparation of the permit application (sources must provide the location, design, construction, and operation information) and participation in pre-application meetings; (2) issuance of permit application completeness determination by the State; (3) development and negotiation of draft permit; (4) opportunity for public notice and comment on the draft permit; (5) response of permitting authority to public comments; (6) possible administrative and judicial appeals; and (7) permit issuance/denial.[249]

A second component is that the NIC does not provide the information on the proposed combustor operations or emissions information that would normally be available as part of the RCRA process. To address these gaps between RCRA and MACT, we are requiring an approach similar to that which was proposed. New sources must: (1) Prepare a draft NIC and make it available to the public at the same time as their RCRA pre-application meeting notice; (2) provide a draft of their comprehensive performance test (CPT) plan (to the public) to coincide with the draft NIC and RCRA pre-application meeting notices; and (3) hold their NIC public meeting with their RCRA informal public meeting. The first two requirements ensure that the public is provided with most of the same information that would have been available via the RCRA trial burn plan prior to the source burning hazardous waste. Other information not required by the NIC or CPT plan, such as the combustion unit's design specifications will, in most cases, be available to the public through the NSR permit application. We recommend that sources submit a copy of their NSR permit application to the RCRA permit authority so that this information is readily available for development of the RCRA permit. The third requirement allows the public to inquire and comment on both the new unit's proposed activities and operations. By requiring new sources to develop, notice, and hold a combined public meeting that encompasses the NIC, draft CPT plan, and RCRA pre-application notice information, the public will be provided with all information related to the combustor's compliance plans as well as its operating plans and emissions estimates prior to burning hazardous waste. See new requirements in § 63.1212.

With respect to the requirements we are finalizing today, we received only one comment that expressed concern. The concern is that the requirement to submit the CPT plan is too early in the compliance process. For example, the RCRA application is submitted approximately 2–3 years before start-up whereas the CPT plan is required 1.5 years after the final NIC is due.[250] The commenter feels that the facility would not have enough time to learn about the ''detailed nuances of the system''. However, the commenter does note that it is possible to submit the CPT plan, but it will not be as complete or refined as it would be if it was submitted according to the deadline for existing units. We agree with the commenter that a considerable amount of planning is required of the source to be able to draft the CPT plan at such an early stage, but we are only requiring that a draft of the CPT plan be made available, with the final CPT plan due 6 months prior to the source's compliance date. Moreover, at this early stage, we liken the development of the draft CPT plan to the development of the trial burn plan. Even though it may not be as complete or refined as it will be when the final CPT plan is due, we believe that it will still be of benefit to the public and the regulatory authority, but also to the source in terms of advance planning for the design of the unit through start-up of the unit.

The components thus far, have satisfied the first (2) two RCRA public participation requirements. The third RCRA public participation requirement enables a regulatory authority to evaluate the need for and require a facility to establish and maintain an information repository. The establishment of an information repository is typically required only when there are concerns or unique information needs of a community. The purpose of the information repository is to make information regarding the facility (and combustion unit) available to the public during the permit issuance process and during the life of the permit. In the preamble, we noted that

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[248] We believe that the majority of new units will be classified as major sources for NSR permitting (requiring either prevention of significant deterioration or nonattainment permits), however, those that do not, will likely be required to obtain a minor NSR permit. In few cases, new sources (e.g., newly constructed as opposed to modified) may not be required to obtain an NSR permit if its potential to emit does not exceed the NSR threshold level.

[249] With respect to numbers 4 and 5, many States omitted the public participation steps in their federally approved SIPs. This was the reason why Sierra Club had been opposed to our efforts to simply rely on NSR permitting to provide public participation opportunities that would have been otherwise provided under the traditional RCRA permit process for new units. Today, however, many SIPs have been revised to address public participation requirements.

[250] Comprehensive performance test plans are required to be submitted one year in advance of the scheduled test. The submittal date would be as late as 2.5 years after the effective date of the rule assuming no extensions are granted.

although the Title V permit process contains a provision that any materials relevant to the permit decision be made available to interested persons (see § 70.7(h)(2) and § 71.11(d)), the information may not be made available until well after the combustor is constructed and operating. Consequently, we have chosen to adopt additional provisions under the NIC requirements that parallel the requirements of § 124.33.

We had proposed two options that would allow a regulatory authority to require, on a case-by-case basis, a source to establish an information repository specific to the combustor. The first option was to place such a provision in the NIC regulations and the second option was to amend the applicability language in § 124.33 to include combustion sources that will comply with Part 63, subpart EEE upon start-up. Two commenters felt that the second option would create problems as far as organization (i.e., by modifying the RCRA regulations to include a provision solely for new units complying with MACT). We agree that the second option could be confusing and that it would be more appropriate to keep all new requirements for new units in one set of regulations. Therefore, we are finalizing a provision that will allow for an information repository to be established specific to the combustor (recall that a repository established pursuant to the RCRA permit will include documents relevant to the facility only), if deemed appropriate, under the NIC regulations. See new § 63.1212(c). Under the NIC regulations, the repository could include the NIC, test plans, draft Title V permit and application, reports, et cetera.

The fourth and final RCRA public participation requirement to be fulfilled is for the regulatory authority to notify the public of an impending trial burn or test burn. As discussed in the RCRA Expanded Public Participation Rule, the RCRA permit authority will typically provide the notice at least 30 days in advance of the test (60 FR 63426, December 11, 1995). Similarly, the MACT regulations require an existing or new unit to provide notice to the public that the CPT plan (and the continuous monitoring system performance evaluation test plan) is available for review. The regulations in § 63.1207(e)(2) fulfill this requirement. Although the CPT plan may not be approved before the public is notified, the intent is to provide notice to the public of a future test. We believe that the MACT regulations provide public notice of the test plans that are commensurate with the RCRA regulations and thus, no additional regulatory revisions or amendments are needed.

4.a. Process for New Units Seeking an Initial RCRA Permit

We anticipate that the process for new units seeking an initial permit will work as follows. Any new unit would begin the process by developing and compiling the information necessary for the RCRA draft permit (e.g., information required for the part A application at § 270.13, the relevant general information for the part B application according to Part 270) and the applicable NSR permit.[251] The information needed to compile the draft NIC and draft CPT plan would be gathered simultaneously, as if the source were developing the trial burn plan. When the source has compiled its RCRA permit application, draft NIC and draft CPT plan, it would submit a RCRA pre-application meeting notice at least 30 days prior to the date scheduled for the RCRA informal public meeting according to §§ 124.31(b) and (d). At the time of the RCRA pre-application meeting notice, the source would also issue notice of the NIC public meeting (at least 30 days prior to the NIC meeting) according to § 63.1210(c)(3), so that the two meetings can occur at the same time. In order for the public to be able to view all information relevant to the combustor before the combined RCRA pre-application and NIC public meeting, the source would make the draft NIC and draft CPT plan available to the public for review at the same time the notices for the meetings are issued. To aid the RCRA permit authority in its development of the draft RCRA permit (*i.e.*, mainly for purposes of evaluating risk), we strongly recommend that the source also provide copies of the draft NIC, draft CPT plan, and NSR application (if applicable) to the RCRA permit authority. It is our hope that the availability of information will expedite the development of the draft permit. All notices should be presented to the public in sufficient time to allow for a combined RCRA informal public meeting and NIC public meeting.

Following the combined public meeting, the source will submit its RCRA permit application and the RCRA regulatory authority will prepare and issue a draft permit. The public will then have an opportunity to comment on the draft permit and request a public hearing. Upon resolution of any issues surrounding the draft permit, a final RCRA permit will be issued. The RCRA process is the same as before, but should be reasonably shorter. Finally, the new unit may begin burning hazardous waste when it can assure it will operate in compliance with the MACT standards (*i.e.*, by placing a documentation of compliance in its operating record on the day it begins burning hazardous waste). See new regulatory language at § 63.1212(c). To aid readers in understanding the above process, we have included a pictorial timeline. Please see figure 2.

Finally, it may also be feasible to combine an NSR pre-application meeting and public notice of the draft NSR permit with the process described above. Thus, we recommend that sources work closely with their Air and RCRA permit agencies so that the NSR public notices and meetings may be coordinated with the RCRA and NIC notices and meetings so time and resources are efficiently utilized.

4.b. Process for New Units Modifying an Existing RCRA Permit

The process of adding a new unit to an existing permit is accomplished through a Class 3 permit modification (see § 270.42 (c) for requirements). The requirements governing public notices of the draft NIC, draft CPT plan, and holding a combined public meeting are essentially the same as new units seeking an initial permit. The process is as follows. The source prepares and submits its RCRA permit modification request (and if applicable, NSR application). It must then publish a notice of the modification request seven days later, followed by a public meeting no earlier than 15 days after publication of the notice for the modification request, and no later than 15 days before the close of the 60-day comment period. As with new units that are submitting an initial RCRA permit application, it is also important for sources seeking to modify their permit to coordinate their NIC public meeting with their RCRA permit modification public meeting. This is made possible due to the flexibility of the NIC public meeting; it can be held any time prior to the 10 month deadline. After the combined public meeting and the close of the comment period, the permit authority will either grant or deny the modification request. If approved, the source may then begin construction or modification of the unit. To aid readers in understanding the timing of the

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[251] Because the information required for NSR permit is less comprehensive than a RCRA permit, it allows for a much shorter time period for issuance. The average time for issuing a PSD permit, for example, after receiving an application is slightly more than 7 months, but varies depending upon public involvement and negotiation of the application content. USEPA. Docket A–2001–19, Document II–A–01. *NSR 90-Day Review Background Paper*, June 22, 2001.

above process, we have included a pictorial timeline. Please see figure 2.

Again, it may be feasible to combine an NSR pre-application meeting and public notice of the draft NSR permit with the process described above. Thus, we recommend that sources work closely with their Air and RCRA permit agencies so that the NSR public notices and meetings may be coordinated with the RCRA and NIC notices and meetings so time and resources are efficiently utilized.

E. What Other Permitting Requirements Were Discussed in the Proposal?

At proposal, we discussed where most Phase 1 sources would be in terms of their transition from their RCRA permit requirements to compliance with the MACT Interim Standards (see 69 FR 21321). The transition process was discussed with respect to both the RCRA permit and the Title V permit. However, when we discussed the Title V permit requirements in the proposal, we did not elaborate on the transition between the Interim Standards and Replacement Standards. Because we believe that such a discussion would be helpful to readers, we have included general information describing how the transition process would work for most sources in Section B. Did Commenters Express any Concerns Regarding the Current Permitting Requirements?, subsections 3 and 4.

For Phase 2 sources, we proposed the same permitting approach as we did for Phase 1 sources. Today, we are finalizing as proposed, the following for Phase 2 sources: (1) the new Phase 2 emissions standards will be placed only in the CAA regulations at 40 CFR part 63, subpart EEE, and be implemented through the air program; (2) with few exceptions, the analogous standards in the RCRA regulations no longer apply once a facility demonstrates compliance with the MACT standards in subpart EEE and any duplicative requirements have been removed from the RCRA permit; and (3) the new standards will be incorporated into operating permits issued under Title V of the CAA rather than be incorporated into RCRA permits. Consequently, we are finalizing the proposed changes to §§ 270.22 and 270.66 to implement the above. Also applicable to Phase 2 sources via today's final rule are the changes and additions we finalized in the 1999 final rule for Phase 1 sources. These include a streamlined RCRA permit modification procedure to allow sources to make upgrades to comply with MACT (§§ 270.42(j) and 270.42 appendix I, section L.9), a second streamlined RCRA permit modification procedure to remove conditions from a permit that are no longer applicable (§ 270.42 appendix I, section A.8), an addition to § 270.235 to specify conditions for start-up, shutdown, and malfunction plan and integrate them with the CAA program, and an amendment to the interim status regulations at § 270.72 to exempt interim status facilities from the reconstruction limitation when making upgrades to comply with MACT.

Also, we are finalizing three new permitting changes that are applicable to both Phase 1 and 2 sources. Two have been discussed previously in this section and are: (1) A new streamlined RCRA permit modification procedure designed to reduce overlap during the transition from RCRA to MACT (§§ 270.42(k) and 270.42, appendix I, L.10); and (2) regulatory provisions stating that new units are no longer subject to the full array of RCRA combustion permitting requirements. The third change is discussed above in Section IX. Site-Specific Risk Assessment Under RCRA and finalizes our response to a petition for rulemaking with respect to site-specific risk assessments (SSRAs). As part of this change we have decided to adopt regulatory language that specifically provides clarification of authority for RCRA permit writers to evaluate the need for and, where appropriate, require SSRAs and to add conditions to RCRA permits that they determine, based on the results of an SSRA, are necessary to protect human health and the environment.

Last, as explained in part four section II.A, we are finalizing our decision to regulate emissions of dioxin/furans, mercury, polycyclic organic matter, and polychlorinated biphenyls from Phase 2 area sources under section 112(d).[252] This means that Phase 2 area sources are subject to MACT standards only for these hazardous air pollutants (HAP) in the final rule. To reiterate, they are: Dioxin/furans, mercury, and polycyclic organic matter (controlled by the surrogates DRE and carbon monoxide/hydrocarbon). For the remaining HAP (hydrogen chloride and chlorine gas and metals other than mercury), Phase 2 area sources may either comply with the MACT standards for Phase 2 major sources or continue complying with the RCRA standards and requirements of their RCRA permit.

In the 2004 proposal, we stated that we were not making a positive area source finding for Phase 2 area sources as we have for Phase 1 area sources (69 FR 21212 and 21325). Regardless of this, however, the Phase 2 area sources are still subject to the requirement to obtain a Title V permit because they are subject to section 112 standards under this subpart. See § 502(a) of the CAA and 40 CFR §§ 70.3(b)(2) and 71.3(b)(2).

It is important to note that the Title V applications for the Phase 2 area sources will need to contain emissions information relative to all regulated air pollutants (to determine applicable requirements, fees, etc.) that are being emitted from the units subject to the MACT standards, not just the specific HAP pollutants regulated by the MACT standards (see §§ 70.5(c)(3)(i) and 71.5(c)(3)(i)). Although, the permit itself would contain standards only for the HAP subject to MACT standards (the § 112(c)(6) HAP). A Phase 2 area source which chooses to control hydrogen chloride, chlorine gas, and metals other than mercury by continuing to comply with the relevant RCRA standards and the requirements of its RCRA permit should note this choice in its Title V application and cite to the relevant requirements of this subpart. This will help ensure that the permitting authority is aware that these requirements apply in lieu of the MACT standards for Phase 2 major sources. The permitting authority should also document this choice in the statement of basis for the source's Title V permit. See §§ 70.7(a)(5) and 71.7(a)(5). Finally, for the units at a source which are subject to the subpart EEE MACT standards, all CAA applicable requirements to which these units are subject, *e.g.*, State Implementation Plan requirements, not just the relevant Subpart EEE requirements, must be included in the Title V permits issued to these sources. See §§ 70.3(c)(2) and 71.3(c)(2). For more information regarding § 112(c)(6) and how it relates to Phase 2 area sources, see Part Four, Section II.A., ''Area Source Boilers and Hydrochloric Acid Production Furnaces''.

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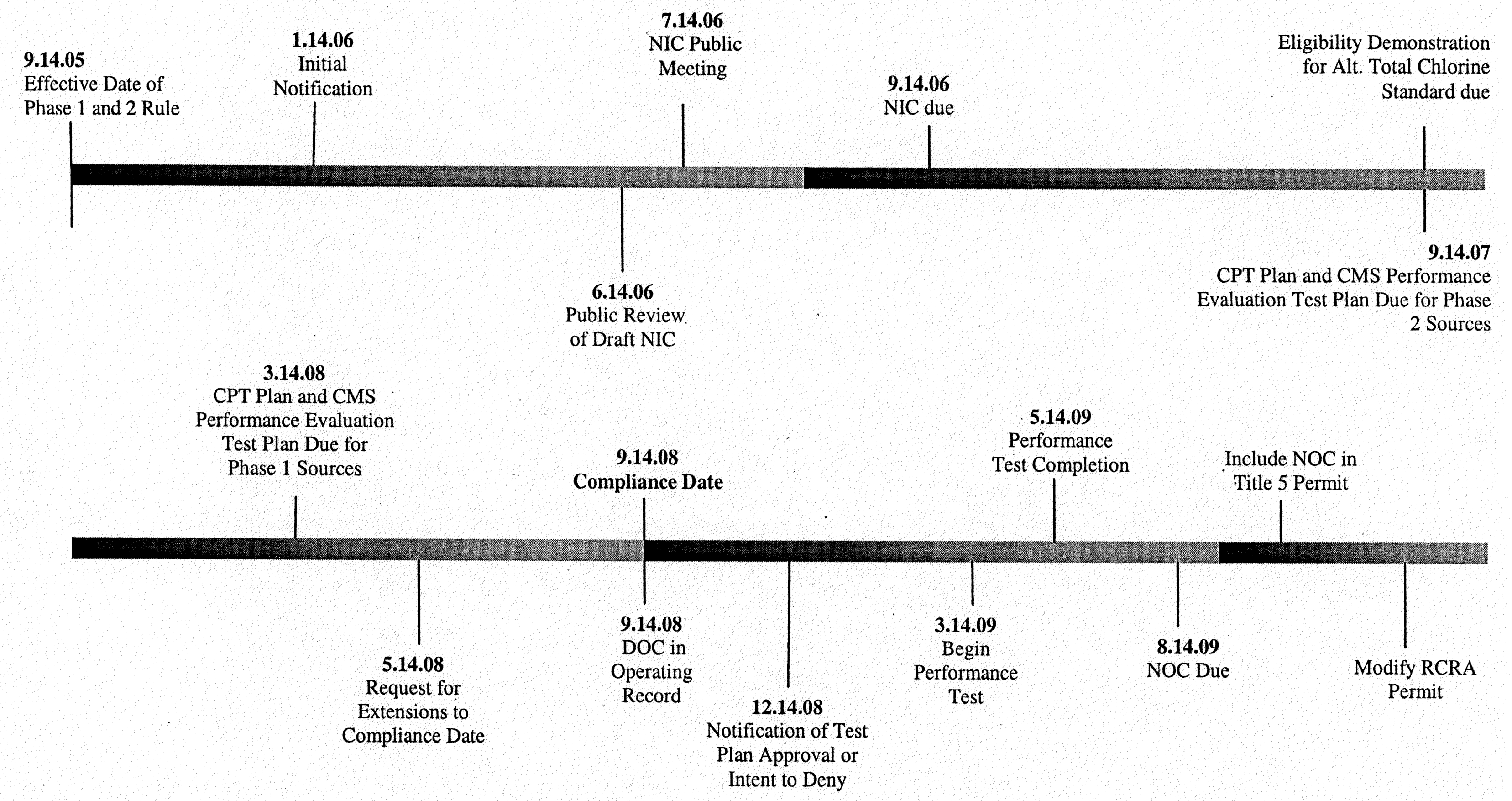
[252] As explained in the Comment Response Document vol. V, although § 502(a) allows EPA to exempt area sources from title V permitting requirements if EPA finds that those requirements would be (among other things) ''unnecessarily burdensome'', we believe that Title V requirements remain appropriate for these sources given the highly toxic nature of the HAP and the importance of affording opportunity for public participation as provided for in the Title V permit issuance process.

Figure 1. Time Line for Phase 1 Replacement Standards and Phase 2 Standards[253]



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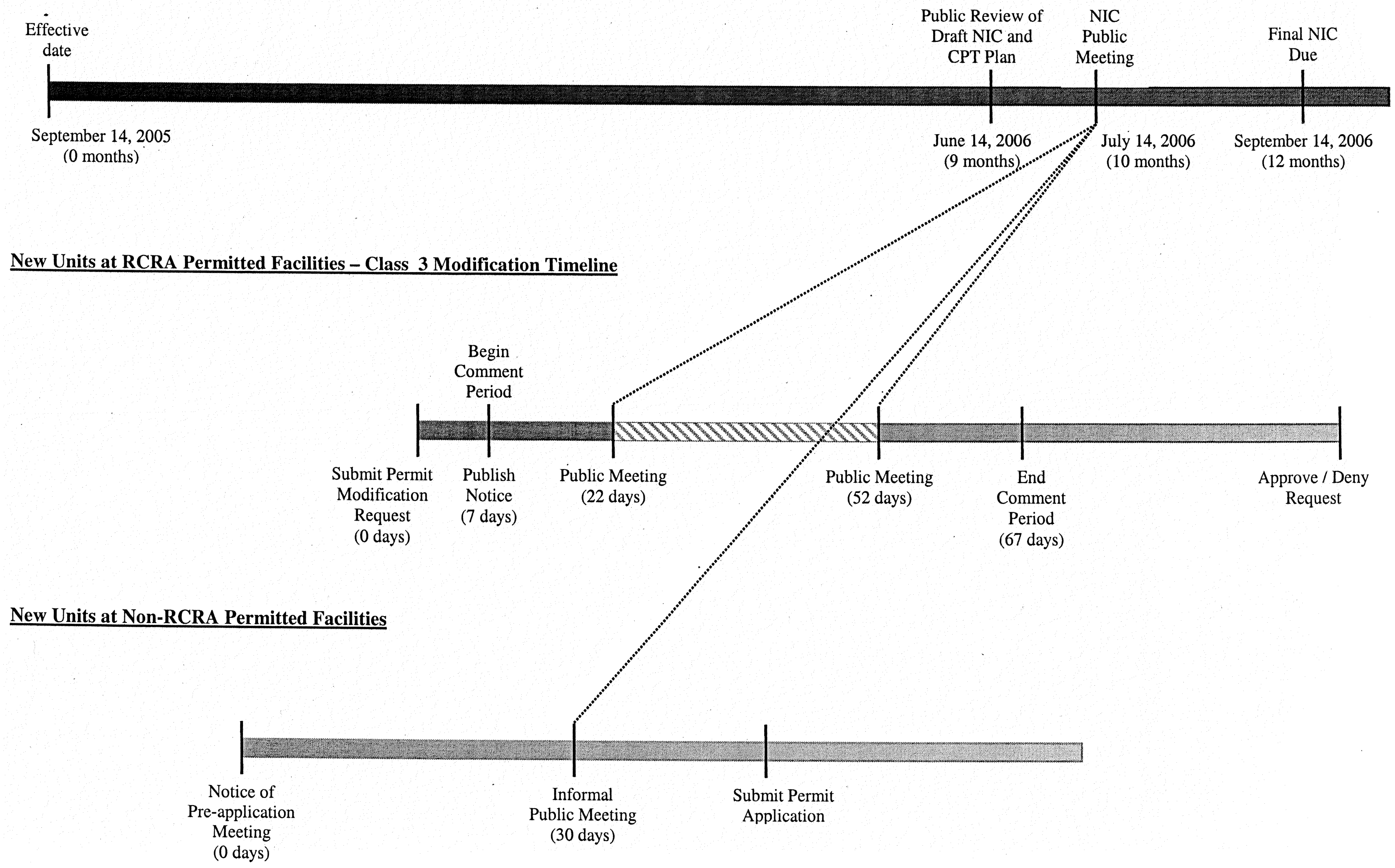
[253] Because of the variability of the Title V program requirements, most Title V permit actions (application due dates, revisions, reopenings, etc.) are not included in this timeline. Please refer to the particular source's current Title V permit status, the Title V regulations, and the individual permitting authority's Title V program requirements.

Figure 2. NIC and CPT Plan Time Line for New Units



Part Five: What Are the CAA Delegation Clarifications and RCRA State Authorization Requirements?

I. Authority for This Rule

Today's rule amends the promulgated standards located at 40 CFR part 63, subpart EEE. It amends the standards for the Phase 1 source categories—incinerators, cement kilns, and lightweight aggregate kilns that burn hazardous waste, and it also amends subpart EEE to establish MACT standards for the Phase 2 source categories—boilers and hydrochloric acid production furnaces that burn hazardous waste. Additionally, this rule amends several RCRA regulations located in 40 CFR part 270 to reflect changes in applicability, addition of a new permit modification procedure, and additions related to site-specific assessments and permitting.

II. CAA Delegation Authority

Before discussing the clarifications being finalized today, it is important to first highlight a few key aspects of delegation authority. Recall from the proposal that a state, local, or tribal (S/L/T) agency must be delegated authority under CAA section 112(l) before it can exercise the delegable provisions' authorities. The delegable authorities can be found in 40 CFR 63.91(g)(1)(i), also known as Category I Authorities. A S/L/T agency that has applied for and received delegation authority can approve: test plans, requests for minor and in most cases, intermediate changes to monitoring and test methods, performance test waivers, and several other Category I Authorities. Please note that even though a S/L/T agency may have an approved Title V permit program, it cannot exercise delegable authorities or be the primary enforcement authority if it has not received delegation authority under CAA section 112(l). Moreover, when a S/L/T agency has not taken delegation of a section 112 standard, the agency can only incorporate the section 112 standard's requirements into its Title V permits, (and then implement and enforce these requirements through its title V permits) when it has adequate authority under State, local, or tribal law which allows it to conduct the above actions without delegation. See, *e.g.*, the proposed Federal Plan for Commercial and Industrial Solid Waste Incinerators, November 25, 2002 (67 FR 70640, 70652). Please also refer to 69 FR 21335 of the proposal and the fact sheet entitled, Clean Air Act Delegation for the HWC NESHAP at: *http://www.epa.gov/epaoswer/hazwaste/combust/toolkit/factshts.htm* to learn more about the advantages of receiving delegation authority.

Also, we would like to point out that there are several delegation options that S/L/T agencies can receive. Regardless, many S/L/T agencies choose the ''straight delegation'' option when applying for delegation approval. Straight delegation means that these agencies have agreed to implement and enforce federal MACT standards as they have been written in the promulgated requirements. As a result, many EPA Regions and states have established memoranda of agreement that essentially provide automatic delegation of each future MACT, as opposed to the state applying for delegation of each future MACT, which requires a rulemaking to implement. For more information related to the delegation options and procedures, please refer to the fact sheet, Clean Air Act Delegation for the HWC NESHAP at: *http://www.epa.gov/epaoswer/hazwaste/combust/toolkit/factshts.htm* and EPA's delegation website at: *http://www.epa.gov/ttnatw01/112(l)/112-lpg.html.*

III. Clarifications to CAA Delegation Provisions for Subpart EEE

In the proposal, we discussed the need to provide additional clarification for the delegable and non-delegable authorities within Subpart EEE based upon our implementation experience with the Phase 1 Interim Standards and the Clarifications to Existing National Emissions Standards for Hazardous Air Pollutants Delegation' Provisions final rule published on June 23, 2003 (68 FR 37334). Although the June 23, 2003 final rule provided clarification and streamlined the delegable provisions for each existing NESHAP, it overlooked several non-delegable and delegable authorities within Subpart EEE. It provided clarification on the non-delegable authorities of Subpart EEE as they relate to major alternatives to the standards themselves and to test methods, monitoring, or recordkeeping and reporting under the General Provisions.[254] However, it omitted major alternatives specific to Subpart EEE such as: test methods under §§ 63.1208(b) and 63.1209(a)(1); monitoring under § 63.1209(a)(5) and; recordkeeping and reporting under § 63.1211(a) through (d). Therefore, the following paragraphs will explain which authorities in Subpart EEE are delegable and are not delegable to S/L/T agencies that have been delegated authority and will provide some examples of or references to alternative requests associated with each delegable or non-delegable provisions authority.

To review, the regulations at 40 CFR 63.90 define three types of alternative requests. Alternative requests or ''changes'' to a particular delegable or non-delegable provision are classified as major, intermediate, or minor depending upon the degree (*i.e.*, potential to be nationally significance, potential to reduce the stringency of the standard, etc.) of change being requested. An alternative request that qualifies as a major change is not delegable to S/L/T agencies, even when they have delegation authority. These requests must be sent to the EPA Region or, if it concerns a test method under §§ 63.7(e)(2)(ii) and (f), 63.1208(b) and 63.1209(a)(1) or a standard under §§ 63.1200, 63.1206(a), or 63.1216–63.1221, then it must be sent to our Office of Air Quality Planning and Standards (OAPQS).[255] An alternative request that qualifies as an intermediate or minor change is delegable. However, the EPA Region may choose whether or not they will delegate authority to S/L/T agencies to approve intermediate and, even some minor changes during the delegation approval process. In addition to the regulations, the guidance document entitled, How to Review and Issue Clean Air Act Applicability Determinations and Alternative Monitoring (EPA 305–B–99–004, February 1999) provides a listing of delegable and non-delegable authorities in Tables 1 and 2, as well as descriptions and examples of major, intermediate, and minor changes in Attachment 1.

A. Alternatives to Requirements

Any change to a promulgated standard is considered a major change and as noted above, must be sent to OAQPS (see contact information in footnote). The reason why a change to a standard must be sent to EPA Headquarters is because the change must be established through national rulemaking, regardless of the degree of change sought. Thus, only OAQPS can approve alternative requests for changes to standards. Additionally, any change to applicability requirements and compliance dates (*e.g.*, requirements that ensure that the standards are achieved as EPA intended) are also

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[254] For example, the final rule included approval of alternatives to requirements in §§ 63.1200, 63.1203, through 63.1205, and 63.1206(a); approval of major alternatives to test methods under § 63.7(e)(2)(ii) and (f); approval of major alternatives to monitoring under § 63.8(f) and; approval of major alternatives to recordkeeping and reporting under § 63.10(f).

[255] For contact information, please visit *www.epa.gov/ttn/emc/staffdir.html.*

considered major and also must be sent to OAQPS for approval. Specific to Subpart EEE, alternative requirement requests including those pursuant to §§ 63.1200, 63.1206(a), or 63.1216–63.1221 are considered major changes and consequently are non-delegable. The regulations at § 63.1214(c) correctly identified the requirements in Subpart EEE, however we have revised them today (as we proposed) to reflect the new sections that house the Phase 1 Replacement Standards and Phase 2 Standards.

There are a few exceptions to the above, however. Subpart EEE incorporates specific provisions for sources to request alternative standards which are delegable because they have been established through rulemaking. In fact, several alternative standards are self-implementing meaning that the source only need specify in their DOC which standard it will comply with. The alternative to the particulate matter standard in § 63.1206(b)(14) and the emissions averaging standards for cement kilns with in line kiln raw mills and preheater or preheater/precalciner kilns with dual stacks in § 63.1204(d) and (e) are three examples. There are also alternative standards that sources may petition to comply with. They include: Alternatives to the standards for existing and new LWAKs at § 63.1206(9) and cement kilns at § 63.1206(b)(10) and the alternative risk-based standard for total chlorine at § 63.1215. Sources choosing to comply with these alternative standards must receive approval from their delegated S/L/T agency prior to implementing them.[256] With respect to changes to compliance dates, requests under § 63.1213 specifically allow sources to request an extension to the compliance date for the installation of pollution prevention or waste minimization controls. Again, because this provision has been specified in subpart EEE, it is not considered a major change and is delegable.

B. Alternatives to Test Methods

With respect to test methods, we noted above that the final delegations rule stated that major alternatives to the test methods at §§ 63.7(e)(2)(ii) and (f) were not delegable. Therefore, as we proposed, it is necessary to add major alternatives to 63.1208(b), which specifies the test methods sources must use to determine compliance with subpart EEE. Also, we are adding the CEMS monitoring requirement under § 63.1209(a)(1). It is regarded as a test method because it serves as a benchmark method for demonstrating compliance with the emission standards. Both sections are delegable to S/L/T agencies as long as they have been delegated authority and as long as the alternative requests comprise minor or intermediate changes. However, a major change to either of these test method sections must be sent to OAQPS for approval.[257] Only OAQPS can approve major changes to test methods because they are designated in the standard as the means for determining compliance with an emission standard. The proposed revisions to § 63.1214 are finalized today to include major alternatives to test methods under §§ 63.1208(b) and 63.1209(a)(1) as non-delegable authorities.

C. Alternatives to Monitoring

For monitoring, the final delegations rule stated that major alternatives to monitoring at § 63.8(f) were not delegable, but did not reference monitoring specific to subpart EEE. In subpart EEE, the monitoring requirements are located in § 63.1209. This section also includes two provisions specific to alternative monitoring, thus removing some of the ‘‘guesswork’’ when trying to discern whether a request for change is minor, intermediate, or major. One is located at § 63.1209(a)(5), Petitions to use CEMS for other standards and the other is located at § 63.1209(g)(1), Alternative monitoring requirements other than continuous emissions monitoring systems. Each is discussed in the following paragraphs.

In the proposal, we explained that a request to use other monitoring in lieu of a CEMS is always considered a major change due to CEMS generally being considered a more accurate measure of compliance. However, if a source requests to use a CEMS in lieu of a required operating parameter, it may be considered an intermediate change. Since publication of the proposal, performance specifications have been promulgated for PM CEMS (and mercury CEMS).[258] Consequently, today we view requests per § 63.1209(a)(5) to use PM CEMS as intermediate changes to monitoring. Although the implementation of PM CEMS according to PS–11 (69 FR 1786 and 40 CFR part 60, Appendix B; January 12, 2004) and Procedure 2 (see also 40 CFR part 60, Appendix F) is largely ‘‘self-implementing,’’ sources wishing to apply to use of PM CEMS should develop and submit QA/QC plans specifying audit frequencies to account for site-specific stack conditions. We believe that other site-specific issues that may need to be addressed prior to use of the CEMS, such as a source’s request to deviate from PS–11 or a source’s selection of the correct correlation curve(s), are properly addressed under EPA’s established policies and procedures for alternative method requests. We believe that a petition to use PM CEMS under § 63.8(f) is still the appropriate mechanism, but that sources can submit their petitions to their delegated S/L/T agency for review and approval, and we recommend that EPA Regional offices work with these agencies to monitor implementation. Thus, with the exception of petitions to use PM CEMS in lieu of an operating parameter which is considered an intermediate change, we are finalizing our proposed revision to § 63.1214(c) to include major alternatives to monitoring under § 63.1209(a)(5) as a non-delegable authority.

Section 63.1209(g)(1), Alternative monitoring requirements other than continuous emissions monitoring systems, contains the other alternative monitoring provision. This provision allows sources to request alternative monitoring methods to monitor compliance, except for those standards that must be monitored with a CEMS (e.g., those in § 63.1209(a)(1)), and to request a waiver of an operating parameter limit. We provided several examples of alternative parameter monitoring for which a request may be submitted under this section in the proposal at 69 FR 21337. They include use of: a different detector, different monitoring location, a different method as recommended by the manufacturer, or a different averaging period that is more stringent than the applicable standard. In the proposal, we stated that we believe the majority of requests submitted pursuant to § 63.1209(g)(1) are not major and discussed in the preamble amending the language in § 63.1209(g)(1) so that these types of changes could be reviewed and approved by the delegated S/L/T agency. However, when we added

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[256] The alternative risk-based standard for total chlorine at § 63.1215 requires sources to submit their eligibility demonstration to both the delegated S/L/T agency and to the Risk and Exposure Assessment Group in Research Triangle Park, NC for review, even though the delegated S/L/T agency can grant or deny approval.

[257] For contact information, please visit *www.epa.gov/ttn/emc/staffdir.html.*

[258] Although performance specifications have been promulgated for mercury CEMS, there has not been as much experience in implementing these devices for hazardous waste combustion sources (or similar sources) as there has been for PM CEMS at this time. Therefore, we believe it appropriate to continue sending requests to use mercury CEMS in lieu of an operating parameter to the appropriate EPA Region for review and approval.

language to § 63.1209(g)(1) to allow for the above, we inadvertently referred to an approved Title V program instead of a S/L/T agency which has taken delegation of subpart EEE. We have corrected and finalized the proposed language. Therefore, whether minor or intermediate, requests under § 63.1209(g)(1) may be sent to your delegated S/L/T agency for review and approval.

Please note that 63.1209(g)(1) cannot be used when requesting major changes to the monitoring required by the standard. Such changes typically involve new unproven monitoring methods. Unproven monitoring methods refer to those where the technology or procedures are not generally accepted by the scientific community (§ 63.90(a)). If you are uncertain whether your request constitutes a new unproven monitoring method, which is considered a major change, you should submit your request to your EPA Region. The regulatory language in 63.1209(g)(1) has been revised to reflect this clarification.

D. Alternatives to Recordkeeping and Reporting.

As with the others, the final delegation provisions' rule only cited the waiver of recordkeeping and reporting requirements of § 63.10(f) as a non-delegable provision. Thus, it is necessary to add the relevant subpart EEE recordkeeping and reporting requirements of § 63.1211. Section 63.1211 is delegable in its entirety to S/L/T agencies unless an alternative request is determined to be a major change. An alternative request that is a major change, such as decreases in record retention for all records, must be sent to your EPA Region for review and approval. Similar to the monitoring section, § 63.1211 contains a specific alternative provision. Section 63.1211(d) Data Compression, allows sources to request to use data compression techniques to record data from CMS and CEMS on a frequency less than that required by § 63.1209. We view the alternative request to be a minor change because available guidance provides criteria for defining fluctuation and data compression limits. See 64 FR 52961 and 52962, September 30, 1999. Therefore, requests submitted under 63.1211(d) can be consistently evaluated by delegated S/L/T agencies. Section 63.1214(c) has been revised to specify that major alternatives to 63.1211(a)—(c) are non-delegable authorities.

E. Other Delegation Provisions

Although not discussed in the proposal, it is important to note that issuing applicability determinations is another delegable authority. The EPA document How to Review and Issue Clean Air Act Applicability Determinations and Alternative Monitoring (EPA 305–B–99–004, February 1999) provides guidance regarding who has the lead for issuing applicability determinations. In general, Regions may delegate the authority to issue applicability determinations to S/L/T agencies when the determinations are routine in nature. However, delegation of authority for certain applicability determinations should be retained by the Regions. These include applicability determinations that: (1) Are unusually controversial or complex; (2) have bearing on more than one state or district (are multi-Regional); (3) appear to create conflict with previous policy or determinations; (4) are a legal issue which has not previously been considered (a matter of first impression); or (5) raise new policy questions. It is recommended that Regional offices require notification when S/L/T agencies issue applicability determinations.

IV. RCRA State Authorization and Amendments to the RCRA Regulations

Under section 3006 of RCRA, EPA may authorize qualified states to administer their own hazardous waste programs in lieu of the federal program within the state. Following authorization, EPA retains enforcement authority under sections 3008, 3013, and 7003 of RCRA, although authorized states have primary enforcement responsibility. The standards and requirements for state authorization are found at 40 CFR Part 271.

Prior to enactment of the Hazardous and Solid Waste Amendments of 1984 (HSWA), a State with final RCRA authorization administered its hazardous waste program entirely in lieu of EPA administering the federal program in that state. The federal requirements no longer applied in the authorized state, and EPA could not issue permits for any facilities in that state, since only the state was authorized to issue RCRA permits. When new, more stringent federal requirements were promulgated, the state was obligated to enact equivalent authorities within specified time frames. However, the new federal requirements did not take effect in an authorized state until the state adopted the federal requirements as state law.

In contrast, under RCRA section 3006(g) (42 U.S.C. 6926(g)), which was added by HSWA, new requirements and prohibitions imposed under HSWA authority take effect in authorized states at the same time that they take effect in unauthorized states. EPA is directed by the statute to implement these requirements and prohibitions in authorized states, including the issuance of permits, until the state is granted authorization to do so. While states must still adopt HSWA related provisions as state law to retain final authorization, EPA implements the HSWA provisions in authorized states until the states do so.

Authorized states are required to modify their programs only when EPA enacts federal requirements that are more stringent or broader in scope than existing federal requirements. RCRA section 3009 allows the states to impose standards more stringent than those in the federal program (see also 40 CFR 271.1). Therefore, authorized states may, but are not required to, adopt federal regulations, both HSWA and non-HSWA, that are considered less stringent than previous federal regulations.

We discussed in the proposal which RCRA regulations we intended to amend and their impact on state authorization procedures. Today, we are finalizing those amendments in §§ 270.10, 270.22, 270.32, 270.42, 27062, 270.66, and 270.235. In addition, we are amending the regulations in §§ 264.340 and 266.100 to reflect changes that have been made based upon comments. Today's amendments fall under both HSWA and non-HSWA authorities. That is, changes made to regulations applicable to boilers and industrial furnaces are promulgated under HSWA authority, whereas changes made to regulations applicable to incinerators are promulgated under non-HSWA authority. [259] All of the amendments made today are considered to be either less stringent or equivalent to the existing Federal program, which means that states are not required to adopt and seek authorization for these provisions regardless of whether they are finalized under non-HSWA or HSWA authorities. Nevertheless, we strongly encourage states to become authorized for today's amendments.

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[259] When new requirements and prohibitions (that are more stringent than the previous federal regulations) are imposed under non-HSWA authority, the new federal requirements do not take effect in an authorized state until the state adopts the federal requirements as law. Conversely, when imposed under HSWA authority, the new federal requirements are federally enforceable in an authorized state until the necessary changes to a state's authorization are approved by EPA.

Experience has shown that when states have been authorized for previous amendments (i.e., those finalized in the 1999 rule) that were intended to facilitate the transition from the RCRA program to MACT and the CAA Title V program, the process has proven to be less cumbersome. For a more detailed discussion of non-HSWA and HSWA authorities with respect to how and when they take effect, please refer to the proposal's preamble discussion at 69 FR 21338.

Several RCRA sections that have been enacted as part of HSWA apply to today's rule: 3004(o), 3004(q), and 3005(c)(3). Thus, if a state is not authorized for the boiler and industrial furnace regulations, these provisions are federally enforceable in an authorized state until the necessary changes to a state's authorization are approved by us. See RCRA section 3006, 42 U.S.C. 6926. We are adding today's requirements to Table 1 in 271.1(j) where rulemakings promulgated pursuant to HSWA authority are identified.

Part Six: Impacts of the Final Rule

I. What Are the Air Impacts?

Table 1 below shows the emissions reductions achieved by the final rule for all existing hazardous waste combustors. For Phase I sources—incinerators, cement kilns, and lightweight aggregate kilns—the emission reductions represent the difference in emissions between sources controlled to today's standards and estimated emissions when complying with the interim MACT standards promulgated on February 13, 2002. Thus, the significant emissions reductions already achieved by the interim standards are not reflected in the estimates shown in Table 1.[260] For Phase II sources—solid fuel boilers, liquid fuel boilers, and hydrochloric acid production furnaces—the reductions represent the difference in emissions between today's standards and the current baseline of control provided by 40 CFR part 266, subpart H.

Nationwide baseline HAP and particulate matter emissions from hazardous waste combustors are estimated to be approximately 12,650 tons per year at the current baseline level of control. Depending on the number of facilities demonstrating compliance with health-based compliance alternatives for total chlorine, the total reduction of HAP and particulate matter for existing sources could be between approximately 2,260 and 3,380 tons per year. A discussion of the emission estimates methodology and results are presented in ''Technical Support Document for HWC MACT Replacement Standards, Volume V: Emission Estimates and Engineering Costs'' that is available in the docket.

TABLE 1.—NATIONWIDE ANNUAL EMISSIONS REDUCTIONS OF HAP AND OTHER POLLUTANTS

Pollutant	Estimated emission reductions (tons per year)
Dioxin/furans[1]	0.20
All HAP metals	19.5
Mercury	0.21
Semivolatile metals (Cd, Pb)	2.9
Low volatile metals (As, Be, Cr)	6.5
Other metals (Co, Mn, Ni, Sb, Se)	9.9
HCl and chlorine gas[2]	1220
Particulate matter	2,140

[1] Dioxin/furan emission reductions are expressed as grams TEQ per year.

[2] We are promulgating health-based compliance alternatives for total chlorine for hazardous waste combustors other than hydrochloric acid production furnaces in lieu of the MACT technology-based emission standards (see Part Four, Section VII of the preamble for details). Given that a number of sources may elect to comply with the health-based compliance alternatives, the estimated reductions of total chlorine represent an upper bound estimate.

II. What Are the Water and Solid Waste Impacts?

We estimate that water usage for existing sources will increase between 400 million and 1.6 billion gallons per year as a result of today's rule. The upper range estimate represents the water usage assuming no sources elect to comply with the health-based compliance alternatives for total chlorine, while the lower range estimate represents water usage assuming all sources elect the alternative. Water usage increases are estimated for reducing combustion gas temperatures with evaporated spray coolers for dioxin/furan control as well as for new particulate matter and acid gas air pollution control equipment. The increased water usage will also result in an increase in wastewater generation. Depending on the number of sources that elect to comply with the health-based compliance alternatives for total chlorine, we also estimate that up to 775 million gallons of wastewater may be generated.

We estimate that the generation of solid waste will increase between approximately 8,700 tons and 12,200 tons per year depending on the number of sources that elect to comply with the health-based compliance alternatives for total chlorine. Of these totals, approximately 250 tons per year will be classified as hazardous waste subject to RCRA Subtitle C regulations. We estimate the remainder—between 8,450 and 11,950 tons per year—will be classified and managed as a non-hazardous industrial waste subject to Subtitle D of RCRA. The costs associated with these disposal and water requirements are accounted for in the annualized compliance cost estimates. A discussion of the methodology used to estimate impacts is presented in ''Technical Support Document for HWC MACT Replacement Standards, Volume V: Emission Estimates and Engineering Costs'' that is available in the docket. We note that the nonair quality health and environmental impacts effects for both floor and beyond-the-floor options are discussed in the technical support document and are part of our consideration of such factors under section 112(d)(2).

III. What Are the Energy Impacts?

We estimate that the national annual energy usage as a result of this rule will increase between approximately 73 million and 85 million kilowatt hours (kWh) depending on the number of sources that elect to comply with the health-based compliance alternatives for total chlorine. The increase results from the electricity required to operate air pollution control equipment installed to meet the standards. The increase energy usage costs are accounted for in the annualized compliance cost estimates. A discussion of the methodology used to estimate impacts is presented in ''Technical Support Document for HWC MACT Replacement Standards, Volume V: Emission Estimates and Engineering Costs.'' We note that the energy effects for both floor and beyond-the-floor options are discussed in the technical support document and are part of our consideration of such factors under section 112(d)(2).

IV. What Are the Control Costs?

Control costs, as presented in this section, refer only to engineering, operation, and maintenance costs associated with unit/system upgrades necessary to meet the final standards. These costs do not incorporate any market-based adjustments. All costs presented in this section are annualized estimates in 2002 dollars.

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[260] USEPA, ''Final Technical Support Document for HWC MACT Standards, Volume V: Emission Estimates and Engineering Costs,'' Section 3, July 1999.

We estimate there are a total of 267 sources[261] that may be subject to requirements of this final rule. Of this total, there are 116 boilers (104 liquid fuel boilers plus 12 solid fuel boilers), 92 on-site incinerators, 25 cement kilns, 15 commercial incinerators, nine (or seven) lightweight aggregate kilns, and ten hydrochloric acid (HCl) production furnaces.

Total national private sector engineering costs for the final standards are estimated at $40.2 million per year.[262] This estimate reflects total non market adjusted upgrade costs (engineering, plus administrative and permitting), excluding chlorine control costs.[263] All Phase II sources combined (liquid fuel boilers, coal fired boilers, and HCl production furnaces) represent 86 percent of this total. The average private sector engineering cost, *excluding* permitting and administrative, is projected to be highest for liquid fuel boilers, at $256,300 per source. Coal fired boilers are second at approximately $170,246 per source. Total engineering costs to cement kilns and HCl production furnaces are estimated to average $113,600, and $16,645 per source, respectively. Commercial incinerators are projected to experience engineering costs averaging $12,300 per source. On-site incinerators and LWAKs will face the lowest engineering costs at $10,200 and $3,330, respectively.

For all Phase I sources (141 sources; commercial incinerators, on-site incinerators, cement kilns, and lightweight aggregate kilns), total average annualized non market-adjusted compliance costs (*including* permitting and administrative[264]) are estimated at $39,700 per source. The combined Phase II sources (126 sources; solid and liquid fuel-fired boilers and hydrochloric acid production furnaces) have total average annualized non market-adjusted compliance costs of approximately $274,500 per source. Across all sectors covered by today's rule (Phase I and Phase II sources), total annualized compliance costs were found to average $150,500 per source.

Private sector engineering costs (control) costs have also been assessed on a per ton (U.S.) basis. Captive energy recovery sources (solid and liquid fuel-fired boilers, and hydrochloric acid production furnaces) burned a total of 944,667 tons of hazardous waste in 2003. These facilities are projected to experience the highest average incremental control costs, at approximately $37 per ton of waste burned. Commercial energy recovery sources (cement kilns and LWAKs), burning an estimated 999,076 tons in 2003, are projected to experience average incremental control costs of approximately of $3.00 per ton. Captive (on-site) and commercial incinerators burn an estimated 925,828 tons and 447,524 tons per year, respectively. These sources are estimated to experience average incremental engineering costs of $2.15 per ton and $0.80 per ton, respectively.

The aggregate control costs presented in this section do not reflect the anticipated real world cost burden on the economy. Any market disruption, such as the requirements in this final rule, will cause a short-term disequilibrium in the hazardous waste burning market, resulting in a natural economic process designed to reach the new market equilibrium. Actual cost impacts to society are more accurately measured by taking into account market adjustments in the targeted industry, plus secondary (societal) costs. Total market-adjusted costs plus secondary costs are commonly termed Social Costs, and are generally less than total engineering costs due to efficiencies implemented during the market adjustment process. Social Costs theoretically represent the total real world costs of all goods and services society must give up in order to gain the added protection to human health and the environment. Social Costs are presented in Part VI of this Section.[265]

V. What Are the Economic Impacts?

Economic impacts may be measured through several factors. This section presents estimated economic impacts relative to market exits, waste reallocations, and employment impacts. Economic impacts presented in this section are distinct from social costs, which correspond only to the estimated monetary value of market disturbances.

A. Market Exit Estimates

The hazardous waste combustion industry operates in a dynamic market, with systems entering and exiting the market on a routine basis. Our analysis defines ''market exit'' as ceasing to burn hazardous waste. We have projected post-rule hazardous waste combustion system market exits based on economic feasibility only. Social, liability, and informational issues are not incorporated into our market exit analysis.

Market exit estimates are derived from a breakeven analysis designed to determine system viability. This analysis is subject to several assumptions, including: Cost assumptions concerning the per sector baseline cost of hazardous waste burning, cost estimates for necessary pollution control devices (including operation and maintenance), prices for combustion services, and estimated waste quantities burned at these facilities. It is important to note that, for most sectors, exiting the hazardous waste combustion market is not equivalent to closing a plant. (Actual plant closure may occur only in the case of a commercial incinerator closing all systems.)

We estimate that 39 systems, representing about 15 percent of the total affected universe, may stop burning hazardous waste in response to the final standards. Approximately 59,000 tons of hazardous waste may be diverted from these closed systems.

These estimates assume no chlorine controls are put in place as a direct result of the rule.[266] Of the estimated 39 market exits, 26 are projected to be on-site incinerators and 8 are liquid fuel boilers. Three commercial incinerator systems may exit the market in response to the final rule. However, these systems are considered economically marginal in the baseline. Two coal-fired boiler systems are also projected to exit the market. No cement kilns, lightweight aggregate kilns, or HCl production furnaces are projected to exit the market as a result of the final rule. Market exit estimates were found to be identical

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[261] For purposes of this discussion, a source is defined as the air pollution control system associated with one or more hazardous waste combustion unit(s). A facility may operate one or more sources. Note that this total includes two LWAK units limited by system burn constraints. Exclusion of these two units results in a total of 265 independent sources.

[262] Not included here are total annual government costs. These costs, with or without chlorine control, are approximately $0.5 million/year.

[263] We are finalizing the incorporation of section 112(d)(4) of the Clean Air Act to establish risk-based standards for total chlorine for hazardous waste combustors (except for hydrochloric acid production furnaces). The low-end of this cost range assumes all facilities emit total chlorine levels below risk-based levels of concern. Under this scenario, no total chlorine controls are assumed to be necessary. The total engineering cost with chlorine control is estimated at $46.7 million/year.]

[264] See Exhibit 4–3 in the economic assessment background document.

[265] Beyond-the-Floor standards were assessed for all floors. These findings are available in Appendix F and G of the engineering background document: See: Final Technical Support Document for HWC MACT Standards, Volume V—Emissions Estimates and Engineering Costs.

[266] Even though we are allowing sources (except hydrochloric acid production furnaces) to invoke § 112(d)(4) in lieu of MACT chlorine control requirements, we have not attempted to estimate the following: (1) The total number of sources that may elect to implement this provision, and, (2) what level of control may be necessary following a § 112(d)(4) risk-based determination, since this would vary on a site-by-site basis.

when the cost of chlorine control is included in the model.

B. Waste Reallocations

Some on-site combustion systems (sources) may no longer be able to cover their hazardous waste burning costs as a result of final rule requirements. These sources are projected to divert or reroute their wastes to different hazardous waste combustion sources (usually some type of commercial unit).[267] For multiple system facilities, this diversion may include on-site (non-commercial) waste consolidation among fewer systems at the same facility. Under current market conditions, non-combustion alternatives are generally not economically feasible, and in any case, would normally be unable to achieve the RCRA Land Disposal Restriction Treatment standards, which are based on the performance of combustion technology (which optimizes destruction of organic HAP).

As mentioned above, our economic model indicates that approximately 59,000 tons (U.S.) of hazardous waste may be reallocated. This figure represents approximately 1.8 percent of the total 2003 quantity of hazardous waste burned at all sources. On-site consolidations account for nearly 24 percent (13,915 tons) of all diverted waste. Commercial incinerators are projected to receive the vast majority (42,722 tons, or 73 percent) of all off-site waste reallocations. Cement kilns and LWAKs are projected to receive the remaining reallocation (2,289 tons). Currently, there is more than adequate capacity to accommodate all off-site hazardous waste diversions.

C. Employment Impacts

Today's rule is projected to induce employment shifts across all affected sectors. These shifts may occur as specific combustion facilities find it no longer economically feasible to keep all of their systems running, or to stay in the hazardous waste market at all. When this occurs, workers at these locations may lose their jobs or experience forced relocations. At the same time, the rule is projected to result in positive employment impacts, as new purchases of pollution control equipment stimulate additional hiring in the pollution control manufacturing sector, and as additional staff are required at selected combustion facilities to accommodate reallocated waste and/or various compliance activities.

1. Employment Impacts—Dislocations (Losses)

Employment dislocations in the combustion industry are projected to occur when facilities consolidate waste into fewer systems, or when a facility exits the hazardous waste combustion market altogether. Operation and maintenance labor hours are expected to be reduced for each system that stops burning hazardous waste. For each facility that completely exits the market, employment dislocations may also include supervisory and/or administrative personnel.

Total employment dislocations resulting from implementation of the final standards are estimated at 310 full-time-equivalent (FTE) jobs. On-site incinerators account for about 62 percent of this total, followed by commercial incinerators (about 24 percent), and liquid-fuel boilers (about 12 percent). The large number of on-site incinerators drives the impacts within this sector.

2. Employment Impacts—Positive

In addition to employment dislocations, our analysis indicates that today's rule may also result in positive employment impacts. These positive impacts are projected to occur to both the air pollution control industry and to combustion firms as they hire personnel to accommodate reallocated waste and/or comply with the various requirements of the rule. Hazardous waste combustion sources are projected to need additional operation and maintenance personnel for the new pollution control equipment and other compliance activities, such as new reporting and record keeping requirements.

The total annual positive employment impact associated with the final standards is estimated at 323 FTEs. Positive employment impacts to the air pollution control industry[268] are projected at 93 FTEs, or about 29 percent of this total. At 183 jobs, liquid-fuel boilers are projected to experience the greatest positive employment impact among all combustors.

While it may appear that our analysis suggests overall net positive employment impacts, such a conclusion would be inappropriate. Because the positive employment impacts and employment dislocations occur in different sectors of the economy, they should not be added together. Doing so would mask important distributional effects of the rule. In addition, these employment estimates reflect within sector impacts only and therefore do not account for potential displacements across sectors. This may occur if investment funds are diverted from other areas of the larger economy.

VI. What Are the Social Costs and Benefits of the Final Rule?

The value of any regulatory action is traditionally measured by the net change in social welfare that it generates. Our economic assessment conducted in support of today's final rule evaluated compliance (control) costs, and economic impacts, as discussed above. The Assessment also analyzed social costs, benefits, small entity impacts, and other impacts (e.g., children's health, unfunded mandates). To conduct this analysis, we examined the current combustion market and practices, developed and implemented a methodology for examining compliance and social costs, applied an economic model to analyze industry economic impacts (discussed above), examined benefits, and followed appropriate guidelines and procedures for examining equity considerations, children's health, and other impacts. The data applied in this analysis were the most recently available at the time of the analysis. Because our data were limited, the findings from these analyses should be more accurately viewed as national estimates.

A. Combustion Market Overview

The hazardous waste industry consists of three key segments: hazardous waste generators, fuel blenders/intermediaries, and hazardous waste burners. Hazardous waste is combusted at four main types of facilities: commercial incinerators, on-site incinerators, waste burning kilns (cement kilns and lightweight aggregate kilns), and industrial boilers. Commercial incinerators are generally larger in size and designed to manage virtually all types of solids, as well as liquid wastes. On-site incinerators are more often designed as liquid-injection systems that handle liquids and pumpable solids. Waste burning kilns and boilers generally burn hazardous wastes to generate heat and power for their manufacturing processes.

As discussed above, we have identified a total of 267 hazardous waste burning sources (systems) currently in operation in the United States. Liquid fuel-boilers account for 104 sources, followed by on-site incinerators at 92 sources. Cement kilns, hydrochloric acid production furnaces, and commercial incinerators account for 25, 10, and 15 sources, respectively. Solid

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[267] This analysis includes the cost of waste transport to alternative combustion sources, burning fees, and purchase of alternative fuels (if appropriate).

[268] Manufacturers and distributors of air pollution control devices are projected to increase sales as a result of this action.

fuel boilers and lightweight aggregate kilns make up the remainder, at 12 and nine systems, respectively. These 267 sources are operated at a total of 145 different facilities. A single facility may have one or more combustion systems. Facilities with multiple systems may have different types of hazardous waste burning units. Combustion systems operating at chemical manufacturing facilities (NAICS 325) were found to account for about 70 percent of the total number of facilities and manage about 58 percent of all hazardous waste burned in 2003.

The EPA Biennial Reporting System (BRS) reports a total demand for all combusted hazardous waste, across all facilities, at 3.32 million tons (U.S. ton) in 2003. Commercial energy recovery (cement kilns and lightweight aggregate kilns) burned about 30 percent of this total. Hazardous waste destruction at on-site incinerators and commercial incinerators accounted for 28 percent and 13 percent, respectively. Captive energy recovery accounted for the remainder, at 29 percent of the total.

About 65 percent of all hazardous waste burned in 2003 was organic liquids. This is followed by solids (14 percent), inorganic liquids (11 percent), and sludges (10 percent). Hazardous gases were found to represent a negligible portion, at about 0.08 percent of the total quantity burned in 2003. In terms of hazardous waste generating sources, the Basic Organic Chemical Manufacturing e sector (NAICS 325) generated approximately 32 percent of all hazardous waste burned in 2001, followed by pesticides and agricultural chemicals, business services, organic fibers, medicinal chemicals, pharmaceuticals, plastics materials and resins, petroleum, and miscellaneous.

Companies that generate large quantities of uniform hazardous wastes generally find it more economical and efficient to combust these wastes on-site using their own noncommercial systems. Commercial incineration facilities manage a wide range of hazardous waste streams generated in small to medium quantities by diverse industries. Cement kilns, lightweight aggregate kilns, and boilers derive heat and energy by burning high-Btu (solvents and organics) liquid hazardous wastes.[269] Sometimes these wastes are blended with fossil fuels where system operators choose to not derive all of their energy input from hazardous waste.

Regulatory requirements, liability concerns, and economics influence the demand for hazardous waste combustion services. Regulatory forces influence the demand for combustion by mandating certain hazardous waste treatment standards (land disposal restriction requirements, etc.). Liability concerns of waste generators affect combustion demand because combustion, by destroying organic wastes, greatly reduces the risk of future environmental problems. Finally, if alternative waste management options are more expensive, hazardous waste generators will likely choose to send their wastes to combustion facilities in order to increase overall profitability.

Throughout much of the 1980s, hazardous waste combustors enjoyed a strong competitive position and generally maintained a high level of profitability. During this period, EPA regulations helped stimulate a greatly expanded market. In addition, federal permitting requirements, as well as powerful local opposition to siting of new incinerators, constrained the entry of new combustion systems. As a result, combustion prices rose steadily, ultimately reaching record levels in 1987. The high profits of the late 1980s induced many firms to enter the market, in spite of the difficulties and delays anticipated in the permitting and siting process.

Hazardous waste markets have changed significantly since the late 1980s. In the early 1990s, substantial overcapacity resulted in fierce competition, declining prices, poor financial performance, numerous project cancellations, system consolidations, and facility closures. Since the mid 1990s, several additional combustion facilities have closed, while many of those that have remained open have consolidated their operations. Available (prior to this final rule) excess commercial capacity is currently estimated at about 21 percent of the total 2003 quantity combusted.

B. Baseline Specification

Proper and consistent baseline specification is vital to the accurate assessment of incremental costs, benefits, and other economic impacts associated with today's rule. The baseline essentially describes the world absent the rule. The incremental impacts of today's rule are evaluated by predicting post MACT compliance responses with respect to the baseline. The baseline, as applied in this analysis, is the point at which today's rule is promulgated. Thus, incremental cost and economic impacts are projected beyond the standards established in the February 13, 2002 Interim Standards Final Rule.

C. Analytical Methodology and Findings—Social Cost Analysis

Total social costs include the value of resources used to comply with the standards by the private sector, the value of resources used to administer the regulation by the government, and the value of output lost due to shifts of resources away from the current market equilibrium. To evaluate these shifts in resources and changes in output requires predicting changes in behavior by all affected parties in response to the regulation, including responses of directly-affected entities, as well as indirectly-affected private parties.

For this analysis, social costs are grouped into two categories: Economic welfare (changes in consumer and producer surplus), and government administrative costs. The economic welfare analysis conducted for today's rule uses a simplified partial equilibrium approach. In this analysis, changes in economic welfare are measured by summing the changes in consumer and producer surplus. This simplified approach bounds potential economic welfare losses associated with the rule by considering two scenarios: Compliance costs assuming no market adjustments, and market adjusted compliance costs.

The annualized private sector compliance (engineering) costs of $40.2 million, as presented in Section IV, assume no market adjustments. Our best estimate of total social costs incorporates rational market adjustments and all government costs. Under this scenario, increased compliance (engineering) costs are examined in the context of likely incentives hazardous waste combustion facilities have to continue burning, and the competitive balance in the market.

Total annualized market-adjusted net private-sector costs are estimated at $22.1 million.[270] In addition to the net private sector costs, total annual government costs are approximately $0.50 million. Thus, our best estimate of total social costs of this final rule is $22.6 million per year.

The $22.1 million figure incorporates a net gain to selected Phase I sources and an estimated $3.6 million cost

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[269] Many cement kilns are also able to burn a certain level of non liquid waste.

[270] We are finalizing alternative risk-based total chlorine standards for hazardous waste combustors (ecept for hydrochloric acid production furnaces). The net private sector costs of $22.1 million/year may be considered a lower-bound estimate that assumes facilities emit total chlorine (TCI) below risk-based levels of concern (i.e., no TCI controls are assumed to be necessary). Total net private sector market-adjusted costs would increase to approximately $28.1 million per year if we were to assume all sources were to comply with technology-based TCI standards (as opposed to the risk-based standards).

(price) increase to pre-existing customers of commercial hazardous waste combustion facilities. On-site incinerators are projected to experience total market-adjusted cost increases of approximately $1.5 million/year. All phase II sources account for approximately $31.9 million in increased costs. Our economic model indicates that, of the Phase I source categories, commercial incinerators, cement kilns, and LWAKs would experience net gains following all market adjustments. The total net gain for these three source categories is estimated at $14.8 million per year. Commercial incinerators would receive about 98 percent of the total gain ($14.5 million/year). Gains to commercial facilities occur due to marginally higher prices, increased waste receipts, and relatively low upgrade costs, when compared to the other sources.

D. Analytical Methodology and Findings—Benefits Assessment

This section discusses the monetized and non monetized benefits to human health and the environment potentially associated with today's final rule. Monetized human health benefits are derived from reductions in particulate matter (PM) and dioxin/furan exposure, and are based on a Value of Statistical Life (VSL) estimate of $6.2 million.[271] Non monetized benefits are associated with human health, ecological, and waste minimization factors.

1. Monetized Benefits

Total monetized human health benefits for the final standards are estimated to range from $5.61 million/year to $6.31 million/year. This estimate includes human health benefits associated with avoided PM and dioxin/furans exposure. The range is driven by alternative discount rate assumptions (no discount rate, 3 percent, or 7 percent) for mortality valuation. PM benefits represent 99 percent of the total monetized human health benefits.

Particulate Matter

Results from our risk assessment extrapolation procedure[272] are used to evaluate incremental human health benefits potentially associated with particulate matter emission reductions from hazardous waste combustion facilities. This analysis applied avoided human health benefits factors from the March 2004 Assessment document,[273] combined with more recent emissions estimates for particulate matter.

Reduced PM emissions are estimated to result in monetized human health benefits of approximately $6.29 million per year. This is an undiscounted figure. Avoided PM morbidity cases account for $3.42 million of this total, and include: respiratory illness, cardiovascular disease, chronic bronchitis, work loss days, and minor restricted activity. Chronic bronchitis accounts for approximately 89 percent of the total value of avoided PM morbidity cases. All morbidity cases are assumed to be avoided within the first year following reduced PM emissions and are not discounted under any scenario.

Avoided premature deaths (mortality) are valued at $2.87 million per year, undiscounted. Assuming a discount rate of three and seven percent, PM mortality benefits would be $2.52 million and $2.19 million, respectively. Our discounted analysis of PM mortality benefits assumes that 30 percent of premature mortalities occur during the first year, 50 percent occur evenly from the second through the fifth years, and the remaining 20 percent occur evenly from the sixth through the twentieth years.[274] Due to limitations in the risk analysis, this assessment of PM benefits does not consider corresponding health benefits associated with the reduction of HAP metals carried by the PM.

Dioxin/furan—Dioxin/furan emissions are projected to be reduced by a total of 0.2 grams per year under the final standards. In the July 23, 1999 Addendum to the Assessment, cancer risk reductions linked to consumption of dioxin-contaminated agricultural products accounted for the vast majority of the 0.36 cancer cases per year that were expected to be avoided due to the 1999 standards. Cancer risk reductions associated with the final standards are expected to be less than 0.36 cases per year, but greater than zero.

At this time, the Agency is still using a cancer risk slope factor of 1.56×10^5 [mg/kg/day]$^{-1}$ for dioxin. This cancer slope factor is derived from the Agency's 1985 health assessment document for polychlorinated dibenzo-p-dioxins[275] and represents an upper bound 95th percentile confidence limit of the excess cancer risk from a lifetime exposure. For the past several years the Agency has been conducting a reassessment of the human health risks associated with dioxin and dioxin-like compounds. In October of 2004 this reassessment[276] was delivered to the National Academy of Sciences (NAS) for review.

Evidence compiled from this draft reassessment indicates that the carcinogenic effects of dioxin/furans may be six times as great as believed in 1985, reflecting an upper bound cancer risk slope factor of 1×10^6 [mg/kg/day]$^{-1}$ for some individuals. Agency scientists' more likely (central tendency) estimates (derived from the ED$_{01}$ rather than the LED$_{01}$) result in slope factors and risk estimates that are within 2–3 times of the upper bound estimates (i.e., between 3×10^5 [mg/kg/day]$^{-1}$ and 5×10^5 [mg/kg/day]$^{-1}$) based on the available epidemiological and animal cancer data. However, risks could be as low as zero for some individuals. Use of the alternative upper bound cancer risk slope factor could result in a higher human health monetized health benefit associated with premature cancer deaths avoided in response to the final standard for dioxin/furans. The assessment of upper bound cancer risk using this alternative slope factor should not be considered current Agency policy. The standards for dioxin in today's final rule were not based on this draft reassessment.

Total non-discounted human health benefits associated with projected dioxin reductions are estimated at $0.02 million/year. These benefits may range from $0.01 million/year to nearly zero, applying a discount rate of 3 percent and 7 percent, respectively. Our discounted estimates incorporate an assumed latency period of 21 and 34 years from exposure to death.

2. Non-Monetized Benefits

We examined, but did not monetize human health benefits potentially associated with reduced exposure to lead, mercury, and total chlorine. Non monetized ecological benefits

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[271] Monetized benefits associated with avoided premature mortality reflect a VSL range of $1.1 million to $11.4 million, with a central VSL estimate of $6.2 million. These values are derived from willingness-to-pay based VSL estimates presented in U.S. EPA, Regulatory Impact Analysis for the Final Clean Air Interstate Rule, March 2005.

[272] Inferential Risk Analysis in Support of Standards for Emissions of Hazardous Air Pollutants from Hazardous Waste Combustors.

[273] Assessment of the Potential Costs, Benefits, and Other Impacts of the Hazardous Waste Combustion MACT Replacement Standards: Proposed Rule, March 2004 (Chapter 6), and Addendum to the Assessment.

[274] See: U.S. EPA. March 2005. Regulatory Impact Analysis for the Final Interstate Air Quality Rule.

[275] USEPA, 1985. Health Assessment Document for Polychlorinated Dibenzo-p-Dioxins. EPA/600/8-84/014F. Final Report. Office of Health and Environmental Assessment. Washington, DC. September, 1985.

[276] U.S.EPA. Exposure and Human Health Reassessment of 2,3,7,8-Tetrachlorodibenzo-p-Dioxin (TCDD) and Related Compounds National Academy Sciences (NAS) Review Draft, December 2003. [**Note:** Toxicity risk factors presented in this document should not be considered EPA's official estimate of dioxin toxicity, but rather reflect EPA's ongoing effort to reevaluate dioxin toxicity].

potentially associated with reductions in dioxin/furan; selected metals, total chlorine, and particulate matter were also examined. Finally, waste minimization is examined as a non-monetized benefit.

Lead—The final standards are expected to reduce lead emissions by approximately 2.5 tons per year. In comparison, the 1999 standards were expected to reduce lead emissions by 89 tons per year, and were expected to reduce cumulative lead exposures for two children, ages zero to five, to less than 10 µg/dL. The lead benefits associated with these final standards are therefore expected to be modest. The final standards will also result in reduced lead levels for children of sub-populations with especially high levels of exposure. Children of subsistence fishermen, commercial beef farmers, and commercial dairy farmers who face the greatest levels of cumulative lead exposure may also experience comparable reductions in overall exposure as a result of the MACT standards.

Mercury—The HWC MACT final standards are expected to reduce mercury emissions by approximately 0.21 tons per year, approximately 93 percent less than the four-ton reduction expected under the 1999 Standards. We do not attempt to quantify the mercury-related benefits associated with today's final standards. However, because the reduction in mercury emissions represents a fraction of the reduction expected under the 1999 Standards, the mercury-related benefits of the final standards are likely to be less than the corresponding benefits under the 1999 Standards.

To characterize the benefits associated with reduced mercury emissions, the 1999 Assessment measured changes in hazard quotients for populations living near hazardous waste combustion facilities. For any given population, the hazard quotient is the ratio of the actual level of exposure to a safe level of exposure. A hazard quotient greater than one implies that a population is potentially at risk. The exposure quotient analysis in the 1999 Assessment found that the measurable benefits of reduced mercury emissions under the 1999 Standards were likely to be small because baseline exposures were relatively low. In addition, many of the studies examining the adverse health effects of mercury are inconclusive. Over the past several years, however, scientists have conducted three large-scale studies of individuals in the Faroe Islands, New Zealand, and the Seychelles Islands examining the relationship between mercury exposure in women and the neuro-development of their unborn children.[277] The New Zealand and Faroe Islands studies both found a statistically significant relationship between maternal methylmercury exposure and IQ decrements in the unborn children of these women. In its 2000 report on the toxicological effects of methylmercury, the National Research Council suggested that integrating the results of all three studies could be useful for risk assessment purposes.[278] Such an integrative risk assessment, later published by Ryan et al. in 2005, served as the basis of the Agency's health effects analysis for the Clean Air Mercury Rule (CAMR).[279] The regulatory impact analysis for CAMR summarizes several of the adverse health effects that may be linked to mercury and reviews the epidemiological literature examining the link between these effects and exposure to mercury.[280]

Total Chlorine—We were not able to quantify the benefits associated with reductions in total chlorine emissions. Total chlorine is a combination of hydrogen chloride and chlorine gas. The final standards are projected to reduce total annual chlorine emissions by about 107 tons per year[281] (HCl production furnaces only). Hydrogen chloride is corrosive to the eyes, skin, and mucous membranes. Acute inhalation can cause eye, nose, and respiratory tract irritation and inflammation, and pulmonary edema. Chronic occupational inhalation has been reported to cause gastritis, bronchitis, and dermatitis in workers. Long term exposure can also cause dental discoloration and erosion. Chlorine gas inhalation can cause bronchitis, asthma and swelling of the lungs, headaches, heart disease, and meningitis. Acute exposure causes more severe respiratory and lung effects, and can result in fatalities in extreme cases. The exposure levels established under 112(d)(4) are expected to reduce chlorine exposure for people in close proximity to hazardous waste combustion facilities, and are therefore likely to reduce the risk of all associated health effects.

Ecological Benefits—We examined ecological benefits through a comparison of the 1999 Assessment and today's final standards. Ecological benefits in the 1999 Assessment were based on reductions of approximately 100 tons per year in dioxin/furans and selected metals. Lead was the only pollutant of concern for aquatic ecosystems, while mercury appeared to be of greatest concern for terrestrial ecosystems. Dioxin/furan and lead emission reductions also provided some potential benefits for terrestrial ecosystems. The final standards are expected to reduce dioxin/furan and selected metal emissions by about 12 percent to 13 percent of the 1999 estimate, resulting in fewer incremental benefits than those estimated for the 1999 Assessment (and later, for the 2002 Interim Standards). However, the 1999 Assessment did not estimate the ecological benefits of MACT standards for hazardous waste burning industrial boilers and HCl production furnaces. These systems were excluded from the universe in 1999 but are part of the universe addressed by today's final standards. As a result, while the total ecological benefits of the final rule are likely to be modest, areas near facilities with boilers may enjoy more significant ecological benefits under the final standards than areas near facilities that have already complied with the 2002 Interim standards.

Mercury, lead, and chlorides are among the HAPs that can cause damage to the health and visual appearance of

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[277] Grandjean, P., K. Murata, E. Budtz-Jorgensen, and P. Weihe. 2004. ''Autonomic Activity in Methylmercury Neurotoxicity: 14–Year Follow-Up of a Faroese Birth Cohort.'' Journal of Pediatrics.144:169–76; Kjellstrom, T., P. Kennedy, S. Wallis, A. Stewart, L. Friberg, B. Lind, P. Witherspoon, and C. Mantell. 1989. Physical and mental development of children with prenatal exposure to mercury from fish. Stage 2: Interviews and psychological tests at age 6. National Swedish Environmental Protection Board Report No. 3642; Crump, K.S., T. Kjellstrom, A.M. Shipp, A. Silvers, and A. Stewart. 1998. ''Influence of prenatal mercury exposure upon scholastic and psychological test performance: benchmark analysis of a New Zealand cohort.'' Risk Analysis. 18(6):701–713; Davidson, P.W., G.J. Myers, C. Cox, C. Axtell, C. Shamlaye, J. Sloane-Reeves, E. Cernichiari, L. Needham, A. Choi, Y. Wang, M. Berlin, and T.W. Clarkson. 1998. ''Effects of prenatal and postnatal methylmercury exposure from fish consumption on neurodevelopment: outcomes at 66 months of age in the Seychelles Child Development Study.'' Journal of the American Medical Association. 280(8):701–707; and Myers, G.J., P.W. Davidson, C. Cox, C.F. Shamlaye, D. Palumbo, E. Cernichiari, J. Sloane-Reeves, G.E. Wilding, J. Kost, L.S. Huang, and T.W. Clarkson. 2003. ''Prenatal methylmercury exposure from ocean fish consumption in the Seychelles child development study.'' Lancet. 361(9370):1686–92.

[278] National Research Council of the National Academy of Sciences, Toxicological Effects of Methylmercury. 2000, p. 299.

[279] Ryan, L.M. Effects of Prenatal Methylmercury on Childhood IQ: A Synthesis of Three Studies. Report to the U.S. Environmental Protection Agency, 2005; U.S. EPA. Regulatory Impact Analysis of the Clean Air Mercury Rule: Final Report. March 2005.

[280] U.S. EPA. Regulatory Impact Analysis of the Clean Air Mercury Rule: Final Report. March 2005.

[281] This is a lower bound estimate that assumes all other sources will implement 112(d)(4) and will not move to reduce TCl emissions from current baseline levels.

plants.[282] While the total value of forest health is difficult to estimate, visible deterioration in the health of forests and plants can cause a measurable change in recreation behavior. Several studies that measure the change in outdoor recreation behavior according to forest health have attempted to place a value on aesthetic degradation of forests.[283] Although these studies are available, additional research is needed to fully understand the effects of these Haps on the forest ecosystem. Thus, these benefits are not quantified in this analysis.

Emissions that are sufficient to cause structural and aesthetic damage to vegetation are likely to affect growth as well. Little research has been done on the effects of compounds such as chlorine, heavy metals (as air pollutants), and PM on agricultural productivity.[284] Even though the potential for visible damage and production decline from metals and other pollutants suggests the final standards could increase agricultural productivity, we have not monetized the benefits of these changes.

3. Waste Minimization Benefits

Facilities that burn hazardous waste and remain in operation following implementation of the final standards are expected to experience marginally increased costs as a result of these standards. This will result in an incentive to pass these increased costs on to their customers in the form of higher combustion prices. In the 1999 Assessment we conducted a waste minimization analysis to inform the expected price change. The analysis concluded that the demand for hazardous waste combustion is relatively inelastic. While a variety of waste minimization alternatives are available for managing hazardous waste streams that are currently combusted, the costs of these alternatives generally exceed the cost of combustion. When the additional costs of compliance with the MACT standards are taken into account, waste minimization alternatives still tend to exceed the higher combustion costs. This relative inelasticity suggests that, in the short term, large reductions in the amount of hazardous waste requiring combustion are not likely to occur. However, over the longer term (*i.e.* as production systems are updated), companies may continue to seek alternatives to expensive hazardous waste-management. This may include process adjustments that result, to some degree in source reduction of hazardous waste and the increased generation of non hazardous waste. To the extent that increases in combustion prices provide additional incentive to adopt more efficient processes, the final standards may contribute to longer term process-based hazardous waste minimization efforts.

No hazardous waste minimization impacts are captured in our quantitative analysis of costs and benefits.[285] A quantitative assessment of the benefits associated with waste minimization may result in double-counting of some of the benefits described earlier. For example, waste minimization may reduce emissions of hazardous air pollutants and therefore have a positive effect on public health. Furthermore, emission reductions beyond those necessary for compliance with the final standards are not addressed in the benefits assessment. In addition, waste minimization is likely to result in specific types of benefits not captured in this Assessment. For example, waste generators that engage in waste minimization may experience a reduction in their waste handling costs and could also reduce the risk related to waste spills and waste management. Finally, waste minimization procedures potentially stimulated by today's action may result in additional costs to facilities that implement these technologies. These factors have not been assessed in our analysis but are likely to at least partially offset corresponding benefits.

4. Conclusion

Total non-discounted monetized human health benefits associated with the final standards are estimated at $6.31 million/year. Annualized discounted benefits were found to range from $5.61 million to $5.95 million/year. The range reflects an alternative discount rate of 3 percent and 7 percent for mortality benefits.

It is important to emphasize that monetized benefits represent only a portion of the total benefits associated with this rule. A significant portion of the benefits are not monetized, as discussed above, due to data and analytical limitations. Specifically, ecological benefits, and human health benefits associated with reductions in chlorine, mercury, and lead are not quantified or monetized. In some regions these benefits may be significant. In addition, specific sub-populations near combustion facilities, including children and minority populations, may be disproportionately affected by environmental risks and may therefore enjoy more significant benefits. Visibility benefits associated with reduced PM are also expected from this final rule. For a complete discussion of the methodology, data, findings, and limitations associated with our benefits analysis the reader is encouraged to review the Assessment document,[286] and the Addendum to the Assessment.

Part Seven: How Does the Final Rule Meet the RCRA Protectiveness Mandate?

As discussed in more detail below, we believe today's final standards are generally protective of human health and the environment. We therefore finalize and apply these standards, in most instances, in lieu of the RCRA air emission standards applicable to these sources.

I. Background

Section 3004(a) of RCRA requires the Agency to promulgate standards for hazardous waste treatment, storage, and disposal facilities as necessary to protect human health and the environment. The standards for hazardous waste incinerators generally rest on this authority. In addition, § 3004(q) requires the Agency to promulgate standards for emissions from facilities that burn

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[282] Although the primary pollutants which are detrimental to vegetation aesthetics and growth are tropospheric ozone, sulfur dioxide, and hydrogen fluoride (three pollutants which are not regulated in the MACT standards), some literature exists on the relationship between metal deposition and vegetation health. (Mercury Study Report to Congress Volume VI, 1997) (Several studies are cited in this report.)

[283] See, for example, Brown, T.C. et al. 1989, Scenic Beauty and Recreation Value: Assessing the Relationship, In J. Vining, ed., *Social Science and Natural Resources Recreation Management,* Westview Press, Boulder, Colorado; this work studies the relationship between forest characteristics and the value of recreational participation. Also see Peterson, D.G. et al. 1987, Improving Accuracy and Reducing Cost of Environmental Benefit Assessments. Draft Report to the U.S. EPA, by Energy and Resource Consultants, Boulder, Colorado; Walsh et al. 1990, Estimating the public benefits of protecting forest quality, Journal of Forest Management, 30:175–189., and Homes et al. 1992, Economic Valuation of Spruce-Fir Decline in the Southern Appalachian Mountains: A comparison of Value Elicitation Methods. Presented at the Forestry and the Environment: Economic Perspectives Conference, March 1, 1992 Jasper, Alberta, Canada for estimates of the WTP of visitors and residents to avoid forest damage.

[284] MacKenzie, James J., and Mohamed T. El-Ashry, *Air Pollution's Toll on Forests and Crops* (New Haven, Yale University Press, 1989).

[285] Note that this rule does, in fact, consider hazardous waste feed control. Feed control can be implemented by each source through waste minimization procedures. See: Final Technical Support Document for HWC MACT Standards, Volume V–Emissions Estimates and Engineering Costs.

[286] Assessment of the Potential Costs, Benefits, and Other Impacts of the Hazardous Waste Combustion MACT Final Rule Standards. September 2005.

hazardous waste fuels (e.g., cement and lightweight aggregate kilns, boilers, and hydrochloric acid production furnaces) as necessary to protect human health and the environment. Using RCRA authority, the Agency has established emission (and other) standards for hazardous waste combustors that are either entirely risk-based (e.g., site-specific standards for metals under the Boiler and Industrial Furnace rule), or are technology-based but determined by a generic risk assessment to be protective (e.g., the DRE standard for incinerators and BIFs).

The MACT standards finalized today implement the technology-based regime of CAA § 112(d). There is, however, a residual risk component to air toxics standards. Section 112(f) of the Clean Air Act requires the Agency to impose, within eight years after promulgation of the technology-based standards promulgated under § 112(d) (i.e., the authority for today's final standards), additional controls if needed to protect public health with an ample margin of safety or to prevent adverse environmental effect.

RCRA § 1006(b) directs that EPA ''integrate all provisions of [RCRA] for purposes of administration and enforcement and * * * avoid duplication, to the maximum extent possible, with the appropriate provisions of the Clean Air Act * * * '' Thus, although considerations of risk are not ordinarily part of the MACT process, in order to avoid duplicative standards where possible, we have evaluated the protectiveness of the standards finalized today.

As noted above, under RCRA, EPA must promulgate standards ''as may be necessary to protect human health and the environment.'' RCRA § 3004(a) and (q). Technology-based standards developed under CAA § 112 do not automatically satisfy this requirement, but may do so in fact. See 59 FR at 29776 (June 6, 1994) and 60 FR at 32593 (June 23, 1995) (RCRA regulation of secondary lead smelter emissions unnecessary at this time given stringency of technology-based standard and pendency of § 112(f) determination). If the MACT standards, as a factual matter, are sufficiently protective to also satisfy the RCRA mandate, then no independent RCRA standards are required. Conversely, if MACT standards are inadequate, the RCRA authorities would have to be used to fill the gap.

II. Evaluation of Protectiveness

For the purpose of satisfying the RCRA statutory mandates, the Agency has conducted an evaluation of the degree of protection afforded by the MACT standards being finalized today. We have not conducted a comprehensive risk assessment for this rulemaking as was done for incinerators, cement kilns, and lightweight aggregate kilns in the 1999 MACT rule where we concluded that the promulgated standards were generally protective and therefore, the RCRA standards need not be retained. However, we noted that in certain instances, permit authorities may invoke the omnibus authority (RCRA § 3005(c)(3) and its implementing regulations at § 270.10(k)) if there is some reason to believe that additional controls beyond those required pursuant to 40 CFR parts 63, 264, 265, and 266 may be needed to ensure protection of human health and the environment under RCRA.

For this final rule, we instead compared the risk-related characteristics of the sources covered by the 1999 rule to the sources covered by today's rule (e.g., estimated emissions, stack characteristics, meteorology, and population). For a description of the methodology and technical discussion of its application, see ''Inferential Risk Analysis in Support of Standards for Emissions of Hazardous Air Pollutants from Hazardous Waste Combustors,'' in the docket for today's rule. We performed a large array of statistical comparisons and from these we attempted to make inferences about whether risks would be expected to be about the same, less than, or greater than the risks estimated for 1999 rule. We think the comparative analysis lends additional support to our view that today's final standards are generally protective. We received no comments either in support of or in opposition to our use of the comparative analysis to evaluate the protectiveness of the standards being finalized today or our view that the standards are generally protective.

While we regard the final standards as generally protective, the comparative analysis suggests some concern for solid fuel-fired boilers (SFBs) with regard to the particulate matter standard (and certain metals such as antimony and thallium), mercury, and total chlorine standards (other than the alternative risk-based chlorine standards). The analysis also suggests some concern for hydrochloric acid (HCl) production furnaces with regard to the dioxin/furan standard, where carbon monoxide and total hydrocarbon serve as surrogate control. However, because both SFBs and HCl production furnaces comprise such small source categories (4 SFB facilities and 8 HCl production facilities), it is difficult to reach firm conclusions. For example, for SFBs it was not possible to conduct hypothesis tests that could be considered valid involving correlations among variables for a number of variables in the analysis because of the small number of data points and the power of the tests to detect differences for those that were conducted was very low, which greatly diminishes the value of the results. (Indeed, no differences in correlations were found for SFBs at the 0.1 significance level—the level of significance that was used in the analysis.) Similarly, for HCl production furnaces the power of the tests to detect differences in correlations was quite low. It must be noted that the comparative analysis methodology was not intended for comparisons that involve relatively few facilities because it is grounded in tests of hypotheses and levels of statistical significance which generally require substantial amounts of data to produce firm conclusions. Nevertheless, in consideration of the indications of possible risks for the aforementioned standards, permit authorities may want to consider site-specific factors in determining whether or not the MACT standards are sufficiently protective for facilities that fall into these categories.

The comparative analysis may also raise possible concerns for lightweight aggregate kilns (LWAKs) and liquid fuel-fired boilers (LFBs) with dry APCDs with regard to the dioxin/furan standards, in view of the ongoing uncertainty in cancer and other health effects levels for chlorinated dioxins and furans. In particular, some recent estimates of the carcinogenicity of these compounds that consider both human and animal data, are higher than earlier estimates derived from animal data alone. However, like SFBs and HCl production furnaces, LWAKs and LFBs with dry APCDs both comprise small source categories (3 LWAK facilities and 7 dry APCD LFB facilities). This makes it very difficult to reach firm conclusions and suggests the need to consider site-specific factors in determining whether the MACT standards are sufficiently protective in these instances.

Except as noted, we believe today's final standards provide a substantial degree of protection to human health and the environment. We therefore do not believe that we need to retain the existing RCRA standards for boilers and hydrochloric acid production furnaces (just as we found that existing RCRA standards for incinerators, cement kilns, and lightweight aggregate kilns were no longer needed after the 1999 rule). However, as previously discussed in more detail in Part Four, Section IX, site-specific risk assessments may be warranted on an individual source basis to ensure that the MACT standards provide adequate protection in accordance with RCRA.

Part Eight: Statutory and Executive Order Reviews

I. Executive Order 12866: Regulatory Planning and Review

Under Executive Order 12866 [58 FR 51735 (October 4, 1993)] the Agency, in conjunction with OMB's Office of Information and Regulatory Affairs (OIRA), must determine whether a regulatory action is ''significant'' and therefore subject to OMB review and the full requirements of the Executive Order. The Order defines ''significant regulatory action'' as one that is likely to result in a rule that may:

(1) Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;

(2) Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

(3) Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or

(4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

Pursuant to the terms of Executive Order 12866, it has been determined that this rule is a ''significant regulatory action'' because this action may raise novel legal or policy issues due to the methodology applied in development of the final standards. As such, this action was submitted to OMB for review. Changes made in response to OMB suggestions or recommendations are documented in the public record.

The total social costs for this rule are estimated at $22.6 million per year[287]. This figure is significantly below the $100 million threshold established under point number one above. Thus, this rule is not considered to be an economically significant action. However, in an effort to comply with the spirit of the Order, we have prepared an economic assessment in support of today's final rule. This document is entitled: Assessment of the Potential Costs, Benefits, and Other Impacts of the Hazardous Waste Combustion MACT Final Rule Standards, September 2005. We have also prepared an Addendum to this Assessment entitled: Addendum to the Assessment of the Potential Costs, Benefits, and Other Impacts of the Hazardous Waste Combustion MACT Final Rule Standards, September 2005. This Addendum captures changes made to the rulemaking following completion of the full Assessment document. The Assessment and Addendum were designed to adhere to analytical requirements established under Executive Order 12866, and corresponding Agency and OMB guidance; subject to data, analytical, and resource limitations. Findings presented under Part Six of this Preamble were developed in accordance with this guidance. The RCRA docket established for today's rulemaking maintains a copy of the Assessment and Addendum for public review. Interested persons are encouraged to read both documents to gain a full understanding of the analytical methodology, findings, and limitations associated with this report.

II. Paperwork Reduction Act

We have prepared an Information Collection Request (ICR) document (ICR No. 1773.08) listing the information collection requirements of this final rule, and have submitted it for approval to the Office of Management and Budget (OMB) under the provisions of the Paperwork Reduction Act, U.S.C. 3501 *et seq.* OMB has assigned a control number 2050–0171 for this ICR. This ICR is available for public viewing in the EPA Docket Center, Room B102, 1301 Constitution Avenue NW., Washington, DC. Copy may also be obtained from the EDOCKET on the EPA Web site, or by calling (202) 566–1744. The information collection requirements are not enforceable until OMB approves them.

The public burden associated with this final rule is projected to affect 238 HWC units and is estimated to average 211 hours per respondent annually. The reporting and recordkeeping cost burden is estimated to average $5,640 per respondent annually.

Burden means total time, effort, or financial resources expended by persons to generate, maintain, retain, disclose, or provide information to or for a Federal agency. That includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations are listed in 40 CFR part 9. When this ICR is approved by OMB, the Agency will publish a technical amendment to 40 CFR part 9 in the **Federal Register** to display the OMB control number for the approved information collection requirements contained in this final rule.

The EPA requested comments (see 70 FR 20748, Apr. 21, 2005) on the need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques.

III. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), 5 U.S.C. 601 et seq., generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act, or any other statute. This analysis must be completed unless the agency is able to certify that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small not-for-profit enterprises, and small governmental jurisdictions.

The RFA provides default definitions for each type of small entity. Small entities are defined as: (1) A small business as defined by the Small Business Administration's (SBA) regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of today's final rule on small entities, I certify that this action will not

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[287] This figure includes approximately $0.5 million/year in total government costs. Total social costs would increase to approximately $28.6 million per year if we were to assume all sources were to comply with technology-based TC1 standards.

have a significant economic impact on a substantial number of small entities. We have determined that hazardous waste combustion facilities are not owned by small governmental jurisdiction or nonprofit organizations. Therefore, only small businesses were analyzed for small entity impacts. For the purposes of the impact analyses, small entity is defined either by the number of employees or by the dollar amount of sales. The level at which a business is considered small is determined for each North American Industrial Classification System (NAICS) code by the Small Business Administration.

Affected individual waste combustors (incinerators, cement kilns, lightweight aggregate kilns, solid and liquid fuel-boilers, and hydrochloric acid production furnaces) will bear the impacts of today's rule. These units will incur direct economic impacts (positive or negative) as a result of today's rule. Few of the hazardous waste combustion facilities affected by this rule were found to be owned by small businesses, as defined by the Small Business Administration (SBA). From our universe of 145 facilities, we identified eight facilities that are currently owned by small businesses. Four of these facilities are liquid boilers, two are on-site incinerators, one is a cement kiln, and one is a lightweight aggregate kiln (LWAK). Our analysis indicates that none of these facilities are likely to incur annualized compliance costs greater than one percent of gross annual corporate revenues. Cost impacts of the final standards were found to range from less than 0.01 percent to 0.46 percent of annual gross corporate revenues.

The reader is encouraged to review our regulatory flexibility screening analysis prepared in support of this determination. This analysis is incorporated as Appendix H of the *Assessment* document, and updated in the *Addendum*.

IV. Unfunded Mandates Reform Act of 1995

Signed into law on March 22, 1995, the Unfunded Mandates Reform Act (UMRA) calls on all federal agencies to provide a statement supporting the need to issue any regulation containing an unfunded federal mandate and describing prior consultation with representatives of affected state, local, and tribal governments.

Today's final rule is not subject to the requirements of sections 202, 204 and 205 of UMRA. In general, a rule is subject to the requirements of these sections if it contains ''Federal mandates'' that may result in the expenditure by State, local, and tribal governments, in the aggregate, or by the private sector, of $100 million or more in any one year. Today's final rule does not result in $100 million or more in expenditures for any of these categories. The aggregate annualized social cost for today's rule is estimated at $22.6 million.

V. Executive Order 13132: Federalism

Executive Order 13132, entitled ''Federalism'' (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure ''meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.'' ''Policies that have federalism implications'' is defined in the Executive Order to include regulations that have ''substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.''

Under Executive Order 13132, EPA may not issue a regulation that has federalism implications, that imposes substantial direct compliance costs, and that is not required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by State and local governments, or EPA consults with State and local officials early in the process of developing the regulation.

This final rule does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in the Order. The rule focuses on requirements for facilities burning hazardous waste, without affecting the relationships between Federal and State governments. Thus, Executive Order 13132 does not apply to this rule. Although section 6 of Executive Order 13132 does not apply to this rule, EPA did include various State representatives on our Agency workgroup. These representatives participated in the development of this rule.

VI. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

Executive Order 13175: Consultation and Coordination with Indian Tribal Governments (65 FR 67249, November 9, 2000), requires EPA to develop an accountable process to ensure ''meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications.'' Our Agency workgroup for this rule included Tribal representation. We have determined that this final rule does not have tribal implications, as specified in the Order. No Tribal governments are known to own or operate hazardous waste combustors subject to the requirements of this final rule. Furthermore, this rule focuses on requirements for all regulated sources without affecting the relationships between tribal governments in its implementation, and applies to all regulated sources, without distinction of the surrounding populations affected. Thus, Executive Order 13175 does not apply to this rule.

VII. Executive Order 13045: Protection of Children From Environmental Health Risks and Safety Risks

Executive Order 13045: ''Protection of Children from Environmental Health Risks and Safety Risks'' (62 FR. 19885, April 23, 1997) applies to any rule that: (1) Is determined to be ''economically significant'' as defined under E.O. 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency. Today's final rule is not subject to the Executive Order because it is not economically significant as defined under point one of the Order, and because the Agency does not have reason to believe the environmental health or safety risks addressed by this action present a disproportionate risk to children.

VIII. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

This rule is not subject to Executive Order 13211, ''Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use'' (66 Fed. Reg. 28355 (May 22, 2001)). This rule, as finalized, will not seriously disrupt energy supply, distribution patterns, prices, imports or exports. Furthermore, this rule is not an economically significant action under Executive Order 12866.

IX. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (''NTTAA''), Public Law 104–113, 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (*e.g.*, materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

This rulemaking involves environmental monitoring or measurement. Both Performance Based Measurement System (PBMS) and specific measurement methods are finalized under this rule. The PBMS approach is intended to be more flexible and cost-effective for the regulated community; it is also intended to encourage innovation in analytical technology and improved data quality. Where allowed, EPA is not precluding the use of any method, whether it constitutes a voluntary consensus standard or not, as long as it meets the performance criteria specified.

X. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order 12898, ''Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations' (February 11, 1994) requires us to complete an analysis of today's rule with regard to equity considerations. The Order is designed to address the environmental and human health conditions of minority and low-income populations. This section briefly discusses potential impacts (direct or disproportional) today's rule may have in the area of environmental justice.

We have recently analyzed demographic data from the U.S. Census, and have previously examined data from two other reports: ''Race, Ethnicity, and Poverty Status of the Populations Living Near Cement Plants in the United States'' (EPA, August 1994) and ''Race, Ethnicity, and Poverty Status of the Populations Living Near Hazardous Waste Incinerators in the United States'' (EPA, October 1994). These reports examine the number of low-income and minority individuals living near a relatively large sample of cement kilns and hazardous waste incinerators and provide county, state, and national population percentages for various sub-populations. The demographic data in these reports provide several important findings when examined in conjunction with the risk reductions projected from today's rule.

We find that combustion facilities, in general, are not located in areas with disproportionately high minority and low-income populations. However, there is evidence that hazardous waste burning cement kilns are somewhat more likely to be located in areas that have relatively higher low-income populations. Furthermore, there are a small number of commercial hazardous waste incinerators located in highly urbanized areas where there is a disproportionately high concentration of minorities and low-income populations within one and five mile radii. The reduced emissions at these facilities due to today's rule could represent meaningful environmental and health improvements for these populations. Overall, today's rule should not result in any adverse or disproportional health or safety effects on minority or low-income populations. Any impacts on these populations are likely to be positive due to the reduction in emissions from combustion facilities near minority and low-income population groups. The Assessment document available in the RCRA docket established for today's rule discusses our Environmental Justice analysis.

XI. Congressional Review

The Congressional Review Act (CRA), 5 U.S.C. 801 *et seq.*, as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. Prior to publication of the final rule in the **Federal Register**, we will submit all necessary information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States. Under the CRA, a major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is not a ''major rule'' as defined by 5 U.S.C. 804(2).

List of Subjects

40 CFR Part 9

Environmental protection, Reporting and recordkeeping requirements.

40 CFR Part 63

Environmental protection, Air pollution control, Hazardous substances, Incorporation by reference, Reporting and recordkeeping requirements.

40 CFR Part 260

Environmental protection, Administrative practice and procedure, Confidential business information, Hazardous waste, Reporting and recordkeeping requirements.

40 CFR Part 264

Environmental protection, Air pollution control, Hazardous waste, Insurance, Packaging and containers, Reporting and recordkeeping requirements, Security measures, Surety bonds.

40 CFR Part 265

Environmental protection, Air pollution control, Hazardous waste, Insurance, Packaging and containers, Reporting and recordkeeping requirements.

40 CFR Part 266

Environmental protection, Energy, Hazardous waste, Recycling, Reporting and recordkeeping requirements.

40 CFR Part 270

Environmental protection, Administrative practice and procedure, Confidential business information, Hazardous materials transportation, Hazardous waste, Reporting and recordkeeping requirements.

40 CFR Part 271

Administrative practice and procedure, Hazardous materials transportation, Hazardous waste, Intergovernmental relations, Reporting and recordkeeping requirements.

Dated: September 14, 2005.

Stephen L. Johnson,

Administrator.

■ For the reasons set out in the preamble, title 40, chapter I, of the Code of Federal Regulations is amended as follows:

PART 9—OMB APPROVALS UNDER THE PAPERWORK REDUCTION ACT

■ 1. The authority citation for part 9 continues to read as follows:

Authority: 7 U.S.C. 135 *et seq.*, 136–136y; 15 U.S.C. 2001, 2003, 2005, 2006, 2601–2671; 21 U.S.C. 331j, 346a, 348; 31 U.S.C. 9701; 33 U.S.C. 1251 *et seq.*, 1311, 1313d, 1314, 1318, 1321, 1326, 1330, 1342, 1344, 1345 (d) and (e), 1361; E.O. 11735, 38 FR 21243, 3 CFR, 1971–1975 Comp. p. 973; 42 U.S.C. 241, 242b, 243, 246, 300f, 300g, 300g–1, 300g–2, 300g–3, 300g–4, 300g–5, 300g–6, 300j–1, 300j–2, 300j–3, 300j–4, 300j–9, 1857 *et seq.*, 6901–6992k, 7401–7671q, 7542, 9601–9657, 11023, 11048.

■ 2. Section 9.1 is amended in the table under center heading ‘‘National Emission Standards for Hazardous Air Pollutants for Source Categories’’ by adding entry ‘‘63.1200–63.1221’’ in numerical order to read as follows:

§ 9.1 OMB approvals under the Paperwork Reduction Act.

* * * * *

40 CFR citation	OMB control No.
* * * *	* * *
National Emission Standards for Hazardous Air Pollutants for Source Categories[3]	
* * * *	* * *
63.1200–63.1221	2050–0171

[3] The ICRs referenced in this section of the table encompass the applicable general provisions contained in 40 CFR part 63, subpart A, which are not independent information collection requirements.

* * * * *

PART 63—NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR SOURCE CATEGORIES

■ 1. The authority citation for part 63 continues to read as follows:

Authority: 42 U.S.C. 7401 *et seq.*

■ 2. Section 63.14 is amended by:
■ a. Removing paragraphs (i)(1) and (i)(2).
■ b. Redesignating paragraph (i)(3) as (i)(1).
■ c. Adding and reserving new paragraph (i)(2).
■ d. Revising paragraph (k).

The revisions and additions read as follows:

§ 63.14 Incorporations by reference.

* * * * *

(i) * * *

(2) [Reserved]

* * * * *

(k) The following materials are available for purchase from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 605–6000 or (800) 553–6847; or for purchase from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, (202) 512–1800:

(1) The following methods as published in the test methods compendium known as ‘‘Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,’’ EPA Publication SW–846, Third Edition. A suffix of ‘‘A’’ in the method number indicates revision one (the method has been revised once). A suffix of ‘‘B’’ in the method number indicates revision two (the method has been revised twice).

(i) Method 0023A, ‘‘Sampling Method for Polychlorinated Dibenzo-*p*-Dioxins and Polychlorinated Dibenzofuran Emissions from Stationary Sources,’’ dated December 1996 and in Update III, IBR approved for § 63.1208(b)(1) of Subpart EEE of this part.

(ii) Method 9071B, ‘‘n-Hexane Extractable Material (HEM) for Sludge, Sediment, and Solid Samples,’’ dated April 1998 and in Update IIIA, IBR approved for § 63.7824(e) of Subpart FFFFF of this part.

(iii) Method 9095A, ‘‘Paint Filter Liquids Test,’’ dated December 1996 and in Update III, IBR approved for §§ 63.7700(b) and 63.7765 of Subpart EEEEE of this part.

(2) [Reserved]

■ 3. Section 63.1200 is amended by:
■ a. Revising the introductory text.
■ b. Revising paragraph (a)(2).
■ c. Adding entry (4) in Table 1 in paragraph (b).

The revisions and additions read as follows:

§ 63.1200 Who is subject to these regulations?

The provisions of this subpart apply to all hazardous waste combustors: hazardous waste incinerators, hazardous waste cement kilns, hazardous waste lightweight aggregate kilns, hazardous waste solid fuel boilers, hazardous waste liquid fuel boilers, and hazardous waste hydrochloric acid production furnaces. Hazardous waste combustors are also subject to applicable requirements under parts 260 through 270 of this chapter.

(a) * * *

(2) Both area sources and major sources subject to this subpart, but not previously subject to title V, are immediately subject to the requirement to apply for and obtain a title V permit in all States, and in areas covered by part 71 of this chapter.

(b) * * *

TABLE 1 TO § 63.1200.—HAZARDOUS WASTE COMBUSTORS EXEMPT FROM SUBPART EEE

If	And If	Then
* * *	* *	* *
(4) You meet the definition of a small quantity burner under § 266.108 of this chapter		You are not subject to the requirements of this subpart (Subpart EEE).

* * * * *

■ 4. Section 63.1201 is amended in paragraph (a) by revising the definitions of ‘‘Hazardous waste combustor’’, ‘‘New source’’, and ‘‘TEQ’’, and adding definitions for ‘‘Btu’’, ‘‘Hazardous waste hydrochloric acid production furnace’’, ‘‘Hazardous waste liquid fuel boiler’’, ‘‘Hazardous waste solid fuel boiler’’, and ‘‘System removal efficiency’’ in alphabetical order to read as follows:

§ 63.1201 Definitions and acronyms used in this subpart.

(a) * * *

Btu means British Thermal Units.

* * * * *

Hazardous waste combustor means a hazardous waste incinerator, hazardous waste burning cement kiln, hazardous waste burning lightweight aggregate kiln, hazardous waste liquid fuel boiler, hazardous waste solid fuel boiler, or hazardous waste hydrochloric acid production furnace.

* * * * *

Hazardous waste hydrochloric acid production furnace and *Hazardous Waste HCl production furnace* mean a halogen acid furnace defined under § 260.10 of this chapter that produces aqueous hydrochloric acid (HCl) product and that burns hazardous waste at any time.

* * * * *

Hazardous waste liquid fuel boiler means a boiler defined under § 260.10 of this chapter that does not burn solid fuels and that burns hazardous waste at any time. Liquid fuel boiler includes boilers that only burn gaseous fuel.

* * * * *

Hazardous waste solid fuel boiler means a boiler defined under § 260.10 of this chapter that burns a solid fuel and that burns hazardous waste at any time.

* * * * *

New source means any affected source the construction or reconstruction of which is commenced after the dates specified under §§ 63.1206(a)(1)(i)(B), (a)(1)(ii)(B), and (a)(2)(ii).

* * * * *

System removal efficiency means [1 − Emission Rate (mass/time) / Feedrate (mass/time)] X 100.

* * * * *

TEQ means the international method of expressing toxicity equivalents for dioxins and furans as defined in U.S. EPA, Interim Procedures for Estimating Risks Associated with Exposures to Mixtures of Chlorinated Dibenzo-p-dioxins and -dibenzofurans (CDDs and CDFs) and 1989 Update, March 1989.

* * * * *

■ 5. Section 63.1203 is amended by:

■ a. Revising an undesignated center heading above the section heading.

■ b. Revising the section heading.

■ c. Revising paragraph (c)(3)(2).

The revisions and additions read as follows:

Interim Emissions Standards and Operating Limits For Incinerators, Cement Kilns, and Lightweight Aggregate Kilns

§ 63.1203 What are the standards for hazardous waste incinerators that are effective until compliance with the standards under § 63.1219?

* * * * *

(c) * * *

(3) * * *

(ii) You must specify one or more POHCs that are representative of the most difficult to destroy organic compounds in your hazardous waste feedstream. You must base this specification on the degree of difficulty of incineration of the organic constituents in the hazardous waste and on their concentration or mass in the hazardous waste feed, considering the results of hazardous waste analyses or other data and information.

* * * * *

■ 6. The section heading to § 63.1204 and paragraph (c)(3)(ii) are revised to read as follows:

§ 63.1204 What are the standards for hazardous waste burning cement kilns that are effective until compliance with the standards under § 63.1220?

* * * * *

(c) * * *

(3) * * *

(ii) You must specify one or more POHCs that are representative of the most difficult to destroy organic compounds in your hazardous waste feedstream. You must base this specification on the degree of difficulty of incineration of the organic constituents in the hazardous waste and on their concentration or mass in the hazardous waste feed, considering the results of hazardous waste analyses or other data and information.

* * * * *

■ 7. The section heading to § 63.1205 and paragraph (c)(3)(ii) are revised to read as follows:

§ 63.1205 What are the standards for hazardous waste burning lightweight aggregate kilns that are effective until compliance with the standards under § 63.1221?

* * * * *

(c) * * *

(3) * * *

(ii) You must specify one or more POHCs that are representative of the most difficult to destroy organic compounds in your hazardous waste feedstream. You must base this specification on the degree of difficulty of incineration of the organic constituents in the hazardous waste and on their concentration or mass in the hazardous waste feed, considering the results of hazardous waste analyses or other data and information.

* * * * *

■ 8. Section 63.1206 is amended by:
■ a. Revising paragraph (a).
■ b. Revising paragraphs (b)(1)(ii), (b)(6) introductory text, (b)(7)(i)(A), (b)(7)(ii), (b)(9)(i) introductory text, (b)(9)(i)(A), (b)(9)(iv)(A), (b)(9)(vi), (b)(9)(vii) introductory text, (b)(9)(viii)(D), (b)(9)(ix)(D), (b)(10)(i) introductory text, (b)(10)(i)(A), (b)(10)(vi), (b)(10)(vii) introductory text, (b)(10)(viii)(D), (b)(10)(ix)(D), (b)(11), (b)(13)(i) introductory text, (b)(13)(ii), and (b)(14).
■ c. Adding paragraph (b)(16).
■ d. Revising paragraphs (c)(1)(i) introductory text, (c)(3)(iv), (c)(6)(iii)(B) introductory text, (c)(6)(iv) introductory text, and (c)(7).
■ e. Adding paragraphs (c)(8) and (c)(9).

The revisions and additions read as follows:

§ 63.1206 When and how must you comply with the standards and operating requirements?

(a) *Compliance dates.* (1) *Compliance dates for incinerators, cement kilns, and lightweight aggregate kilns that burn hazardous waste.* (i) *Compliance date for standards under §§ 63.1203, 63.1204, and 63.1205.* (A) *Compliance dates for existing sources.* You must comply with the emission standards under §§ 63.1203, 63.1204, and 63.1205 and the other requirements of this subpart no later than the compliance date, September 30, 2003, unless the Administrator grants you an extension of time under § 63.6(i) or § 63.1213.

(B) *New or reconstructed sources.* (*1*) If you commenced construction or reconstruction of your hazardous waste combustor after April 19, 1996, you must comply with the emission standards under §§ 63.1203, 63.1204, and 63.1205 and the other requirements of this subpart by the later of September 30, 1999 or the date the source starts operations, except as provided by paragraph (a)(1)(i)(B)(*2*) of this section. The costs of retrofitting and replacement of equipment that is installed specifically to comply with this subpart, between April 19, 1996 and a source's compliance date, are not considered to be reconstruction costs.

(*2*) For a standard under §§ 63.1203, 63.1204, and 63.1205 that is more stringent than the standard proposed on April 19, 1996, you may achieve compliance no later than September 30, 2003 if you comply with the standard proposed on April 19, 1996 after September 30, 1999. This exception does not apply, however, to new or reconstructed area source hazardous waste combustors that become major sources after September 30, 1999. As provided by § 63.6(b)(7), such sources must comply with the standards under §§ 63.1203, 63.1204, and 63.1205 at startup.

(ii) *Compliance date for standards under §§ 63.1219, 63.1220, and 63.1221.* (A) *Compliance dates for existing sources.* You must comply with the emission standards under §§ 63.1219, 63.1220, and 63.1221 and the other requirements of this subpart no later than the compliance date, October 14, 2008, unless the Administrator grants you an extension of time under § 63.6(i) or § 63.1213.

(B) *New or reconstructed sources.* (*1*) If you commenced construction or reconstruction of your hazardous waste combustor after April 20, 2004, you must comply with the new source emission standards under §§ 63.1219, 63.1220, and 63.1221 and the other requirements of this subpart by the later of October 12, 2005 or the date the source starts operations, except as provided by paragraph (a)(1)(ii)(B)(*2*) of this section. The costs of retrofitting and replacement of equipment that is installed specifically to comply with this subpart, between April 20, 2004, and a source's compliance date, are not considered to be reconstruction costs.

(*2*) For a standard under §§ 63.1219, 63.1220, and 63.1221 that is more stringent than the standard proposed on April 20, 2004, you may achieve compliance no later than October 14, 2008, if you comply with the standard proposed on April 20, 2004, after October 12, 2005. This exception does not apply, however, to new or reconstructed area source hazardous waste combustors that become major sources after October 14, 2008. As provided by § 63.6(b)(7), such sources must comply with the standards under §§ 63.1219, 63.1220, and 63.1221 at startup.

(2) *Compliance dates for solid fuel boilers, liquid fuel boilers, and hydrogen chloride production furnaces that burn hazardous waste for standards under §§ 63.1216, 63.1217, and 63.1218.* (i) *Compliance date for existing sources.* You must comply with the standards of this subpart no later than the compliance date, October 14, 2008, unless the Administrator grants you an extension of time under § 63.6(i) or § 63.1213.

(ii) *New or reconstructed sources.* (A) If you commenced construction or reconstruction of your hazardous waste combustor after October 12, 2005, you must comply with the new source emission standards of this subpart by the later of October 12, 2005, or the date the source starts operations, except as provided by paragraph (a)(2)(ii)(B) of this section. The costs of retrofitting and replacement of equipment that is installed specifically to comply with this subpart, between April 20, 2004, and a source's compliance date, are not considered to be reconstruction costs.

(B) For a standard in the subpart that is more stringent than the standard proposed on April 20, 2004, you may achieve compliance no later than October 14, 2008, if you comply with the standard proposed on April 20, 2004, after October 12, 2005. This exception does not apply, however, to new or reconstructed area source hazardous waste combustors that become major sources after October 14, 2008. As provided by § 63.6(b)(7), such sources must comply with this subpart at startup.

(3) *Early compliance.* If you choose to comply with the emission standards of this subpart prior to the dates specified in paragraphs (a)(1) and (a)(2) of this section, your compliance date is the earlier of the date you postmark the Notification of Compliance under § 63.1207(j)(1) or the dates specified in paragraphs (a)(1) and (a)(2) of this section.

(b) * * *

(1) * * *

(ii) When hazardous waste is not in the combustion chamber (i.e., the hazardous waste feed to the combustor has been cut off for a period of time not less than the hazardous waste residence time) and you have documented in the operating record that you are complying with all otherwise applicable requirements and standards promulgated under authority of sections 112 (e.g., 40 CFR part 63, subparts LLL, DDDDD, and NNNNN) or 129 of the Clean Air Act in lieu of the emission standards under §§ 63.1203, 63.1204, 63.1205, 63.1215, 63.1216, 63.1217, 63.1218, 63.1219, 63.1220, and 63.1221; the monitoring and compliance standards of this section and §§ 63.1207 through 63.1209, except the modes of operation requirements of § 63.1209(q); and the notification, reporting, and recordkeeping requirements of §§ 63.1210 through 63.1212.

* * * * *

(6) *Compliance with the carbon monoxide and hydrocarbon emission standards.* This paragraph applies to sources that elect to comply with the carbon monoxide and hydrocarbon emissions standards of this subpart by documenting continuous compliance with the carbon monoxide standard using a continuous emissions monitoring system and documenting compliance with the hydrocarbon standard during the destruction and removal efficiency (DRE) performance test or its equivalent.

* * * * *

(7) * * * (i) * * *

(A) You must document compliance with the Destruction and Removal Efficiency (DRE) standard under this subpart only once provided that you do not modify the source after the DRE test in a manner that could affect the ability of the source to achieve the DRE standard.

* * * * *

(ii) *Sources that feed hazardous waste at locations other than the normal flame zone.* (A) Except as provided by paragraph (b)(7)(ii)(B) of this section, if you feed hazardous waste at a location in the combustion system other than the normal flame zone, then you must demonstrate compliance with the DRE standard during each comprehensive performance test;

(B)(*1*) A cement kiln that feeds hazardous waste at a location other than the normal flame zone need only demonstrate compliance with the DRE standard during three consecutive comprehensive performance tests provided that:

(*i*) All three tests achieve the DRE standard in this subpart; and

(*ii*) The design, operation, and maintenance features of each of the three tests are similar;

(*iii*) The data in lieu restriction of § 63.1207(c)(2)(iv) does not apply when complying with the provisions of paragraph (b)(7)(ii)(B) of this section;

(*2*) If at any time you change your design, operation, and maintenance features in a manner that could reasonably be expected to affect your ability to meet the DRE standard, then you must comply with the requirements of paragraph (b)(7)(ii)(A) of this section.

* * * * *

(9) * * * (i) You may petition the Administrator to request alternative standards to the mercury or hydrogen chloride/chlorine gas emission standards of this subpart, to the semivolatile metals emission standards under §§ 63.1205, 63.1221(a)(3)(ii), or 63.1221(b)(3)(ii), or to the low volatile metals emissions standards under §§ 63.1205, 63.1221(a)(4)(ii), or 63.1221(b)(4)(ii) if:

(A) You cannot achieve one or more of these standards while using maximum achievable control technology (MACT) because of raw material contributions to emissions of mercury, semivolatile metals, low volatile metals, or hydrogen chloride/chlorine gas; or

* * * * *

(iv) * * * (A) The alternative standard petition you submit under paragraph (b)(9)(i)(A) of this section must include data or information documenting that raw material contributions to emissions prevent you from complying with the emission standard even though the source is using MACT, as defined under paragraphs (b)(9)(viii) and (ix) of this section, for the standard for which you are seeking relief.

* * * * *

(vi) You must include data or information with semivolatile metals, low volatile metals, and hydrogen chloride/chlorine gas alternative standard petitions that you submit under paragraph (b)(9)(i)(A) of this section documenting that semivolatile metals, low volatile metals, and hydrogen chloride/chlorine gas emissions attributable to the hazardous waste only will not exceed the emission standards of this subpart.

(vii) You must not operate pursuant to your recommended alternative standards in lieu of emission standards specified in this subpart:

* * * * *

(viii) * * *

(D) For hydrogen chloride/chlorine gas, a hazardous waste chlorine feedrate corresponding to an MTEC of 2,000,000 µg/dscm or less, and use of an air pollution control device with a hydrogen chloride/chlorine gas removal efficiency of 85 percent or greater.

(ix) * * *

(D) For hydrogen chloride/chlorine gas, a hazardous waste chlorine feedrate corresponding to an MTEC of 14,000,000 µg/dscm or less, and use of an air pollution control device with a hydrogen chloride/chlorine gas removal efficiency of 99.6 percent or greater.

(10) * * * (i) You may petition the Administrator to request alternative standards to the mercury or hydrogen chloride/chlorine gas emission standards of this subpart, to the semivolatile metals emission standards under §§ 63.1204, 63.1220(a)(3)(ii), or 63.1220(b)(3)(ii), or to the low volatile metals emissions standards under §§ 63.1204, 63.1220(a)(4)(ii), or 63.1220(b)(4)(ii) if:

(A) You cannot achieve one or more of these standards while using maximum achievable control technology (MACT) because of raw material contributions to emissions of mercury, semivolatile metals, low volatile metals, or hydrogen chloride/chlorine gas; or

* * * * *

(vi) You must include data or information with semivolatile metals, low volatile metals, and hydrogen chloride/chlorine gas alternative standard petitions that you submit under paragraph (b)(10)(i)(A) of this section documenting that emissions of the regulated metals and hydrogen chloride/chlorine gas attributable to the hazardous waste only will not exceed the emission standards in this subpart.

(vii) You must not operate pursuant to your recommended alternative standards in lieu of emission standards specified in this subpart:

* * * * *

(viii) * * *

(D) For hydrogen chloride/chlorine gas, a hazardous waste chlorine feedrate corresponding to an MTEC of 720,000 µg/dscm or less.

(ix) * * *

(D) For hydrogen chloride/chlorine gas, a hazardous waste chlorine feedrate corresponding to an MTEC of 420,000 µg/dscm or less.

(11) *Calculation of hazardous waste residence time.* You must calculate the hazardous waste residence time and include the calculation in the performance test plan under § 63.1207(f) and the operating record. You must also provide the hazardous waste residence time in the Documentation of Compliance under § 63.1211(c) and the Notification of Compliance under §§ 63.1207(j) and 63.1210(d).

* * * * *

(13) * * *

(i) Cement kilns that feed hazardous waste at a location other than the end where products are normally discharged and where fuels are normally fired must comply with the carbon monoxide and hydrocarbon standards of this subpart as follows:

* * * * *

(ii) Lightweight aggregate kilns that feed hazardous waste at a location other than the end where products are normally discharged and where fuels are normally fired must comply with the hydrocarbon standards of this subpart as follows:

(A) Existing sources must comply with the 20 parts per million by volume hydrocarbon standard of this subpart;

(B) New sources must comply with the 20 parts per million by volume hydrocarbon standard of this subpart.

(14) *Alternative to the particulate matter standard for incinerators.* (i). *General.* In lieu of complying with the particulate matter standards under § 63.1203, you may elect to comply with the following alternative metal emission control requirements:

(ii) *Alternative metal emission control requirements for existing incinerators.* (A) You must not discharge or cause combustion gases to be emitted into the atmosphere that contain cadmium, lead, and selenium in excess of 240 µg/dscm, combined emissions, corrected to 7 percent oxygen; and,

(B) You must not discharge or cause combustion gases to be emitted into the atmosphere that contain antimony, arsenic, beryllium, chromium, cobalt, manganese, and nickel in excess of 97 µg/dscm, combined emissions, corrected to 7 percent oxygen.

(iii) *Alternative metal emission control requirements for new incinerators.* (A) You must not discharge or cause combustion gases to be emitted into the atmosphere that contain cadmium, lead, and selenium in excess of 24 µg/dscm, combined emissions, corrected to 7 percent oxygen; and,

(B) You must not discharge or cause combustion gases to be emitted into the atmosphere that contain antimony, arsenic, beryllium, chromium, cobalt, manganese, and nickel in excess of 97 µg/dscm, combined emissions, corrected to 7 percent oxygen.

(iv) *Operating limits.* Semivolatile and low volatile metal operating parameter limits must be established to ensure compliance with the alternative emission limitations described in paragraphs (e)(2) and (e)(3) of this section pursuant to § 63.1209(n), except that semivolatile metal feedrate limits apply to lead, cadmium, and selenium, combined, and low volatile metal feedrate limits apply to arsenic, beryllium, chromium, antimony, cobalt, manganese, and nickel, combined.

* * * * *

(16) *Compliance with subcategory standards for liquid fuel boilers.* You must comply with the mercury, semivolatile, low volatile metal, and total chlorine standards for liquid fuel boilers under § 63.1217 as follows:

(i) You must determine the as-fired heating value of each batch of hazardous waste fired by each firing system of the boiler so that you know the mass-weighted heating value of the hazardous waste fired at all times.

(ii) If the as-fired heating value of the hazardous waste is 10,000 Btu per pound or greater, you are subject to the thermal emission concentration standards (lb/million Btu) under § 63.1217.

(iii) If the as-fired heating value of the hazardous waste is less than 10,000 Btu/lb, you are subject to the mass or volume emission concentration standards (µg/dscm or ppmv) under § 63.1217.

(iv) If the as-fired heating value of hazardous wastes varies above and below 10,000 Btu/lb over time, you are subject to the thermal concentration standards when the heating value is 10,000 Btu/lb or greater and the mass concentration standards when the heating value is less than 10,000 Btu/lb. You may elect to comply at all times with the more stringent operating requirements that ensure compliance with both the thermal emission concentration standards and the mass or volume emission concentration standards.

* * * * *

(c) * * * (1) * * * (i) You must operate only under the operating requirements specified in the Documentation of Compliance under § 63.1211(c) or the Notification of Compliance under §§ 63.1207(j) and 63.1210(d), except:

* * * * *

(3) * * *

(iv) *Failure of the AWFCO system.* If the AWFCO system fails to automatically and immediately cutoff the flow of hazardous waste upon exceedance of a parameter required to be interlocked with the AWFCO system under paragraph (c)(3)(i) of this section, you have failed to comply with the AWFCO requirements of paragraph (c)(3) of this section. If an equipment or other failure prevents immediate and automatic cutoff of the hazardous waste feed, however, you must cease feeding hazardous waste as quickly as possible.

* * * * *

(6) * * *

(iii) * * *

(B) Be trained under the requirements of, and certified under, one of the following American Society of Mechanical Engineers (ASME) standards: QHO–1–1994, QHO–1a–1996, or QHO–1–2004 (Standard for the Qualification and Certification of Hazardous Waste Incinerator Operators). If you elect to use the ASME program:

* * * * *

(iv) Control room operators of cement kilns, lightweight aggregate kilns, solid fuel boilers, liquid fuel boilers, and hydrochloric acid production furnaces must be trained and certified under:

* * * * *

(7) *Operation and maintenance plan*—(i) You must prepare and at all times operate according to an operation and maintenance plan that describes in detail procedures for operation, inspection, maintenance, and corrective measures for all components of the combustor, including associated pollution control equipment, that could affect emissions of regulated hazardous air pollutants.

(ii) The plan must prescribe how you will operate and maintain the combustor in a manner consistent with good air pollution control practices for minimizing emissions at least to the levels achieved during the comprehensive performance test.

(iii) This plan ensures compliance with the operation and maintenance requirements of § 63.6(e) and minimizes emissions of pollutants, automatic waste feed cutoffs, and malfunctions.

(iv) You must record the plan in the operating record.

(8) *Bag leak detection system requirements.* (i) If your combustor is equipped with a baghouse (fabric filter), you must continuously operate either:

(A) A bag leak detection system that meets the specifications and requirements of paragraph (c)(8)(ii) of this section and you must comply with the corrective measures and notification requirements of paragraphs (c)(8)(iii) and (iv) of this section; or

(B) A particulate matter detection system under paragraph (c)(9) of this section.

(ii) *Bag leak detection system specification and requirements.* (A) The bag leak detection system must be certified by the manufacturer to be capable of continuously detecting and recording particulate matter emissions at concentrations of 1.0 milligrams per actual cubic meter unless you demonstrate, under § 63.1209(g)(1), that a higher detection limit would routinely detect particulate matter loadings during normal operations;

(B) The bag leak detection system shall provide output of relative or absolute particulate matter loadings;

(C) The bag leak detection system shall be equipped with an alarm system that will sound an audible alarm when an increase in relative particulate loadings is detected over a preset level;

(D) The bag leak detection system shall be installed and operated in a manner consistent with available written guidance from the U.S. Environmental Protection Agency or, in the absence of such written guidance, the manufacturer's written specifications and recommendations for installation, operation, and adjustment of the system;

(E) The initial adjustment of the system shall, at a minimum, consist of establishing the baseline output by adjusting the sensitivity (range) and the averaging period of the device, and establishing the alarm set points and the alarm delay time;

(F) Following initial adjustment, you must not adjust the sensitivity or range, averaging period, alarm set points, or alarm delay time, except as detailed in the operation and maintenance plan required under paragraph (c)(7) of this section. You must not increase the sensitivity by more than 100 percent or decrease the sensitivity by more than 50 percent over a 365 day period unless such adjustment follows a complete baghouse inspection which demonstrates the baghouse is in good operating condition;

(G) For negative pressure or induced air baghouses, and positive pressure baghouses that are discharged to the atmosphere through a stack, the bag leak detector shall be installed downstream of the baghouse and upstream of any wet acid gas scrubber; and

(H) Where multiple detectors are required, the system's instrumentation and alarm system may be shared among the detectors.

(iii) *Bag leak detection system corrective measures requirements.* The operating and maintenance plan required by paragraph (c)(7) of this section must include a corrective measures plan that specifies the procedures you will follow in the case of a bag leak detection system alarm. The corrective measures plan must include, at a minimum, the procedures used to determine and record the time and cause of the alarm as well as the corrective measures taken to correct the control device malfunction or minimize emissions as specified below. Failure to initiate the corrective measures required by this paragraph is failure to ensure compliance with the emission standards in this subpart.

(A) You must initiate the procedures used to determine the cause of the alarm within 30 minutes of the time the alarm first sounds; and

(B) You must alleviate the cause of the alarm by taking the necessary corrective measure(s) which may include, but are not to be limited to, the following:

(*1*) Inspecting the baghouse for air leaks, torn or broken filter elements, or any other malfunction that may cause an increase in emissions;

(*2*) Sealing off defective bags or filter media;

(*3*) Replacing defective bags or filter media, or otherwise repairing the control device;

(*4*) Sealing off a defective baghouse compartment;

(*5*) Cleaning the bag leak detection system probe, or otherwise repairing the bag leak detection system; or

(*6*) Shutting down the combustor.

(iv) *Excessive exceedances notification.* If you operate the combustor when the detector response exceeds the alarm set-point more than 5 percent of the time during any 6-month block time period, you must submit a notification to the Administrator within 30 days of the end of the 6-month block time period that describes the causes of the exceedances and the revisions to the design, operation, or maintenance of the combustor or baghouse you are taking to minimize exceedances. To document compliance with this requirement:

(A) You must keep records of the date, time, and duration of each alarm, the time corrective action was initiated and completed, and a brief description of the cause of the alarm and the corrective action taken;

(B) You must record the percent of the operating time during each 6-month period that the alarm sounds;

(C) In calculating the operating time percentage, if inspection of the fabric filter demonstrates that no corrective action is required, no alarm time is counted; and

(D) If corrective action is required, each alarm shall be counted as a minimum of 1 hour.

(9) *Particulate matter detection system requirements for electrostatic precipitators and ionizing wet scrubbers.* If your combustor is equipped with an electrostatic precipitator or ionizing wet scrubber, and you elect not to establish under § 63.1209(m)(1)(iv) site-specific control device operating parameter limits that are linked to the automatic waste feed cutoff system under paragraph (c)(3) of this section, you must continuously operate a particulate matter detection system that meets the specifications and requirements of paragraph (c)(9)(i) through (iii) of this section and you must comply with the corrective measures and notification requirements of paragraphs (c)(9)(iv) through (v) of this section.

(i) *Particulate matter detection system requirements.*—(A) The particulate matter detection system must be certified by the manufacturer to be capable of continuously detecting and recording particulate matter emissions at concentrations of 1.0 milligrams per actual cubic meter unless you demonstrate, under § 63.1209(g)(1), that a higher detection limit would routinely detect particulate matter loadings during normal operations;

(B) The particulate matter detector shall provide output of relative or absolute particulate matter loadings;

(C) The particulate matter detection system shall be equipped with an alarm system that will sound an audible alarm when an increase in relative or absolute particulate loadings is detected over the set-point

(D) You must install, operate, and maintain the particulate matter detection system in a manner consistent with the provisions of paragraph (c)(9) of this section and available written guidance from the U.S. Environmental Protection Agency or, in the absence of such written guidance, the manufacturer's written specifications and recommendations for installation, operation, maintenance and quality assurance of the system;

(E) You must include procedures for installation, operation, maintenance, and quality assurance of the particulate matter detection system in the site-specific continuous monitoring system test plan required under § 63.8(e)(3) of this chapter.

(F) Where multiple detectors are required to monitor multiple control devices, the system's instrumentation and alarm system may be shared among the detectors.

(G) You must establish the alarm set-point as provided by either paragraph (c)(9)(ii) or paragraph (c)(9)(iii) of this section.

(ii) *Establishing the alarm set-point without extrapolation.* (A) The alarm set-point is the average of the test run averages of the detector response achieved during the comprehensive performance test demonstrating compliance with the particulate matter emission standard.

(B) During the comprehensive performance test, you may simulate emission concentrations at the upper end of the range of normal operations by means including feeding high levels of ash and detuning the emission control equipment.

(C) You must comply with the alarm set-point on a 6-hour rolling average, updated each hour with a one-hour block average that is the average of the detector responses over each 15-minute block;

(iii) *Establishing the alarm set-point with extrapolation.* You may extrapolate the average of the test run averages of the detector response achieved during the comprehensive performance test as provided by paragraph (c)(9)(iii)(A) of this section to establish an alarm level after you approximate the correlation of the detector response to particulate matter concentration as prescribed by paragraph (c)(9)(iii)(B) of this section. You must comply with the extrapolated alarm set-point on a 6-hour rolling average, updated each hour with a one-hour block average that is the average of the detector responses over each 15-minute block.

(A) You may extrapolate the detector response up to a particulate matter concentration that is 50% of the particulate matter emission standard or 125% of the highest particulate matter concentration used to develop the correlation under paragraph (c)(9)(iii)(B) of this section, whichever is greater. The extrapolated emission concentration must not exceed the particulate matter emission standard.

(B) To establish an approximate correlation of the detector response to particulate matter emission concentrations, you should use as guidance Performance Specification-11 for PM CEMS (40 CFR Part 60, Appendix B), except that you need only conduct 5 runs to establish the initial correlation under Section 8.6 of Performance Specification 11.

(C) For quality assurance, you should use as guidance Procedure 2 of Appendix F to Part 60 of this chapter and the detector manufacturer's recommended procedures for periodic quality assurance checks and tests, except that:

(*1*) You must conduct annual Relative Response Audits as prescribed by Procedure 2 of Appendix F to Part 60 of this chapter (Section 10.3(6));

(*2*) You need only conduct Relative Response Audits on a 3-year interval after passing two sequential annual Relative Response Audits.

(D) An exceedance of the particulate matter emission standard by a particulate matter detection system for which particulate emission concentrations have been approximately correlated with the detector response under paragraph (c)(9)(iii) of this section is not evidence that the standard has been exceeded. The approximate correlation is used for compliance assurance to determine when corrective measures must be taken rather than for compliance monitoring.

(iv) *Particulate matter detection system corrective measures requirements.* The operating and maintenance plan required by paragraph (c)(7) of this section must include a corrective measures plan that specifies the procedures you will follow in the case of a particulate matter detection system alarm. The corrective measures plan must include, at a minimum, the procedures used to determine and record the time and cause of the alarm as well as the corrective measures taken to correct the control device malfunction or minimize emissions as specified below. Failure to initiate the corrective measures required by this paragraph is failure to ensure compliance with the emission standards in this subpart.

(A) You must initiate the procedures used to determine the cause of the alarm within 30 minutes of the time the alarm first sounds; and

(B) You must alleviate the cause of the alarm by taking the necessary corrective measure(s) which may include shutting down the combustor.

(v) *Excessive exceedances notification.* If you operate the combustor when the detector response exceeds the alarm set-point more than 5 percent of the time during any 6-month block time period, you must submit a notification to the Administrator within 30 days of the end of the 6-month block time period that describes the causes of the exceedances and the revisions to the design, operation, or maintenance of the combustor or emission control device you are taking to minimize exceedances. To document compliance with this requirement:

(A) You must keep records of the date, time, and duration of each alarm, the time corrective action was initiated and completed, and a brief description of the cause of the alarm and the corrective action taken;

(B) You must record the percent of the operating time during each 6-month period that the alarm sounds;

(C) In calculating the operating time percentage, if inspection of the emission control device demonstrates that no corrective action is required, no alarm time is counted; and

(D) If corrective action is required, each alarm shall be counted as a minimum of 1 hour.

■ 9. Section 63.1207 is amended by:
■ a. Revising paragraph (b)(1).
■ b. Adding paragraph (b)(3).
■ c. Revising paragraphs (c)(1) and (c)(2)(iii).
■ d. Adding paragraph (c)(3).
■ e. Revising paragraph (d)(4)(i).
■ f. Revising paragraphs (e)(2) and (e)(3)(iv).
■ g. Revising paragraphs (f)(1)(ii)(D), (f)(1)(x) introductory text, (f)(1)(xiii), (f)(1)(xiv), (f)(1)(xvi), and (f)(1)(xxv).
■ h. Adding paragraph (f)(1)(xv).
■ i. Revising paragraph (h)(2)(i).
■ j. Revising paragraph (j)(3).
■ k. Revising paragraph (l)(1) introductory text.
■ l. Revising paragraph (m)(2) introductory text.

The revisions and additions read as follows:

§ 63.1207 What are the performance testing requirements?

* * * * *

(b) * * *

(1) *Comprehensive performance test.* You must conduct comprehensive performance tests to demonstrate compliance with the emission standards provided by this subpart, establish limits for the operating parameters provided by § 63.1209, and demonstrate compliance with the performance specifications for continuous monitoring systems.

* * * * *

(3) *One-Time Dioxin/Furan Test for Sources Not Subject to a Numerical Dioxin/Furan Standard.* For solid fuel boilers and hydrochloric acid production furnaces, for lightweight aggregate kilns that are not subject to a numerical dioxin/furan emission standard under § 63.1221, and liquid fuel boilers that are not subject to a numerical dioxin/furan emission standard under § 63.1217, you must conduct a one-time emission test for dioxin/furan under feed and operating conditions that are most likely to reflect daily maximum operating variability, similar to a dioxin/furan comprehensive performance test.

(i) You must conduct the dioxin/furan emissions test no later than the deadline for conducting the initial comprehensive performance test.

(ii) You may use dioxin/furan emissions data from previous testing to meet this requirement, provided that:

(A) The testing was conducted under feed and operating conditions that are most likely to reflect daily maximum operating variability, similar to a dioxin/furan compliance test;

(B) You have not changed the design or operation of the source in a manner that could significantly affect stack gas dioxin/furan emission concentrations; and

(C) The data meet quality assurance objectives that may be determined on a site-specific basis.

(iii) You may use dioxin/furan emissions data from a source to represent emissions from another on-site source in lieu of testing (i.e., data in lieu of testing) if the design and operation, including hazardous waste feed and other feedstreams, of the sources are identical.

(iv) You must include the results of the one-time dioxin/furan emissions test with the results of the initial comprehensive performance test in the Notification of Compliance.

(v) You must repeat the dioxin/furan emissions test if you change the design or operation of the source in a manner that may increase dioxin/furan emissions.

(c) * * * (1) *Test date.* Except as provided by paragraphs (c)(2) and (c)(3) of this section, you must commence the initial comprehensive performance test not later than six months after the compliance date.

(2) * * * (iii) The data in lieu test age restriction provided in paragraph (c)(2)(i)(A) of this section does not apply for the duration of the interim standards (i.e., the standards published in the **Federal Register** on February 13, 2002, 67 FR 6792). See 40 CFR parts 63, 264, 265, 266, 270, and 271 revised as of July 1, 2002. Paragraph (c)(2)(i)(A) of this section does not apply until EPA promulgates permanent replacement standards pursuant to the Settlement Agreement noticed in the **Federal Register** on November 16, 2001 (66 FR 57715).

* * * * *

(3) For incinerators, cement kilns, and lightweight aggregate kilns, you must commence the initial comprehensive performance test to demonstrate compliance with the standards under §§ 63.1219, 63.1220, and 63.1221 not later than 12 months after the compliance date.

(d) * * *

(4) * * * (i) *Waiver of periodic comprehensive performance tests.* Except as provided in paragraph (c)(2) of this section, you must conduct only an initial comprehensive performance test under the interim standards (i.e., the standards published in the **Federal Register** on February 13, 2002); all subsequent comprehensive performance testing requirements are waived under the interim standards. The provisions in the introductory text to paragraph (d) and in paragraph (d)(1) of this section do not apply until EPA promulgates permanent replacement standards pursuant to the Settlement Agreement noticed in the **Federal Register** on November 16, 2001.

* * * * *

(e) * * *

(2) You must make your site-specific test plan and CMS performance evaluation test plan available to the public for review no later than 60 calendar days before initiation of the test. You must issue a public notice to all persons on your facility/public mailing list (developed pursuant to 40 CFR 70.7(h), 71.11(d)(3)(i)(E) and 124.10(c)(1)(ix)) announcing the availability of the test plans and the location where the test plans are available for review. The test plans must be accessible to the public for 60 calendar days, beginning on the date that you issue your public notice. The location must be unrestricted and provide access to the public during reasonable hours and provide a means for the public to obtain copies. The notification must include the following information at a minimum:

(i) The name and telephone number of the source's contact person;

(ii) The name and telephone number of the regulatory agency's contact person;

(iii) The location where the test plans and any necessary supporting documentation can be reviewed and copied;

(iv) The time period for which the test plans will be available for public review; and

(v) An expected time period for commencement and completion of the performance test and CMS performance evaluation test.

(3) * * *

(iv) *Public notice.* At the same time that you submit your petition to the Administrator, you must notify the public (e.g., distribute a notice to the facility/public mailing list developed pursuant to 40 CFR 70.7(h), 71.11(d)(3)(i)(E) and 124.10(c)(1)(ix)) of your petition to waive a performance test. The notification must include all of the following information at a minimum:

(A) The name and telephone number of the source's contact person;

(B) The name and telephone number of the regulatory agency's contact person;

(C) The date the source submitted its site-specific performance test plan and CMS performance evaluation test plans; and

(D) The length of time requested for the waiver.

(f) * * *

(1) * * *

(ii) * * *

(D) The Administrator may approve on a case-by-case basis a hazardous waste feedstream analysis for organic hazardous air pollutants in lieu of the analysis required under paragraph (f)(1)(ii)(A) of this section if the reduced analysis is sufficient to ensure that the POHCs used to demonstrate compliance with the applicable DRE standards of this subpart continue to be representative of the most difficult to destroy organic compounds in your hazardous waste feedstreams;

* * * * *

(x) If you are requesting to extrapolate metal feedrate limits from comprehensive performance test levels under §§ 63.1209(l)(1)(v) or 63.1209(n)(2)(vii):

* * * * *

(xiii) For cement kilns with in-line raw mills, if you elect to use the emissions averaging provision of this subpart, you must notify the Administrator of your intent in the initial (and subsequent) comprehensive performance test plan, and provide the information required by the emission averaging provision;

(xiv) For preheater or preheater/precalciner cement kilns with dual stacks, if you elect to use the emissions averaging provision of this subpart, you must notify the Administrator of your intent in the initial (and subsequent) comprehensive performance test plan, and provide the information required by the emission averaging provision;

(xv) If you request to use Method 23 for dioxin/furan you must provide the information required under § 63.1208(b)(1)(i)(B);

(xvi) If you are not required to conduct performance testing to document compliance with the mercury, semivolatile metals, low volatile metals, or hydrogen chloride/chlorine gas emission standards under paragraph (m) of this section, you must include with the comprehensive performance test plan documentation of compliance with the provisions of that section.

* * * * *

(xxv) If your source is equipped with a dry scrubber to control hydrogen chloride and chlorine gas, you must document in the comprehensive performance test plan key parameters that affect adsorption, and the limits you establish for those parameters based on the sorbent used during the performance test, if you elect not to specify and use the brand and type of sorbent used during the comprehensive performance test, as required by § 63.1209(o)(4)(iii)(A); and

* * * * *

(h) * * *

(2) * * *

(i) Operations when stack emissions testing for dioxin/furan, mercury, semivolatile metals, low volatile metals, particulate matter, or hydrogen chloride/chlorine gas is being performed; and

* * * * *

(j) * * *

(3) See §§ 63.7(g), 63.9(h), and 63.1210(d) for additional requirements pertaining to the Notification of Compliance (*e.g.*, you must include results of performance tests in the Notification of Compliance).

* * * * *

(l) *Failure of performance test*—(1) *Comprehensive performance test.* The provisions of this paragraph do not apply to the initial comprehensive performance test if you conduct the test prior to your compliance date.

* * * * *

(m) * * *

(2) You are not required to conduct performance tests to document compliance with the mercury, semivolatile metals, low volatile metals, or hydrogen chloride/chlorine gas emission standards under the conditions specified in this paragraph (m)(2). You are deemed to be in compliance with an emission standard if the twelve-hour rolling average maximum theoretical emission concentration (MTEC) does not exceed the emission standard:

* * * * *

■ 10. Section 63.1208 is amended by removing and reserving paragraph (a) and revising paragraphs (b)(1)(i) and (b)(5) to read as follows:

§ 63.1208 What are the test methods?

(a) [Reserved]

(b) * * *

(1) * * * (i) To determine compliance with the emission standard for dioxins and furans, you must use:

(A) Method 0023A, Sampling Method for Polychlorinated Dibenzo-*p*-Dioxins and Polychlorinated Dibenzofurans emissions from Stationary Sources, EPA Publication SW–846 (incorporated by reference— see § 63.14); or

(B) Method 23, provided in appendix A, part 60 of this chapter, after approval by the Administrator.

(*1*) You may request approval to use Method 23 in the performance test plan required under § 63.1207(e)(i) and (ii).

(*2*) In determining whether to grant approval to use Method 23, the Administrator may consider factors including whether dioxin/furan were detected at levels substantially below the emission standard in previous testing, and whether previous Method 0023 analyses detected low levels of dioxin/furan in the front half of the sampling train.

(*3*) Sources that emit carbonaceous particulate matter, such as coal-fired boilers, and sources equipped with activated carbon injection, will be deemed not suitable for use of Method 23 unless you document that there would not be a significant improvement in quality assurance with Method 0023A.

* * * * *

(5) *Hydrogen chloride and chlorine gas*—(i) *Compliance with MACT standards.* To determine compliance with the emission standard for hydrogen chloride and chlorine gas (combined), you must use:

(A) Method 26/26A as provided in appendix A, part 60 of this chapter; or

(B) Methods 320 or 321 as provided in appendix A, part 63 of this chapter, or

(C) ASTM D 6735–01, Standard Test Method for Measurement of Gaseous Chlorides and Fluorides from Mineral Calcining Exhaust Sources—Impinger Method to measure emissions of hydrogen chloride, and Method 26/26A to measure emissions of chlorine gas, provided that you follow the provisions in paragraphs (b)(5)(C)(*1*) through (*6*) of this section. ASTM D 6735–01 is available for purchase from at least one of the following addresses: American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, Post Office Box C700, West Conshohocken, PA 19428–2959; or ProQuest, 300 North Zeeb Road, Ann Arbor, MI 48106.

(*1*) A test must include three or more runs in which a pair of samples is obtained simultaneously for each run according to section 11.2.6 of ASTM Method D6735–01.

(*2*) You must calculate the test run standard deviation of each set of paired samples to quantify data precision, according to Equation 1 of this section:

$$\mathrm{RSD_a} = (100)\ \mathrm{AbsoluteValue}\left[\frac{\mathrm{C1_a} - \mathrm{C2_a}}{\mathrm{C1_a} + \mathrm{C2_a}}\right] \qquad \text{(Eq. 1)}$$

Where:

$\mathrm{RSD_a}$ = The test run relative standard deviation of sample pair a, percent.

$\mathrm{C1_a}$ and $\mathrm{C2_a}$ = The HCl concentrations, milligram/dry standard cubic meter (mg/dscm), from the paired samples.

(*3*) You must calculate the test average relative standard deviation according to Equation 2 of this section:

$$\mathrm{RSD_{TA}} = \frac{\sum_{a=1}^{p} \mathrm{RSD_a}}{p} \qquad \text{(Eq. 2)}$$

Where:

$\mathrm{RSD_{TA}}$ = The test average relative standard deviation, percent.

$\mathrm{RSD_a}$ = The test run relative standard deviation for sample pair a.

p = The number of test runs, ≥3.

(*4*) If RSDTA is greater than 20 percent, the data are invalid and the test must be repeated.

(*5*) The post-test analyte spike procedure of section 11.2.7 of ASTM Method D6735–01 is conducted, and the percent recovery is calculated according to section 12.6 of ASTM Method D6735–01.

(*6*) If the percent recovery is between 70 percent and 130 percent, inclusive, the test is valid. If the percent recovery is outside of this range, the data are considered invalid, and the test must be repeated.

(ii) *Compliance with risk-based limits under § 63.1215.* To demonstrate compliance with emission limits established under § 63.1215, you must use Method 26/26A as provided in appendix A, part 60 of this chapter, Method 320 as provided in appendix A, part 63 of this chapter, Method 321 as provided in appendix A, part 63 of this chapter, or ASTM D 6735–01, Standard Test Method for Measurement of Gaseous Chlorides and Fluorides from Mineral Calcining Exhaust Sources—Impinger Method (following the provisions of paragraphs (b)(5)(C)(*1*) through (*6*) of this section), except:

(A) For cement kilns and sources equipped with a dry acid gas scrubber, you must use Methods 320 or 321 as provided in appendix A, part 63 of this chapter, or ASTM D 6735–01 to measure hydrogen chloride, and the back-half, caustic impingers of Method 26/26A as provided in appendix A, part 60 of this chapter to measure chlorine gas; and

(B) For incinerators, boilers, and lightweight aggregate kilns, you must use Methods 320 or 321 as provided in appendix A, part 63 of this chapter, or ASTM D 6735–01 to measure hydrogen chloride, and Method 26/26A as provided in appendix A, part 60 of this chapter to measure total chlorine, and calculate chlorine gas by difference if:

(*1*) The bromine/chlorine ratio in feedstreams is greater than 5 percent; or

(*2*) The sulfur/chlorine ratio in feedstreams is greater than 50 percent.

* * * * *

■ 11. Section 63.1209 is amended by:
■ a. Revising paragraphs (a)(1)(ii), (a)(1)(iv)(D), (a)(1)(v)(D), and (a)(5).
■ b. Revising paragraph (b)(2)(ii).
■ c. Revising the heading of paragraph (g)(1) introductory text and paragraph (g)(1)(i).
■ d. Adding paragraph (g)(1)(iv).
■ e. Revising paragraphs (k)(1)(i) and (k)(2)(i).
■ f. Revising paragraph (l)(1).
■ g. Revising paragraphs (m)(1)(iv) introductory text and (m)(3).
■ h. Revising paragraph (n)(2).
■ i. Revising the heading of paragraph (o) introductory text and paragraph (o)(1).
■ j. Adding paragraph (r).

The revisions read as follows:

§ 63.1209 What are the monitoring requirements?

(a) * * *

(1) * * *

(ii) (A) *Cement kilns under § 63.1204*—Except as provided by paragraphs (a)(1)(iv) and (a)(1)(v) of the section, you must use a COMS to demonstrate and monitor compliance with the opacity standard under §§ 63.1204(a)(7) and (b)(7) at each point where emissions are vented from these affected sources including the bypass stack of a preheater or preheater/precalciner kiln with dual stacks.

(B) *Cement kilns under § 63.1220*—Except as provided by paragraphs (a)(1)(iv) and (a)(1)(v) of the section and unless your source is equipped with a bag leak detection system under § 63.1206(c)(8) or a particulate matter detection system under § 63.1206(c)(9), you must use a COMS to demonstrate and monitor compliance with the opacity standard under §§ 63.1220(a)(7) and (b)(7) at each point where emissions are vented from these affected sources including the bypass stack of a preheater or preheater/precalciner kiln with dual stacks.

(C) You must maintain and operate each COMS in accordance with the requirements of § 63.8(c) except for the requirements under § 63.8(c)(3). The requirements of § 63.1211(c) shall be complied with instead of § 63.8(c)(3); and

(D) Compliance is based on a six-minute block average.

* * * * *

(iv) * * *

(D) To remain in compliance, all six-minute block averages must not exceed the opacity standard.

(v) * * *

(D) To remain in compliance, all six-minute block averages must not exceed the opacity standard.

* * * * *

(5) *Petitions to use CEMS for other standards.* You may petition the Administrator to use CEMS for compliance monitoring for particulate matter, mercury, semivolatile metals, low volatile metals, and hydrogen chloride and chlorine gas under § 63.8(f) in lieu of compliance with the corresponding operating parameter limits under this section.

* * * * *

(b) * * *

(2) * * *

(ii) *Accuracy and calibration of weight measurement devices for activated carbon injection systems.* If you operate a carbon injection system, the accuracy of the weight measurement device must be ± 1 percent of the weight being measured. The calibration of the device must be verified at least once each calendar quarter at a frequency of approximately 120 days.

* * * * *

(g) * * *

(1) *Requests to use alternatives to operating parameter monitoring requirements.* (i) You may submit an application to the Administrator under this paragraph for approval of alternative operating parameter monitoring requirements to document compliance with the emission standards of this subpart. For requests to use additional CEMS, however, you must use paragraph (a)(5) of this section and § 63.8(f). Alternative requests to operating parameter monitoring requirements that include unproven monitoring methods may not be made under this paragraph and must be made under § 63.8(f).

* * * * *

(iv) *Dual Standards that incorporate the Interim Standards for HAP metals.* (A) *Semivolatile and Low Volatile Metals.* You may petition the Administrator to waive a feedrate operating parameter limit under paragraph (n)(2) of this section for either the emission standards expressed in a thermal emissions format or the interim standards based on documentation that the feedrate operating parameter limit is not needed to ensure compliance with the relevant standard on a continuous basis.

(B) *Mercury.* You may petition the Administrator to waive a feedrate operating parameter limit under paragraph (l)(1) of this section for either the feed concentration standard under §§ 63.1220(a)(2)(i) and (b)(2)(i) or the interim standards based on documentation that the feedrate operating parameter limit is not needed to ensure compliance with the relevant standard on a continuous basis.

* * * * *

(k) * * *

(1) * * * (i) For sources other than a lightweight aggregate kiln, if the combustor is equipped with an electrostatic precipitator, baghouse (fabric filter), or other dry emissions control device where particulate matter is suspended in contact with combustion gas, you must establish a limit on the maximum temperature of the gas at the inlet to the device on an hourly rolling average. You must establish the hourly rolling average limit as the average of the test run averages.

* * * * *

(2) * * * (i) For sources other than cement kilns, you must measure the temperature of each combustion chamber at a location that best represents, as practicable, the bulk gas temperature in the combustion zone. You must document the temperature measurement location in the test plan you submit under §§ 63.1207(e) and (f);

* * * * *

(l) *Mercury.* * * *

(1) *Feedrate of mercury.* (i) For incinerators and solid fuel boilers, when complying with the mercury emission standards under §§ 63.1203, 63.1216 and 63.1219, you must establish a 12-hour rolling average limit for the total feedrate of mercury in all feedstreams as the average of the test run averages.

(ii) For liquid fuel boilers, when complying with the mercury emission standards of § 63.1217, you must establish a rolling average limit for the mercury feedrate as follows on an averaging period not to exceed an annual rolling average:

(A) You must calculate a mercury system removal efficiency for each test run and calculate the average system removal efficiency of the test run averages. If emissions exceed the mercury emission standard during the comprehensive performance test, it is not a violation because the averaging period for the mercury emission standard is (not-to-exceed) one year and compliance is based on compliance with the mercury feedrate limit with an averaging period not-to-exceed one year.

(B) If you burn hazardous waste with a heating value of 10,000 Btu/lb or greater, you must calculate the mercury feedrate limit as follows:

(*1*) The mercury feedrate limit is the emission standard divided by [1 − system removal efficiency].

(*2*) The mercury feedrate limit is a hazardous waste thermal concentration limit expressed as pounds of mercury in hazardous waste feedstreams per million Btu of hazardous waste fired.

(*3*) You must comply with the hazardous waste mercury thermal concentration limit by determining the feedrate of mercury in all hazardous waste feedstreams (lb/hr) at least once a minute and the hazardous waste thermal feedrate (MM Btu/hr) at least once a minute to calculate a 60-minute average thermal emission concentration as [hazardous waste mercury feedrate (lb/hr) / hazardous waste thermal feedrate (MM Btu/hr)].

(*4*) You must calculate a rolling average hazardous waste mercury thermal concentration that is updated each hour.

(*5*) If you select an averaging period for the feedrate limit that is greater than a 12-hour rolling average, you must calculate the initial rolling average as though you had selected a 12-hour rolling average, as provided by paragraph (b)(5)(i) of this section. You must calculate rolling averages thereafter as the average of the available one-minute values until enough one-minute values are available to calculate the rolling average period you select. At that time and thereafter, you update the rolling average feedrate each hour with a 60-minute average feedrate.

(C) If you burn hazardous waste with a heating value of less than 10,000 Btu/lb, you must calculate the mercury feedrate limit as follows:

(*1*) You must calculate the mercury feedrate limit as the mercury emission standard divided by [1 − System Removal Efficiency].

(*2*) The feedrate limit is expressed as a mass concentration per unit volume of stack gas (µg/dscm) and is converted to a mass feedrate (lb/hr) by multiplying it by the average stack gas flowrate of the test run averages.

(*3*) You must comply with the feedrate limit by determining the mercury feedrate (lb/hr) at least once a minute to calculate a 60-minute average feedrate.

(*4*) You must update the rolling average feedrate each hour with this 60-minute feedrate measurement.

(*5*) If you select an averaging period for the feedrate limit that is greater than a 12-hour rolling average, you must calculate the initial rolling average as though you had selected a 12-hour rolling average, as provided by paragraph (b)(5)(i) of this section. You must calculate rolling averages thereafter as the average of the available one-minute values until enough one-minute values are available to calculate the rolling average period you select. At that time and thereafter, you update the rolling average feedrate each hour with a 60-minute average feedrate.

(D) If your boiler is equipped with a wet scrubber, you must comply with the following unless you document in the performance test plan that you do not feed chlorine at rates that may substantially affect the system removal efficiency of mercury for purposes of establishing a mercury feedrate limit based on the system removal efficiency during the test:

(*1*) Scrubber blowdown must be minimized during a pretest conditioning period and during the performance test:

(*2*) Scrubber water must be preconditioned so that mercury in the water is at equilibrium with stack gas at the mercury feedrate level of the performance test; and

(*3*) You must establish an operating limit on minimum pH of scrubber water as the average of the test run averages and comply with the limit on an hourly rolling average.

(iii) For cement kilns:

(A) When complying with the emission standards under §§ 63.1220(a)(2)(i) and (b)(2)(i), you must:

(*1*) Comply with the mercury hazardous waste feed concentration operating requirement on a twelve-hour rolling average;

(*2*) Monitor and record in the operating record the as-fired mercury concentration in the hazardous waste (or the weighted-average mercury concentration for multiple hazardous waste feedstreams);

(*3*) Initiate an automatic waste feed cutoff that immediately and automatically cuts off the hazardous waste feed when the as-fired mercury concentration operating requirement is exceeded;

(B) When complying with the emission standards under §§ 63.1204, 63.1220(a)(2)(ii) and (b)(2)(ii), you must establish a 12-hour rolling average limit for the total feedrate of mercury in all feedstreams as the average of the test run averages;

(C) Except as provided by paragraph (l)(1)(iii)(D) of this section, when complying with the hazardous waste feedrate corresponding to a maximum theoretical emission concentration (MTEC) under §§ 63.1220(a)(2)(iii) and (b)(2)(iii), you must:

(*1*) Comply with the MTEC operating requirement on a twelve-hour rolling average;

(*2*) Monitor and record the feedrate of mercury for each hazardous waste feedstream according to § 63.1209(c);

(*3*) Monitor with a CMS and record in the operating record the gas flowrate (either directly or by monitoring a surrogate parameter that you have correlated to gas flowrate);

(*4*) Continuously calculate and record in the operating record a MTEC assuming mercury from all hazardous waste feedstreams is emitted;

(*5*) Initiate an automatic waste feed cutoff that immediately and automatically cuts off the hazardous waste feed when the MTEC operating requirement is exceeded;

(D) In lieu of complying with paragraph (l)(1)(iii)(C) of this section, you may:

(*1*) Identify in the Notification of Compliance a minimum gas flowrate limit and a maximum feedrate limit of mercury from all hazardous waste feedstreams that ensures the MTEC calculated in paragraph (l)(1)(iii)(B)(*4*) of this section is below the operating requirement under paragraphs §§ 63.1220(a)(2)(iii) and (b)(2)(iii); and

(*2*) Initiate an automatic waste feed cutoff that immediately and automatically cuts off the hazardous waste feed when either the gas flowrate or mercury feedrate exceeds the limits identified in paragraph (l)(1)(iv)(D)(*1*) of this section.

(iv) For lightweight aggregate kilns:

(A) When complying with the emission standards under §§ 63.1205, 63.1221(a)(2)(i) and (b)(2)(i), you must establish a 12-hour rolling average limit for the total feedrate of mercury in all feedstreams as the average of the test run averages;

(B) Except as provided by paragraph (l)(1)(iv)(C) of this section, when complying with the hazardous waste feedrate corresponding to a maximum theoretical emission concentration (MTEC) under §§ 63.1221(a)(2)(ii) and (b)(2)(ii), you must:

(*1*) Comply with the MTEC operating requirement on a twelve-hour rolling average;

(*2*) Monitor and record the feedrate of mercury for each hazardous waste feedstream according to § 63.1209(c);

(*3*) Monitor with a CMS and record in the operating record the gas flowrate (either directly or by monitoring a surrogate parameter that you have correlated to gas flowrate);

(*4*) Continuously calculate and record in the operating record a MTEC assuming mercury from all hazardous waste feedstreams is emitted;

(*5*) Initiate an automatic waste feed cutoff that immediately and automatically cuts off the hazardous waste feed when the MTEC operating requirement is exceeded;

(C) In lieu of complying with paragraph (l)(1)(iv)(B) of this section, you may:

(*1*) Identify in the Notification of Compliance a minimum gas flowrate limit and a maximum feedrate limit of mercury from all hazardous waste feedstreams that ensures the MTEC calculated in paragraph (l)(1)(iv)(B)(*4*) of this section is below the operating requirement under paragraphs §§ 63.1221(a)(2)(ii) and (b)(2)(ii); and

(*2*) Initiate an automatic waste feed cutoff that immediately and automatically cuts off the hazardous waste feed when either the gas flowrate or mercury feedrate exceeds the limits identified in paragraph (l)(1)(iv)(C)(*1*) of this section.

(v) *Extrapolation of feedrate levels.* In lieu of establishing mercury feedrate limits as specified in paragraphs (l)(1)(i) through (iv) of this section, you may request as part of the performance test plan under §§ 63.7(b) and (c) and §§ 63.1207 (e) and (f) to use the mercury feedrates and associated emission rates during the comprehensive performance test to extrapolate to higher allowable feedrate limits and emission rates. The extrapolation methodology will be reviewed and approved, as warranted, by the Administrator. The review will consider in particular whether:

(A) Performance test metal feedrates are appropriate (*i.e.*, whether feedrates are at least at normal levels; depending on the heterogeneity of the waste, whether some level of spiking would be appropriate; and whether the physical form and species of spiked material is appropriate); and

(B) Whether the extrapolated feedrates you request are warranted considering historical metal feedrate data.

* * * * *

(m) * * *

(1) * * *

(iv) *Other particulate matter control devices.* For each particulate matter control device that is not a fabric filter or high energy wet scrubber, or is not an electrostatic precipitator or ionizing wet scrubber for which you elect to monitor particulate matter loadings under § 63.1206(c)(9) of this chapter for process control, you must ensure that the control device is properly operated and maintained as required by § 63.1206(c)(7) and by monitoring the operation of the control device as follows:

* * * * *

(3) *Maximum ash feedrate.* Owners and operators of hazardous waste incinerators, solid fuel boilers, and liquid fuel boilers must establish a maximum ash feedrate limit as a 12-hour rolling average based on the average of the test run averages. This requirement is waived, however, if you comply with the particulate matter detection system requirements under § 63.1206(c)(9).

(n) * * *

(2) *Maximum feedrate of semivolatile and low volatile metals.* (i) *General.* You must establish feedrate limits for semivolatile metals (cadmium and lead) and low volatile metals (arsenic, beryllium, and chromium) as follows, except as provided by paragraph (n)(2)(vii) of this section.

(ii) For incinerators, cement kilns, and lightweight aggregate kilns, when complying with the emission standards under §§ 63.1203, 63.1204, 63.1205, and 63.1219, and for solid fuel boilers when complying with the emission standards under § 63.1216, you must establish 12-hour rolling average limits for the total feedrate of semivolatile and low volatile metals in all feedstreams as the average of the test run averages.

(iii) *Cement kilns under § 63.1220*—(A) When complying with the emission standards under §§ 63.1220(a)(3)(i), (a)(4)(i), (b)(3)(i), and (b)(4)(i), you must establish 12-hour rolling average feedrate limits for semivolatile and low volatile metals as the thermal concentration of semivolatile metals or low volatile metals in all hazardous waste feedstreams. You must calculate hazardous waste thermal concentrations for semivolatile metals and low volatile metals for each run as the total mass feedrate of semivolatile metals or low volatile metals for all hazardous waste feedstreams divided by the total heat input rate for all hazardous waste feedstreams. The 12-hour rolling average feedrate limits for semivolatile metals and low volatile metals are the average of the hazardous waste thermal concentrations for the runs.

(B) When complying with the emission standards under §§ 63.1220(a)(3)(ii), (a)(4)(ii), (b)(3)(ii), and (b)(4)(ii), you must establish 12-hour rolling average limits for the total feedrate of semivolatile and low volatile metals in all feedstreams as the average of the test run averages.

(iv) *Lightweight aggregate kilns under § 63.1221*—(A) When complying with the emission standards under §§ 63.1221(a)(3)(i), (a)(4)(i), (b)(3)(i), and (b)(4)(i), you must establish 12-hour rolling average feedrate limits for semivolatile and low volatile metals as the thermal concentration of semivolatile metals or low volatile metals in all hazardous waste feedstreams as specified in paragraphs (n)(2)(iii)(A) of this section.

(B) When complying with the emission standards under §§ 63.1221(a)(3)(ii), (a)(4)(ii), (b)(3)(ii), and (b)(4)(ii), you must establish 12-hour rolling average limits for the total feedrate of semivolatile and low volatile metals in all feedstreams as the average of the test run averages.

(v) *Liquid fuel boilers under § 63.1217.* (A) *Semivolatile metals.* You must establish a rolling average limit for the semivolatile metal feedrate as follows on an averaging period not to exceed an annual rolling average.

(*1*) *System removal efficiency.* You must calculate a semivolatile metal system removal efficiency for each test run and calculate the average system removal efficiency of the test run averages. If emissions exceed the semivolatile metal emission standard during the comprehensive performance test, it is not a violation because the averaging period for the semivolatile metal emission standard is one year and compliance is based on compliance with the semivolatile metal feedrate limit that has an averaging period not to exceed an annual rolling average.

(*2*) *Boilers that feed hazardous waste with a heating value of 10,000 Btu/lb or greater.* You must calculate the semivolatile metal feedrate limit as the semivolatile metal emission standard divided by [1 − System Removal Efficiency].

(*i*) The feedrate limit is a hazardous waste thermal concentration limit expressed as pounds of semivolatile metals in all hazardous waste feedstreams per million Btu of hazardous waste fed to the boiler.

(*ii*) You must comply with the hazardous waste semivolatile metal thermal concentration limit by determining the feedrate of semivolatile metal in all hazardous waste feedstreams (lb/hr) and the hazardous waste thermal feedrate (MM Btu/hr) at least once a minute to calculate a 60-minute average thermal emission concentration as [hazardous waste semivolatile metal feedrate (lb/hr) / hazardous waste thermal feedrate (MM Btu/hr)].

(*iii*) You must calculate a rolling average hazardous waste semivolatile metal thermal concentration that is updated each hour.

(*iv*) If you select an averaging period for the feedrate limit that is greater than a 12-hour rolling average, you must calculate the initial rolling average as though you had selected a 12-hour rolling average, as provided by paragraph (b)(5)(i) of this section. You must calculate rolling averages thereafter as the average of the available one-minute values until enough one-minute values are available to calculate the rolling average period you select. At that time and thereafter, you update the rolling average feedrate each hour with a 60-minute average feedrate.

(*3*) *Boilers that feed hazardous waste with a heating value less than 10,000 Btu/lb.* (*i*) You must calculate the semivolatile metal feedrate limit as the semivolatile metal emission standard divided by [1 − System Removal Efficiency].

(*ii*) The feedrate limit is expressed as a mass concentration per unit volume of stack gas (µg/dscm) and is converted to a mass feedrate (lb/hr) by multiplying it by the average stack gas flowrate (dscm/hr) of the test run averages.

(*iii*) You must comply with the feedrate limit by determining the semivolatile metal feedrate (lb/hr) at least once a minute to calculate a 60-minute average feedrate.

(*iv*) You must update the rolling average feedrate each hour with this 60-minute feedrate measurement.

(*v*) If you select an averaging period for the feedrate limit that is greater than a 12-hour rolling average, you must calculate the initial rolling average as though you had selected a 12-hour rolling average, as provided by paragraph (b)(5)(i) of this section. You must calculate rolling averages thereafter as the average of the available one-minute values until enough one-minute values are available to calculate the rolling average period you select. At that time and thereafter, you update the rolling average feedrate each hour with a 60-minute average feedrate.

(B) *Chromium.* (*1*) *Boilers that feed hazardous waste with a heating value of 10,000 Btu/lb or greater.* (*i*) The feedrate limit is a hazardous waste thermal concentration limit expressed as pounds of chromium in all hazardous waste feedstreams per million Btu of hazardous waste fed to the boiler.

(*ii*) You must comply with the hazardous waste chromium thermal concentration limit by determining the feedrate of chromium in all hazardous waste feedstreams (lb/hr) and the hazardous waste thermal feedrate (MM Btu/hr) at least once a minute to calculate a 60-minute average thermal emission concentration as [hazardous waste chromium feedrate (lb/hr) / hazardous waste thermal feedrate (MM Btu/hr)]. You must update the rolling average feedrate each hour with this 60-minute average feedrate measurement.

(*2*) *Boilers that feed hazardous waste with a heating value less than 10,000 Btu/lb.* You must establish a 12-hour rolling average limit for the total feedrate (lb/hr) of chromium in all feedstreams as the average of the test run averages. You must update the rolling average feedrate each hour with a 60-minute average feedrate measurement.

(vi) *LVM limits for pumpable wastes.* You must establish separate feedrate limits for low volatile metals in pumpable feedstreams using the procedures prescribed above for total low volatile metals. Dual feedrate limits for both pumpable and total feedstreams are not required, however, if you base the total feedrate limit solely on the feedrate of pumpable feedstreams.

(vii) *Extrapolation of feedrate levels.* In lieu of establishing feedrate limits as specified in paragraphs (l)(1)(i) through (iii) of this section, you may request as part of the performance test plan under §§ 63.7(b) and (c) and §§ 63.1207(e) and (f) to use the semivolatile metal and low volatile metal feedrates and associated emission rates during the comprehensive performance test to extrapolate to higher allowable feedrate limits and emission rates. The extrapolation methodology will be reviewed and approved, as warranted, by the Administrator. The review will consider in particular whether:

(A) Performance test metal feedrates are appropriate (*i.e.*, whether feedrates are at least at normal levels; depending on the heterogeneity of the waste, whether some level of spiking would be appropriate; and whether the physical form and species of spiked material is appropriate); and

(B) Whether the extrapolated feedrates you request are warranted considering historical metal feedrate data.

* * * * *

(o) *Hydrogen chloride and chlorine gas.* * * *

(1) *Feedrate of total chlorine and chloride.* (i) *Incinerators, cement kilns, lightweight aggregate kilns, solid fuel boilers, and hydrochloric acid production furnaces.* You must establish a 12-hour rolling average limit for the total feedrate of chlorine (organic and inorganic) in all feedstreams as the average of the test run averages.

(ii) *Liquid fuel boilers.* (A) *Boilers that feed hazardous waste with a heating value not less than 10,000 Btu/lb.* (*1*) The feedrate limit is a hazardous waste thermal concentration limit expressed as pounds of chlorine (organic and inorganic) in all hazardous waste feedstreams per million Btu of hazardous waste fed to the boiler.

(*2*) You must establish a 12-hour rolling average feedrate limit as the average of the test run averages.

(*3*) You must comply with the feedrate limit by determining the mass feedrate of hazardous waste feedstreams (lb/hr) at least once a minute and by knowing the chlorine (organic and inorganic) content and heating value (million Btu/lb) of hazardous waste feedstreams at all times to calculate a 60-minute average feedrate measurement as [hazardous waste chlorine feedrate (lb/hr) / hazardous waste thermal feedrate (million Btu/hr)]. You must update the rolling average feedrate each hour with this 60-minute average feedrate measurement.

(B) *Boilers that feed hazardous waste with a heating value less than 10,000 Btu/lb.* You must establish a 12-hour rolling average limit for the total feedrate of chlorine (organic and inorganic) in all feedstreams as the average of the test run averages. You must update the rolling average feedrate each hour with a 60-minute average feedrate measurement.

* * * * *

(r) *Averaging periods.* The averaging periods specified in this section for operating parameters are not-to-exceed averaging periods. You may elect to use shorter averaging periods. For example, you may elect to use a 1-hour rolling average rather than the 12-hour rolling average specified in paragraph (l)(1)(i) of this section for mercury.

■ 12. Section 63.1210 is amended by:

■ a. Revising the table in paragraph (a)(1) and the table in paragraph (a)(2).

■ b. Redesignating paragraph (b) as (d).

■ c. Adding new paragraph (b).

■ d. Adding new paragraph (c).

The revisions and additions read as follows:

§ 63.1210 What are the notification requirements?

(a) * * *

(1) * * *

Reference	Notification
63.9(b)	Initial notifications that you are subject to Subpart EEE of this Part.
63.9(d)	Notification that you are subject to special compliance requirements.
63.9(j)	Notification and documentation of any change in information already provided under § 63.9.
63.1206(b)(5)(i)	Notification of changes in design, operation, or maintenance.
63.1206(c)(7)(ii)(C)	Notification of excessive bag leak detection system exceedances.
63.1207(e), 63.9(e) 63.9(g)(1) and (3)	Notification of performance test and continuous monitoring system evaluation, including the performance test plan and CMS performance evaluation plan.[1]
63.1210(b)	Notification of intent to comply.
63.1210(d), 63.1207(j), 63.1207(k), 63.1207(l), 63.9(h), 63.10(d)(2), 63.10(e)(2).	Notification of compliance, including results of performance tests and continuous monitoring system performance evaluations.

[1] You may also be required on a case-by-case basis to submit a feedstream analysis plan under § 63.1209(c)(3).

(2) * * *

Reference	Notification, request, petition, or application 6
63.9(i)	You may request an adjustment to time periods or postmark deadlines for submittal and review of required information.
63.10(e)(3)(ii)	You may request to reduce the frequency of excess emissions and CMS performance reports.
63.10(f)	You may request to waive recordkeeping or reporting requirements.
63.1204(d)(2)(iii), 63.1220(d)(2)(iii)	Notification that you elect to comply with the emission averaging requirements for cement kilns with in-line raw mills.
63.1204(e)(2)(iii), 63.1220(e)(2)(iii)	Notification that you elect to comply with the emission averaging requirements for preheater or preheater/precalciner kilns with dual stacks.
63.1206(b)(4), 63.1213, 63.6(i), 63.9(c)	You may request an extension of the compliance date for up to one year.
63.1206(b)(5)(i)(C)	You may request to burn hazardous waste for more than 720 hours and for purposes other than testing or pretesting after making a change in the design or operation that could affect compliance with emission standards and prior to submitting a revised Notification of Compliance.
63.1206(b)(8)(iii)(B)	If you elect to conduct particulate matter CEMS correlation testing and wish to have federal particulate matter and opacity standards and associated operating limits waived during the testing, you must notify the Administrator by submitting the correlation test plan for review and approval.
63.1206(b)(8)(v)	You may request approval to have the particulate matter and opacity standards and associated operating limits and conditions waived for more than 96 hours for a correlation test.

Reference	Notification, request, petition, or application 6
63.1206(b)(9)	Owners and operators of lightweight aggregate kilns may request approval of alternative emission standards for mercury, semivolatile metal, low volatile metal, and hydrogen chloride/chlorine gas under certain conditions.
63.1206(b)(10)	Owners and operators of cement kilns may request approval of alternative emission standards for mercury, semivolatile metal, low volatile metal, and hydrogen chloride/chlorine gas under certain conditions.
63.1206(b)(14)	Owners and operators of incinerators may elect to comply with an alternative to the particulate matter standard.
63.1206(b)(15)	Owners and operators of cement and lightweight aggregate kilns may request to comply with the alternative to the interim standards for mercury.
63.1206(c)(2)(ii)(C)	You may request to make changes to the startup, shutdown, and malfunction plan.
63.1206(c)(5)(i)(C)	You may request an alternative means of control to provide control of combustion system leaks.
63.1206(c)(5)(i)(D)	You may request other techniques to prevent fugitive emissions without use of instantaneous pressure limits.
63.1207(c)(2)	You may request to base initial compliance on data in lieu of a comprehensive performance test.
63.1207(d)(3)	You may request more than 60 days to complete a performance test if additional time is needed for reasons beyond your control.
63.1207(e)(3), 63.7(h)	You may request a time extension if the Administrator fails to approve or deny your test plan.
63.1207(h)(2)	You may request to waive current operating parameter limits during pretesting for more than 720 hours.
63.1207(f)(1)(ii)(D)	You may request a reduced hazardous waste feedstream analysis for organic hazardous air pollutants if the reduced analysis continues to be representative of organic hazardous air pollutants in your hazardous waste feedstreams.
63.1207(g)(2)(v)	You may request to operate under a wider operating range for a parameter during confirmatory performance testing.
63.1207(i)	You may request up to a one-year time extension for conducting a performance test (other than the initial comprehensive performance test) to consolidate testing with other state or federally-required testing.
63.1207(j)(4)	You may request more than 90 days to submit a Notification of Compliance after completing a performance test if additional time is needed for reasons beyond your control.
63.1207(l)(3)	After failure of a performance test, you may request to burn hazardous waste for more than 720 hours and for purposes other than testing or pretesting.
63.1209(a)(5), 63.8(f)	You may request: (1) Approval of alternative monitoring methods for compliance with standards that are monitored with a CEMS; and (2) approval to use a CEMS in lieu of operating parameter limits.
63.1209(g)(1)	You may request approval of: (1) Alternatives to operating parameter monitoring requirements, except for standards that you must monitor with a continuous emission monitoring system (CEMS) and except for requests to use a CEMS in lieu of operating parameter limits; or (2) a waiver of an operating parameter limit.
63.1209(l)(1)	You may request to extrapolate mercury feedrate limits.
63.1209(n)(2)	You may request to extrapolate semivolatile and low volatile metal feedrate limits.
63.1211(d)	You may request to use data compression techniques to record data on a less frequent basis than required by § 63.1209.

(b) *Notification of intent to comply (NIC).* These procedures apply to sources that have not previously complied with the requirements of paragraph (b) of this section, and to sources that previously complied with the NIC requirements of § 63.1210, which were in effect prior to October 11, 2000, that must make a technology change requiring a Class 1 permit modification to meet the standards of §§ 63.1219, 63.1220, and 63.1221.

(1) You must prepare a Notification of Intent to Comply that includes all of the following information:

(i) General information:

(A) The name and address of the owner/operator and the source;

(B) Whether the source is a major or an area source;

(C) Waste minimization and emission control technique(s) being considered;

(D) Emission monitoring technique(s) you are considering;

(E) Waste minimization and emission control technique(s) effectiveness;

(F) A description of the evaluation criteria used or to be used to select waste minimization and/or emission control technique(s); and

(G) A general description of how you intend to comply with the emission standards of this subpart.

(ii) As applicable to each source, information on key activities and estimated dates for these activities that will bring the source into compliance with emission control requirements of this subpart. You must include all of the following key activities and dates in your NIC:

(A) The dates by which you anticipate you will develop engineering designs for emission control systems or process changes for emissions;

(B) The date by which you anticipate you will commit internal or external resources for installing emission control systems or making process changes for emission control, or the date by which you will issue orders for the purchase of component parts to accomplish emission control or process changes.

(C) The date by which you anticipate you will submit construction applications;

(D) The date by which you anticipate you will initiate on-site construction, installation of emission control equipment, or process change;

(E) The date by which you anticipate you will complete on-site construction, installation of emission control equipment, or process change; and

(F) The date by which you anticipate you will achieve final compliance. The individual dates and milestones listed in paragraphs (b)(1)(ii)(A) through (F) of this section as part of the NIC are not requirements and therefore are not enforceable deadlines; the requirements of paragraphs (b)(1)(ii)(A) through (F) of this section must be included as part of the NIC only to inform the public of how you intend to comply with the emission standards of this subpart.

(iii) A summary of the public meeting required under paragraph (c) of this section;

(iv) If you intend to cease burning hazardous waste prior to or on the compliance date, the requirements of paragraphs (b)(1)(ii) and (b)(1)(iii) of this section do not apply. You must include in your NIC a schedule of key dates for the steps to be taken to stop hazardous waste activity at your combustion unit. Key dates include the date for submittal of RCRA closure documents required under subpart G, part 264 or subpart G, part 265 of this chapter.

(2) You must make a draft of the NIC available for public review no later than 30 days prior to the public meeting required under paragraph (c)(1) of this section or no later than 9 months after the effective date of the rule if you intend to cease burning hazardous waste prior to or on the compliance date.

(3) You must submit the final NIC to the Administrator no later than one year following the effective date of the emission standards of this subpart.

(c) *NIC public meeting and notice.* (1) Prior to the submission of the NIC to the permitting agency, and no later than 10 months after the effective date of the emission standards of this subpart, you must hold at least one informal meeting with the public to discuss anticipated activities described in the draft NIC for achieving compliance with the emission standards of this subpart. You must post a sign-in sheet or otherwise provide a voluntary opportunity for attendees to provide their names and addresses;

(2) You must submit a summary of the meeting, along with the list of attendees and their addresses developed under paragraph (b)(1) of this section, and copies of any written comments or materials submitted at the meeting, to the Administrator as part of the final NIC, in accordance with paragraph (b)(1)(iii) of this section;

(3) You must provide public notice of the NIC meeting at least 30 days prior to the meeting and you must maintain, and provide to the Administrator upon request, documentation of the notice. You must provide public notice in all of the following forms:

(i) *Newspaper advertisement.* You must publish a notice in a newspaper of general circulation in the county or equivalent jurisdiction of your facility. In addition, you must publish the notice in newspapers of general circulation in adjacent counties or equivalent jurisdiction where such publication would be necessary to inform the affected public. You must publish the notice as a display advertisement.

(ii) *Visible and accessible sign.* You must post a notice on a clearly marked sign at or near the source. If you place the sign on the site of the hazardous waste combustor, the sign must be large enough to be readable from the nearest spot where the public would pass by the site.

(iii) *Broadcast media announcement.* You must broadcast a notice at least once on at least one local radio station or television station.

(iv) *Notice to the facility mailing list.* You must provide a copy of the notice to the facility mailing list in accordance with § 124.10(c)(1)(ix) of this chapter.

(4) You must include all of the following in the notices required under paragraph (c)(3) of this section:

(i) The date, time, and location of the meeting;

(ii) A brief description of the purpose of the meeting;

(iii) A brief description of the source and proposed operations, including the address or a map (e.g., a sketched or copied street map) of the source location;

(iv) A statement encouraging people to contact the source at least 72 hours before the meeting if they need special access to participate in the meeting;

(v) A statement describing how the draft NIC (and final NIC, if requested) can be obtained; and

(vi) The name, address, and telephone number of a contact person for the NIC.

(5) The requirements of this paragraph do not apply to sources that intend to cease burning hazardous waste prior to or on the compliance date.

■ 13. Section 63.1211 is amended by:

■ a. Revising the table in paragraph (b).

■ b. Revising paragraph (c)(1).

The revisions read as follows:

§ 63.1211 What are the recordkeeping and reporting requirements?

* * * * *

(b) * * *

Reference	Document, Data, or Information
63.1200, 63.10(b) and (c)	General. Information required to document and maintain compliance with the regulations of Subpart EEE, including data recorded by continuous monitoring systems (CMS), and copies of all notifications, reports, plans, and other documents submitted to the Administrator.
63.1204(d)(1)(ii), 63.1220(d)(1)(ii)	Documentation of mode of operation changes for cement kilns with in-line raw mills.
63.1204(d)(2)(ii), 63.1220(d)(2)(ii)	Documentation of compliance with the emission averaging requirements for cement kilns with in-line raw mills.
63.1204(e)(2)(ii), 63.1220(e)(2)(ii)	Documentation of compliance with the emission averaging requirements for preheater or preheater/precalciner kilns with dual stacks.
63.1206(b)(1)(ii)	If you elect to comply with all applicable requirements and standards promulgated under authority of the Clean Air Act, including Sections 112 and 129, in lieu of the requirements of Subpart EEE when not burning hazardous waste, you must document in the operating record that you are in compliance with those requirements.
63.1206(b)(5)(ii)	Documentation that a change will not adversely affect compliance with the emission standards or operating requirements.
63.1206(b)(11)	Calculation of hazardous waste residence time.
63.1206(c)(2)	Startup, shutdown, and malfunction plan.
63.1206(c)(2)(v)(A)	Documentation of your investigation and evaluation of excessive exceedances during malfunctions.
63.1206(c)(3)(v)	Corrective measures for any automatic waste feed cutoff that results in an exceedance of an emission standard or operating parameter limit.
63.1206(c)(3)(vii)	Documentation and results of the automatic waste feed cutoff operability testing.
63.1206(c)(4)(ii)	Emergency safety vent operating plan.
63.1206(c)(4)(iii)	Corrective measures for any emergency safety vent opening.
63.1206(c)(5)(ii)	Method used for control of combustion system leaks.
63.1206(c)(6)	Operator training and certification program.
63.1206(c)(7)(i)(D)	Operation and maintenance plan.
63.1209(c)(2)	Feedstream analysis plan.

Reference	Document, Data, or Information
63.1209(k)(6)(iii), 63.1209(k)(7)(ii), 63.1209(k)(9)(ii), 63.1209(o)(4)(iii).	Documentation that a substitute activated carbon, dioxin/furan formation reaction inhibitor, or dry scrubber sorbent will provide the same level of control as the original material.
63.1209(k)(7)(i)(C)	Results of carbon bed performance monitoring.
63.1209(q)	Documentation of changes in modes of operation.
63.1211(c)	Documentation of compliance.

(c) * * *

(1) By the compliance date, you must develop and include in the operating record a Documentation of Compliance. You are not subject to this requirement, however, if you submit a Notification of Compliance under § 63.1207(j) prior to the compliance date. Upon inclusion of the Documentation of Compliance in the operating record, hazardous waste burning incinerators, cement kilns, and lightweight aggregate kilns regulated under the interim standards of §§ 63.1203, 63.1204, and 63.1205 are no longer subject to compliance with the previously applicable Notification of Compliance.

* * * * *

■ 14. Section 63.1212 is added to subpart EEE to read as follows:

§ 63.1212 What are the other requirements pertaining to the NIC?

(a) *Certification of intent to comply.* The Notice of Intent to Comply (NIC) must contain the following certification signed and dated by a responsible official as defined under § 63.2 of this chapter: I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

(b) *New units.* Any source that files a RCRA permit application or permit modification request for construction of a hazardous waste combustion unit after October 12, 2005 must:

(1) Prepare a draft NIC according to § 63.1210(b) and make it available to the public upon issuance of the notice of NIC public meeting per § 63.1210(c)(3);

(2) Prepare a draft comprehensive performance test plan pursuant to the requirements of § 63.1207 and make it available for public review upon issuance of the notice of NIC public meeting;

(3) Provide notice to the public of a pre-application meeting pursuant to § 124.30 or notice to the public of a permit modification request pursuant to § 270.42 and;

(4) Hold an informal public meeting 30 days following notice of NIC public meeting and notice of the pre-application meeting or notice of the permit modification request.

(c) *Information Repository specific to new combustion units.* (1) Any source that files a RCRA permit application or modification request for construction of a new hazardous waste combustion unit after October 12, 2005 may be required to establish an information repository if deemed appropriate.

(2) The Administrator may assess the need, on a case-by-case basis for an information repository. When assessing the need for a repository, the Administrator shall consider the level of public interest, the presence of an existing repository, and any information available via the New Source Review and Title V permit processes. If the Administrator determines a need for a repository, then the Administrator shall notify the facility that it must establish and maintain an information repository.

(3) The information repository shall contain all documents, reports, data, and information deemed necessary by the Administrator. The Administrator shall have the discretion to limit the contents of the repository.

(4) The information repository shall be located and maintained at a site chosen by the source. If the Administrator finds the site unsuitable for the purposes and persons for which it was established, due to problems with location, hours of availability, access, or other relevant considerations, then the Administrator shall specify a more appropriate site.

(5) The Administrator shall require the source to provide a written notice about the information repository to all individuals on the source mailing list.

(6) The source shall be responsible for maintaining and updating the repository with appropriate information throughout a period specified by the Administrator. The Administrator may close the repository at his or her discretion based on the considerations in paragraph (c)(2) of this section.

■ 15. Section 63.1214 is amended by revising paragraphs (c)(1), (c)(2), (c)(3), and (c)(4) to read as follows:

§ 63.1214 Implementation and enforcement.

* * * * *

(c) * * *

(1) Approval of alternatives to requirements in §§ 63.1200, 63.1203, 63.1204, 63.1205, 63.1206(a), 63.1215, 63.1216, 63.1217, 63.1218, 63.1219, 63.1220, and 63.1221.

(2) Approval of major alternatives to test methods under §§ 63.7(e)(2)(ii) and (f), 63.1208(b), and 63.1209(a)(1), as defined under § 63.90, and as required in this subpart.

(3) Approval of major alternatives to monitoring under §§ 63.8(f) and 63.1209(a)(5), as defined under § 63.90, and as required in this subpart.

(4) Approval of major alternatives to recordkeeping and reporting under §§ 63.10(f) and 63.1211(a) through (c), as defined under § 63.90, and as required in this subpart.

■ 16. Section § 63.1215 is added to subpart EEE to read as follows:

§ 63.1215 What are the health-based compliance alternatives for total chlorine?

(a) *General.* (1) *Overview.* You may establish and comply with health-based compliance alternatives for total chlorine under the procedures prescribed in this section for your hazardous waste combustors other than hydrochloric acid production furnaces. You may comply with these health-based compliance alternatives in lieu of the emission standards for total chlorine provided under §§ 63.1216, 63.1217, 63.1219, 63.1220, and 63.1221. To identify and comply with the limits, you must:

(i) Identify a total chlorine emission concentration (ppmv) expressed as chloride ($Cl^{(-)}$) equivalent for each on-site hazardous waste combustor. You may select total chlorine emission concentrations as you choose to demonstrate eligibility for the risk-based limits under this section, except as provided by paragraph (b)(4) of this section;

(ii) Apportion the total chlorine emission concentration between HCl and Cl_2 according to paragraph (b)(6)(i) of this section, and calculate HCl and Cl_2 emission rates (lb/hr) using the gas flowrate and other parameters from the most recent regulatory compliance test.

(iii) Calculate the annual average HCl-equivalent emission rate as prescribed in paragraph (b)(2) of this section.

(iv) Perform an eligibility demonstration to determine if your HCl-equivalent emission rate meets the national exposure standard and thus is below the annual average HCl-equivalent emission rate limit, as prescribed by paragraph (c) of this section;

(v) Submit your eligibility demonstration for review and approval, as prescribed by paragraph (e) of this section, which must include information to ensure that the 1-hour average HCl-equivalent emission rate limit is not exceeded, as prescribed by paragraph (d) of this section;

(vi) Demonstrate compliance with the annual average HCl-equivalent emission rate limit during the comprehensive performance test, as prescribed by the testing and monitoring requirements under paragraph (e) of this section;

(vii) Comply with compliance monitoring requirements, including establishing feedrate limits on total chlorine and chloride, and operating parameter limits on emission control equipment, as prescribed by paragraph (f) of this section; and

(viii) Comply with the requirements for changes, as prescribed by paragraph (h) of this section.

(2) *Definitions.* In addition to the definitions under § 63.1201, the following definitions apply to this section:

1-Hour Average HCl-Equivalent Emission Rate means the HCl-equivalent emission rate (lb/hr) determined by equating the toxicity of chlorine to HCl using 1-hour RELs as the health risk metric for acute exposure.

1-Hour Average HCl-Equivalent Emission Rate Limit means the HCl-equivalent emission rate (lb/hr) determined by equating the toxicity of chlorine to HCl using 1-hour RELs as the health risk metric for acute exposure and which ensures that maximum 1-hour average ambient concentrations of HCl-equivalents do not exceed a Hazard Index of 1.0, rounded to the nearest tenths decimal place (0.1), at an off-site receptor location.

Acute Reference Exposure Level (aREL) means health thresholds below which there would be no adverse health effects for greater than once in a lifetime exposures of one hour. ARELs are developed by the California Office of Health Hazard Assessment and are available at *http://www.oehha.ca.gov/air/acute_rels/acuterel.html.*

Annual Average HCl-Equivalent Emission Rate means the HCl-equivalent emission rate (lb/hr) determined by equating the toxicity of chlorine to HCl using RfCs as the health risk metric for long-term exposure.

Annual Average HCl-Equivalent Emission Rate Limit means the HCl-equivalent emission rate (lb/hr) determined by equating the toxicity of chlorine to HCl using RfCs as the health risk metric for long-term exposure and which ensures that maximum annual average ambient concentrations of HCl equivalents do not exceed a Hazard Index of 1.0, rounded to the nearest tenths decimal place (0.1), at an off-site receptor location.

Hazard Index (HI) means the sum of more than one Hazard Quotient for multiple substances and/or multiple exposure pathways. In this section, the Hazard Index is the sum of the Hazard Quotients for HCl and chlorine.

Hazard Quotient (HQ) means the ratio of the predicted media concentration of a pollutant to the media concentration at which no adverse effects are expected. For chronic inhalation exposures, the HQ is calculated under this section as the air concentration divided by the RfC. For acute inhalation exposures, the HQ is calculated under this section as the air concentration divided by the aREL.

Look-up table analysis means a risk screening analysis based on comparing the HCl-equivalent emission rate from the affected source to the appropriate HCl-equivalent emission rate limit specified in Tables 1 through 4 of this section.

Reference Concentration (RfC) means an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime. It can be derived from various types of human or animal data, with uncertainty factors generally applied to reflect limitations of the data used.

(b) *HCl-equivalent emission rates.* (1) You must express total chlorine emission rates for each hazardous waste combustor as HCl-equivalent emission rates.

(2) *Annual average rates.* You must calculate annual average toxicity-weighted HCl-equivalent emission rates for each combustor as follows:

$ER_{tw} = ER_{HCl} + ER_{Cl2} \times (RfC_{HCl}/RfC_{Cl2})$

Where:

ER_{LTtw} is the annual average HCl toxicity-weighted emission rate (HCl-equivalent emission rate) considering long-term exposures, lb/hr

ER_{HCl} is the emission rate of HCl in lbs/hr

ER_{Cl2} is the emission rate of chlorine in lbs/hr

RfC_{HCl} is the reference concentration of HCl

RfC_{Cl2} is the reference concentration of chlorine

(3) *1-hour average rates.* You must calculate 1-hour average toxicity-weighted HCl-equivalent emission rates for each combustor as follows:

$ER_{STtw} = ER_{HCl} + ER_{Cl2} \times (aREL_{HCl}/aREL_{Cl2})$

Where:

ER_{STtw} is the 1-hour average HCl toxicity-weighted emission rate (HCl-equivalent emission rate) considering 1-hour (short-term) exposures, lb/hr

ER_{HCl} is the emission rate of HCl in lbs/hr

ER_{Cl2} is the emission rate of chlorine in lbs/hr

$aREL_{HCl}$ is the 1-hour Reference Exposure Level of HCl

$aREL_{Cl2}$ is the 1-hour Reference Exposure Level of chlorine

(4) You must use the RfC values for hydrogen chloride and chlorine found at *http://epa.gov/ttn/atw/toxsource/summary.html.*

(5) You must use the aREL values for hydrogen chloride and chlorine found at *http://www.oehha.ca.gov/air/acute_rels/acuterel.html.*

(6) *Cl_2HCl ratios*—(i) *Ratio for calculating annual average HCl-equivalent emission rates.* (A) To calculate the annual average HCl-equivalent emission rate (lb/hr) for each combustor, you must apportion the total chlorine emission concentration (ppmv chloride ($Cl^{(-)}$) equivalent) between HCl and chlorine according to the historical average Cl_2/HCl volumetric ratio for all regulatory compliance tests.

(B) You must calculate HCl and Cl_2 emission rates (lb/hr) using the apportioned emission concentrations and the gas flowrate and other parameters from the most recent regulatory compliance test.

(C) You must calculate the annual average HCl-equivalent emission rate using these HCl and Cl_2 emission rates and the equation in paragraph (b)(2) of this section.

(ii) *Ratio for calculating 1-hour average HCl-equivalent emission rates.* (A) To calculate the 1-hour average HCl-equivalent emission rate for each combustor as a criterion for you to determine under paragraph (d) of this section if an hourly rolling average feedrate limit on total chlorine and chloride may be waived, you must apportion the total chlorine emission concentration (ppmv chloride ($Cl^{(-)}$) equivalent) between HCl and chlorine according to the historical highest Cl_2/HCl volumetric ratio for all regulatory compliance tests.

(B) You must calculate HCl and Cl_2 emission rates (lb/hr) using the apportioned emission concentrations and the gas flowrate and other parameters from the most recent regulatory compliance test.

(C) You must calculate the 1-hour average HCl-equivalent emission rate using the se HCl and Cl_2 emission rates and the equation in paragraph (b)(3) of this section.

(iii) *Ratios for new sources.* (A) You must use engineering information to estimate the Cl_2/HCl volumetric ratio for a new source for the initial eligibility demonstration.

(B) You must use the Cl_2/HCl volumetric ratio demonstrated during the initial comprehensive performance test to demonstrate in the Notification of Compliance that your HCl-equivalent emission rate does not exceed your HCl-equivalent emission rate limit.

(C) When approving the test plan for the initial comprehensive performance test, the permitting authority will establish a periodic testing requirement, such as every 3 months for 1 year, to establish a record of representative Cl_2/HCl volumetric ratios.

(*1*) You must revise your HCl-equivalent emission rates and HCl-equivalent emission rate limits after each such test using the procedures prescribed in paragraphs (b)(6)(i) and (ii) of this section.

(*2*) If you no longer are eligible for the health-based compliance alternative, you must notify the permitting authority immediately and either:

(*i*) Submit a revised eligibility demonstration requesting lower HCl-equivalent emission rate limits, establishing lower HCl-equivalent emission rates, and establishing by downward extrapolation lower feedrate limits for total chlorine and chloride; or

(*ii*) Request a compliance schedule of up to three years to demonstrate compliance with the emission standards under §§ 63.1216, 63.1217, 63.1219, 63.1220, and 63.1221.

(iv) *Unrepresentative or inadequate historical Cl_2/HCl volumetric ratios.* (A) If you believe that the Cl_2/HCl volumetric ratio for one or more historical regulatory compliance tests is not representative of the current ratio, you may request that the permitting authority allow you to screen those ratios from the analysis of historical ratios.

(B) If the permitting authority believes that too few historical ratios are available to calculate a representative average ratio or establish a maximum ratio, the permitting authority may require you to conduct periodic testing to establish representative ratios.

(v) *Updating Cl_2/HCl ratios.* You must include the Cl_2/HCl volumetric ratio demonstrated during each performance test in your data base of historical Cl2/HCl ratios to update the ratios you establish under paragraphs (b)(6)(i) and (ii) of this section for subsequent calculations of the annual average and 1-hour average HCl-equivalent emission rates.

(7) *Emission rates are capped.* The hydrogen chloride and chlorine emission rates you use to calculate the HCl-equivalent emission rate limit for incinerators, cement kilns, and lightweight aggregate kilns must not result in total chlorine emission concentrations exceeding:

(i) For incinerators that were existing sources on April 19, 1996: 77 parts per million by volume, combined emissions, expressed as chloride ($Cl^{(-)}$) equivalent, dry basis and corrected to 7 percent oxygen;

(ii) For incinerators that are new or reconstructed sources after April 19, 1996: 21 parts per million by volume, combined emissions, expressed as chloride ($Cl^{(-)}$) equivalent, dry basis and corrected to 7 percent oxygen;

(iii) For cement kilns that were existing sources on April 19, 1996: 130 parts per million by volume, combined emissions, expressed as chloride ($Cl^{(-)}$) equivalent, dry basis and corrected to 7 percent oxygen;

(iv) For cement kilns that are new or reconstructed sources after April 19, 1996: 86 parts per million by volume, combined emissions, expressed as chloride ($Cl^{(-)}$) equivalent, dry basis and corrected to 7 percent oxygen;

(v) For lightweight aggregate kilns that were existing sources on April 19, 1996: 600 parts per million by volume, combined emissions, expressed as chloride ($Cl^{(-)}$) equivalent, dry basis and corrected to 7 percent oxygen;

(vi) For lightweight aggregate kilns that are new or reconstructed sources after April 19, 1996: 600 parts per million by volume, combined emissions, expressed as chloride ($Cl^{(-)}$) equivalent, dry basis and corrected to 7 percent oxygen.

(c) *Eligibility demonstration*—(1) *General.* (i) You must perform an eligibility demonstration to determine whether the total chlorine emission rates you select for each on-site hazardous waste combustor meet the national exposure standards using either a look-up table analysis prescribed by paragraph (c)(3) of this section, or a site-specific compliance demonstration prescribed by paragraph (c)(4) of this section.

(ii) You must also determine in your eligibility demonstration whether each combustor may exceed the 1-hour HCl-equivalent emission rate limit absent an hourly rolling average limit on the feedrate of total chlorine and chloride, as provided by paragraph (d) of this section.

(2) *Definition of eligibility.* (i) Eligibility for the risk-based total chlorine standard is determined by comparing the annual average HCl-equivalent emission rate for the total chlorine emission rate you select for each combustor to the annual average HCl-equivalent emission rate limit.

(ii) The annual average HCl-equivalent emission rate limit ensures that the Hazard Index for chronic exposure from HCl and chlorine emissions from all on-site hazardous waste combustors is less than or equal to 1.0, rounded to the nearest tenths decimal place (0.1), for the actual individual most exposed to the facility's emissions, considering off-site locations where people reside and where people congregate for work, school, or recreation.

(iii) Your facility is eligible for the health-based compliance alternative for total chlorine if either:

(A) The annual average HCl-equivalent emission rate for each on-site hazardous waste combustor is below the appropriate value in the look-up table determined under paragraph (c)(3) of this section; or

(B) The annual average HCl-equivalent emission rate for each on-site hazardous waste combustor is below the annual average HCl-equivalent emission rate limit you calculate based on a site-specific compliance demonstration under paragraph (c)(4) of this section.

(3) *Look-up table analysis.* Look-up tables for the eligibility demonstration are provided as Tables 1 and 2 to this section.

(i) Table 1 presents annual average HCl-equivalent emission rate limits for sources located in flat terrain. For purposes of this analysis, flat terrain is terrain that rises to a level not exceeding one half the stack height within a distance of 50 stack heights.

(ii) Table 2 presents annual average HCl-equivalent emission rate limits for sources located in simple elevated terrain. For purposes of this analysis, simple elevated terrain is terrain that rises to a level exceeding one half the stack height, but that does not exceed the stack height, within a distance of 50 stack heights.

(iii) To determine the annual average HCl-equivalent emission rate limit for a source from the look-up table, you must use the stack height and stack diameter for your hazardous waste combustors and the distance between the stack and the property boundary.

(iv) If any of these values for stack height, stack diameter, and distance to nearest property boundary do not match the exact values in the look-up table, you must use the next lowest table value.

(v) *Adjusted HCl-equivalent emission rate limit for multiple on-site combustors.* (A) If you have more than one hazardous waste combustor on site, the sum across all hazardous waste combustors of the ratio of the adjusted HCl-equivalent emission rate limit to the HCl-equivalent emission rate limit provided by Tables 1 or 2 cannot exceed 1.0, according to the following equation:

$$\sum_{i=1}^{n} \frac{\text{HCl-Equivalent Emission Rate Limit Adjusted}_i}{\text{HCI-Equivalent Emission Rate Limit Table}_i} \leq 1.0$$

Where:

i = number of on-site hazardous waste combustors;

HCl-Equivalent Emission Rate Limit Adjusted_i means the apportioned, allowable HCl-equivalent emission rate limit for combustor i, and

HCl-Equivalent Emission Rate Limit Table_i means the HCl-equivalent emission rate limit from Table 1 or 2 to § 63.1215 for combustor *i.*

(B) The adjusted HCl-equivalent emission rate limit becomes the HCl-equivalent emission rate limit.

(4) *Site-specific compliance demonstration.* (i) You may use any scientifically-accepted peer-reviewed risk assessment methodology for your site-specific compliance demonstration to calculate an annual average HCl-equivalent emission rate limit for each on-site hazardous waste combustor. An example of one approach for performing the demonstration for air toxics can be found in the EPA's ''Air Toxics Risk Assessment Reference Library, Volume 2, Site-Specific Risk Assessment Technical Resource Document,'' which may be obtained through the EPA's Air Toxics Web site at *http://www.epa.gov/ttn/fera/risk_atra_main.html.*

(ii) The annual average HCl-equivalent emission rate limit is the HCl-equivalent emission rate that ensures that the Hazard Index associated with maximum annual average exposures is not greater than 1.0 rounded to the nearest tenths decimal place (0.1).

(iii) To determine the annual average HCl-equivalent emission rate limit, your site-specific compliance demonstration must, at a minimum:

(A) Estimate long-term inhalation exposures through the estimation of annual or multi-year average ambient concentrations;

(B) Estimate the inhalation exposure for the actual individual most exposed to the facility's emissions from hazardous waste combustors, considering off-site locations where people reside and where people congregate for work, school, or recreation;

(C) Use site-specific, quality-assured data wherever possible;

(D) Use health-protective default assumptions wherever site-specific data are not available, and:

(E) Contain adequate documentation of the data and methods used for the assessment so that it is transparent and can be reproduced by an experienced risk assessor and emissions measurement expert.

(iv) Your site-specific compliance demonstration need not:

(A) Assume any attenuation of exposure concentrations due to the penetration of outdoor pollutants into indoor exposure areas;

(B) Assume any reaction or deposition of the emitted pollutants during transport from the emission point to the point of exposure.

(d) *Assurance that the 1-hour HCl-equivalent emission rate limit will not be exceeded.* To ensure that the 1-hour HCl-equivalent emission rate limit will not be exceeded when complying with the annual average HCl-equivalent emission rate limit, you must establish a 1-hour average HCl-equivalent emission rate for each combustor, establish a 1-hour average HCl-equivalent emission rate limit for each combustor, and consider site-specific factors including prescribed criteria to determine if the 1-hour average HCl-equivalent emission rate limit may be exceeded absent an hourly rolling average limit on the feedrate of total chlorine and chloride. If the 1-hour average HCl-equivalent emission rate limit may be exceeded, you must establish an hourly rolling average feedrate limit on total chlorine as provided by paragraph (f)(3) of this section.

(1) *1-hour average HCl-equivalent emission rate.* You must calculate the 1-hour average HCl-equivalent emission rate from the total chlorine emission concentration you select for each source as prescribed in paragraph (b)(6)(ii)(C) of this section.

(2) *1-hour average HCl-equivalent emission rate limit.* You must establish the 1-hour average HCl-equivalent emission rate limit for each affected source using either a look-up table analysis or site-specific analysis:

(i) *Look-up table analysis.* Look-up tables are provided for 1-hour average HCl-equivalent emission rate limits as Table 3 and Table 4 to this section. Table 3 provides limits for facilities located in flat terrain. Table 4 provides limits for facilities located in simple elevated terrain. You must use the Tables to establish 1-hour average HCl-equivalent emission rate limits as prescribed in paragraphs (c)(3)(iii) through (c)(3)(v) of this section for annual average HCl-equivalent emission rate limits.

(ii) *Site-specific analysis.* The 1-hour average HCl-equivalent emission rate limit is the HCl-equivalent emission rate that ensures that the Hazard Index associated with maximum 1-hour average exposures is not greater than 1.0 rounded to the nearest tenths decimal place (0.1). You must follow the risk assessment procedures under paragraph (c)(4) of this section to estimate short-term inhalation exposures through the estimation of maximum 1-hour average ambient concentrations.

(3) *Criteria for determining whether the 1-hour HCl-equivalent emission rate may be exceeded absent an hourly rolling average limit on the feedrate of total chlorine and chloride.* An hourly rolling average feedrate limit on total chlorine and chloride is waived if you determine considering the criteria listed below that the long-term feedrate limit (and averaging period) established under paragraph (c)(4)(i) of this section will also ensure that the 1-hour average HCl-equivalent emission rate will not exceed the 1-hour average HCl-equivalent emission rate limit you calculate for each combustor.

(i) The ratio of the 1-hour average HCl-equivalent emission rate based on the total chlorine emission rate you select for each hazardous waste combustor to the 1-hour average HCl-equivalent emission rate limit for the combustor; and

(ii) The potential for the source to vary total chlorine and chloride feedrates substantially over the averaging period for the feedrate limit established under paragraph (c)(4)(i) of this section.

(e) *Review and approval of eligibility demonstrations*—(1) *Content of the eligibility demonstration*—(i) *General.* The eligibility demonstration must include the following information, at a minimum:

(A) Identification of each hazardous waste combustor combustion gas emission point (e.g., generally, the flue gas stack);

(B) The maximum and average capacity at which each combustor will operate, and the maximum rated capacity for each combustor, using the metric of stack gas volume (under both actual and standard conditions) emitted per unit of time, as well as any other metric that is appropriate for the combustor (e.g., million Btu/hr heat input for boilers; tons of dry raw material feed/hour for cement kilns);

(C) Stack parameters for each combustor, including, but not limited to stack height, stack diameter, stack gas temperature, and stack gas exit velocity;

(D) Plot plan showing all stack emission points, nearby residences and property boundary line;

(E) Identification of any stack gas control devices used to reduce emissions from each combustor;

(F) Identification of the RfC values used to calculate annual average HCl-equivalent emission rates and the aREL values used to calculate 1-hour average HCl-equivalent emission rates;

(G) Calculations used to determine the annual average and 1-hour average HCl-equivalent emission rates and rate limits, including calculation of the Cl_2/HCl ratios as prescribed by paragraph (b)(6) of this section;

(ii) *Additional content to implement the annual average HCl-equivalent emission rate limit.* You must include the following in your eligibility demonstration to implement the annual average HCl-equivalent emission rate limit:

(A) For incinerators, cement kilns, and lightweight aggregate kilns, calculations to confirm that the annual average HCl-equivalent emission rate that you calculate from the total chlorine emission rate you select for each combustor does not exceed the limits provided by paragraph (b)(7) of this section;

(B) Comparison of the annual average HCl-equivalent emission rate limit for each combustor to the annual average HCl-equivalent emission rate for the total chlorine emission rate you select for each combustor;

(C) The annual average HCl-equivalent emission rate limit for each hazardous waste combustor, and the limits on operating parameters required under paragraph (g)(1) of this section;

(D) Determination of the long-term chlorine feedrate limit, including the total chlorine system removal efficiency for sources that establish an (up to) annual rolling average feedrate limit under paragraph (g)(2)(ii) of this section;

(iii) *Additional content to implement the 1-hour average HCl-equivalent emission rate limit.* You must include the following in your eligibility demonstration to implement the 1-hour average HCl-equivalent emission rate limit:

(A) Determination of whether the combustor may exceed the 1-hour HCl-equivalent emission rate limit absent an hourly rolling average chlorine feedrate limit, including:

(*1*) Determination of the 1-hour average HCl-equivalent emission rate from the total chlorine emission rate you select for the combustor;

(*2*) Determination of the 1-hour average HCl-equivalent emission rate limit using either look-up Tables 3 and 4 to this section or site-specific risk analysis;

(*3*) Determination of the ratio of the 1-hour average HCl-equivalent emission rate to the 1-hour average HCl-equivalent emission rate limit for the combustor; and

(*4*) The potential for the source to vary total chlorine and chloride feedrates substantially over the averaging period for the long-term feedrate limit established under paragraphs (g)(2)(i) and (g)(2)(ii) of this section; and

(B) Determination of the hourly rolling average chlorine feedrate limit, including the total chlorine system removal efficiency.

(iv) *Additional content of a look-up table demonstration.* If you use the look-up table analysis to establish HCl-equivalent emission rate limits, your eligibility demonstration must also contain, at a minimum, the following:

(A) Documentation that the facility is located in either flat or simple elevated terrain; and

(B) For facilities with more than one on-site hazardous waste combustor, documentation that the sum of the ratios for all such combustors of the HCl-equivalent emission rate to the HCl-equivalent emission rate limit does not exceed 1.0.

(v) *Additional content of a site-specific compliance demonstration.* If you use a site-specific compliance demonstration, your eligibility demonstration must also contain, at a minimum, the following information to support your determination of the annual average HCl-equivalent emission rate limit for each combustor:

(A) Identification of the risk assessment methodology used;

(B) Documentation of the fate and transport model used;

(C) Documentation of the fate and transport model inputs, including the stack parameters listed in paragraph (d)(1)(i)(C) of this section converted to the dimensions required for the model;

(D) As applicable:

(*1*) Meteorological data;

(*2*) Building, land use, and terrain data;

(*3*) Receptor locations and population data, including areas where people congregate for work, school, or recreation; and

(*4*) Other facility-specific parameters input into the model;

(E) Documentation of the fate and transport model outputs; and

(F) Documentation of any exposure assessment and risk characterization calculations.

(2) *Review and approval*—(i) *Existing sources.* (A) If you operate an existing source, you must submit the eligibility demonstration to your permitting authority for review and approval not later than 12 months prior to the compliance date. You must also submit a separate copy of the eligibility demonstration to: U.S. EPA, Risk and Exposure Assessment Group, Emission Standards Division (C404–01), Attn: Group Leader, Research Triangle Park, North Carolina 27711, electronic mail address *REAG@epa.gov.*

(B) Your permitting authority should notify you of approval or intent to disapprove your eligibility demonstration within 6 months after receipt of the original demonstration, and within 3 months after receipt of any supplemental information that you submit. A notice of intent to disapprove your eligibility demonstration, whether before or after the compliance date, will identify incomplete or inaccurate information or noncompliance with prescribed procedures and specify how much time you will have to submit additional information or to achieve the MACT standards for total chlorine under §§ 63.1216, 63.1217, 63.1219, 63.1220, and 63.1221. If your eligibility demonstration is disapproved, the permitting authority may extend the compliance date of the total chlorine standards to allow you to make changes to the design or operation of the combustor or related systems as quickly as practicable to enable you to achieve compliance with the MACT total chlorine standards.

(C) If your permitting authority has not approved your eligibility demonstration by the compliance date, and has not issued a notice of intent to disapprove your demonstration, you may nonetheless begin complying, on the compliance date, with the HCl-equivalent emission rate limits you present in your eligibility demonstration.

(D) If your permitting authority issues a notice of intent to disapprove your eligibility demonstration after the compliance date, the authority will identify the basis for that notice and specify how much time you will have to submit additional information or to comply with the MACT standards for total chlorine under §§ 63.1216, 63.1217, 63.1219, 63.1220, and 63.1221. The permitting authority may extend the compliance date of the total chlorine standards to allow you to make changes to the design or operation of the combustor or related systems as quickly as practicable to enable you to achieve compliance with the MACT standards for total chlorine.

(ii) *New or reconstructed sources.* (A) *General.* The procedures for review and approval of eligibility demonstrations applicable to existing sources under paragraph (e)(2)(i) of this section also apply to new or reconstructed sources, except that the date you must submit the eligibility demonstration is as prescribed in this paragraph (e)(2)(ii).

(B) If you operate a new or reconstructed source that starts up before April 12, 2007, or a solid fuel boiler or liquid fuel boiler that is an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP before April 12, 2007, you must either:

(*1*) Comply with the final total chlorine emission standards under §§ 63.1216, 63.1217, 63.1219, 63.1220, and 63.1221, by October 12, 2005, or upon startup, whichever is later, except for a standard that is more stringent than the standard proposed on April 20, 2004 for your source. If a final standard is more stringent than the proposed standard, you may comply with the proposed standard until October 14, 2008, after which you must comply with the final standard; or

(*2*) Submit an eligibility demonstration for review and approval under this section by April 12, 2006, and comply with the HCl-equivalent emission rate limits and operating requirements you establish in the eligibility demonstration.

(C) If you operate a new or reconstructed source that starts up on or after April 12, 2007, or a solid fuel boiler or liquid fuel boiler that is an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP on or after April 12, 2007, you must either:

(*1*) Comply with the final total chlorine emission standards under §§ 63.1216, 63.1217, 63.1219, 63.1220, and 63.1221 upon startup. If the final standard is more stringent than the standard proposed for your source on April 20, 2004, however, and if you start operations before October 14, 2008, you may comply with the proposed standard until October 14, 2008, after which you must comply with the final standard; or

(*2*) Submit an eligibility demonstration for review and approval under this section 12 months prior to startup.

(f) *Testing requirements*—(1) *General.* You must comply with the requirements for comprehensive performance testing under § 63.1207.

(2) *System removal efficiency.* (i) You must calculate the total chlorine removal efficiency of the combustor during each run of the comprehensive performance test.

(ii) You must calculate the average system removal efficiency as the average of the test run averages.

(iii) If your source does not control emissions of total chlorine, you must assume zero system removal efficiency.

(3) *Annual average HCl-equivalent emission rate limit.* If emissions during the comprehensive performance test exceed the annual average HCl-equivalent emission rate limit, eligibility for emission limits under this section is not affected. This emission rate limit is an annual average limit even though compliance is based on a 12-hour or (up to) an annual rolling average feedrate limit on total chlorine and chloride because the feedrate limit is also used for compliance assurance for the semivolatile metal emission standard

(4) *1-hour average HCl-equivalent emission rate limit.* Total chlorine emissions during each run of the comprehensive performance test cannot exceed the 1-hour average HCl-equivalent emission rate limit.

(5) *Test methods.* (i) If you operate a cement kiln or a combustor equipped with a dry acid gas scrubber, you must use EPA Method 320/321 or ASTM D 6735–01, or an equivalent method, to measure hydrogen chloride, and the back-half (caustic impingers) of Method 26/26A, or an equivalent method, to measure chlorine gas.

(ii) *Bromine and sulfur considerations.* If you operate an incinerator, boiler, or lightweight aggregate kiln and your feedstreams contain bromine or sulfur during the comprehensive performance test at levels specified under paragraph (e)(2)(ii)(B) of this section, you must use EPA Method 320/321 or ASTM D 6735–01, or an equivalent method, to measure hydrogen chloride, and Method 26/26A, or an equivalent method, to measure chlorine and hydrogen chloride, and determine your chlorine emissions as follows:

(A) You must determine you chlorine emissions to be the higher of the value measured by Method 26/26A, or an equivalent method, or the value calculated by difference between the combined hydrogen chloride and chlorine levels measured by Method 26/26a, or an equivalent method, and the hydrogen chloride measurement from EPA Method 320/321 or ASTM D 6735–01, or an equivalent method.

(B) The procedures under paragraph (f)(2)(ii) of this section for determining hydrogen chloride and chlorine emissions apply if you feed bromine or sulfur during the performance test at the levels specified in this paragraph (f)(5)(ii)(B):

(*1*) If the bromine/chlorine ratio in feedstreams is greater than 5 percent by mass; or

(*2*) If the sulfur/chlorine ratio in feedstreams is greater than 50 percent by mass.

(g) *Monitoring requirements.* (1) *General.* You must establish and comply with limits on the same operating parameters that apply to sources complying with the MACT standard for total chlorine under § 63.1209(o), except that feedrate limits on total chlorine and chloride must be established according to paragraphs (g)(2) and (g)(3) of this section:

(2) *Feedrate limit to ensure compliance with the annual average HCl-equivalent emission rate limit.* (i) For sources subject to the feedrate limit for total chlorine and chloride under § 63.1209(n)(4) to ensure compliance with the semivolatile metals standard:

(A) The feedrate limit (and averaging period) for total chlorine and chloride to ensure compliance with the annual average HCl-equivalent emission rate limit is the same as required by § 63.1209(n)(4), except as provided by paragraph (g)(2)(i)(B) of this section.

(B) The numerical value of the total chlorine and chloride feedrate limit (*i.e.*, not considering the averaging period) you establish under § 63.1209(n)(4) must not exceed the value you calculate as the annual average HCl-equivalent emission rate limit (lb/hr) divided by [1 − system removal efficiency], where the system removal efficiency is calculated as prescribed by paragraph (f)(2) of this section.

(ii) For sources exempt from the feedrate limit for total chlorine and chloride under § 63.1209(n)(4) because they comply with § 63.1207(m)(2), the feedrate limit for total chlorine and chloride to ensure compliance with the annual average HCl-equivalent emission rate must be established as follows:

(A) You must establish an average period for the feedrate limit that does not exceed an annual rolling average;

(B) The numerical value of the total chlorine and chloride feedrate limit (*i.e.*, not considering the averaging period) must not exceed the value you calculate as the annual average HCl-equivalent emission rate limit (lb/hr) divided by [1 − system removal efficiency], where the system removal efficiency is calculated as prescribed by paragraph (f)(2) of this section.

(C) You must calculate the initial rolling average as though you had selected a 12-hour rolling average, as provided by paragraph (b)(5)(i) of this section. You must calculate rolling averages thereafter as the average of the available one-minute values until enough one-minute values are available to calculate the rolling average period you select. At that time and thereafter, you update the rolling average feedrate each hour with a 60-minute average feedrate.

(3) *Feedrate limit to ensure compliance with the 1-hour average HCl-equivalent emission rate limit.* (i) You must establish an hourly rolling average feedrate limit on total chlorine and chloride to ensure compliance with the 1-hour average HCl-equivalent emission rate limit unless you determine that the hourly rolling average feedrate limit is waived under paragraph (d) of this section.

(ii) You must calculate the hourly rolling average feedrate limit for total chlorine and chloride as the 1-hour average HCl-equivalent emission rate limit (lb/hr) divided by [1 − system removal efficiency], where the system removal efficiency is calculated as prescribed by paragraph (f)(2)(ii) of this section.

(h) *Changes*—(1) *Changes over which you have control.* (i) *Changes that would affect the HCl-equivalent emission rate limit.* (A) If you plan to change the design, operation, or maintenance of the facility in a manner than would decrease the annual average or 1-hour average HCl-equivalent emission rate limit, you must submit to the permitting authority prior to the change a revised eligibility demonstration documenting the lower emission rate limits and calculations of reduced total chlorine and chloride feedrate limits.

(B) If you plan to change the design, operation, or maintenance of the facility in a manner than would increase the annual average or 1-hour average HCl-equivalent emission rate limit, and you elect to increase your total chlorine and chloride feedrate limits. You must also submit to the permitting authority prior to the change a revised eligibility demonstration documenting the increased emission rate limits and calculations of the increased feedrate limits prior to the change.

(ii) *Changes that could affect system removal efficiency.* (A) If you plan to change the design, operation, or maintenance of the combustor in a manner than could decrease the system removal efficiency, you are subject to the requirements of § 63.1206(b)(5) for conducting a performance test to reestablish the combustor's system removal efficiency and you must submit a revised eligibility demonstration documenting the lower system removal efficiency and the reduced feedrate limits on total chlorine and chloride.

(B) If you plan to change the design, operation, or maintenance of the combustor in a manner than could increase the system removal efficiency, and you elect to document the increased system removal efficiency to establish higher feedrate limits on total chlorine and chloride, you are subject to the requirements of § 63.1206(b)(5) for conducting a performance test to reestablish the combustor's system removal efficiency. You must also submit to the permitting authority a revised eligibility demonstration documenting the higher system removal efficiency and the increased feedrate limits on total chlorine and chloride.

(2) *Changes over which you do not have control that may decrease the HCl-equivalent emission rate limits.* These requirements apply if you use a site-specific risk assessment under paragraph (c)(4) of this section to demonstrate eligibility for the health-based limits.

(i) *Proactive review.* You must review the documentation you use in your eligibility demonstration every five years from the date of the comprehensive performance test and submit for review and approval with the comprehensive performance test plan either a certification that the information used in your eligibility demonstration has not changed in a manner that would decrease the annual average or 1-hour average HCl-equivalent emission rate limit, or a revised eligibility demonstration.

(ii) *Reactive review.* If in the interim between your comprehensive performance tests you have reason to know of changes that would decrease the annual average or 1-hour average HCl-equivalent emission rate limit, you must submit a revised eligibility demonstration as soon as practicable but not more frequently than annually.

(iii) *Compliance schedule.* If you determine that you cannot demonstrate compliance with a lower annual average HCl-equivalent emission rate limit during the comprehensive performance test because you need additional time to complete changes to the design or operation of the source, you may request that the permitting authority grant you additional time to make those changes as quickly as practicable.

Table 1 of §63.1215: Annual Average HCl-Equivalent Emssion Rate Limits (lb/hr)--Flat Terrain

	Distance to property boundary (m)											
Stack Diameter = 0.3 m												
Stack Height (m)	**30**	**50**	**70**	**100**	**200**	**300**	**500**	**700**	**1000**	**2000**	**3000**	**5000**
5	3.7E-01	4.9E-01	7.3E-01	9.1E-01	1.6E+00	2.3E+00	4.1E+00	5.7E+00	6.1E+00	1.0E+01	1.6E+01	2.9E+01
10	1.0E+00	1.0E+00	1.1E+00	1.5E+00	2.1E+00	2.7E+00	4.8E+00	5.7E+00	6.5E+00	1.1E+01	1.8E+01	3.2E+01
20	2.3E+00	2.3E+00	2.3E+00	2.3E+00	2.7E+00	3.7E+00	5.6E+00	7.4E+00	1.0E+01	1.9E+01	2.9E+01	5.2E+01
30	4.1E+00	4.1E+00	4.1E+00	4.2E+00	4.7E+00	6.0E+00	9.5E+00	1.3E+01	1.8E+01	3.3E+01	4.8E+01	7.9E+01
50	1.2E+01	1.2E+01	1.2E+01	1.2E+01	1.3E+01	1.5E+01	2.0E+01	2.8E+01	3.8E+01	7.1E+01	1.0E+02	1.6E+02
Stack Diameter = 0.5 m												
Stack Height (m)	**30**	**50**	**70**	**100**	**200**	**300**	**500**	**700**	**1000**	**2000**	**3000**	**5000**
5	6.5E-01	9.3E-01	1.4E+00	1.8E+00	3.0E+00	4.4E+00	7.2E+00	9.2E+00	1.3E+01	1.5E+01	2.0E+01	3.4E+01
10	1.4E+00	1.4E+00	1.6E+00	2.1E+00	3.9E+00	5.4E+00	8.3E+00	1.0E+01	1.3E+01	1.7E+01	2.3E+01	3.8E+01
20	3.7E+00	3.7E+00	3.7E+00	3.9E+00	4.9E+00	6.5E+00	8.5E+00	1.0E+01	1.3E+01	2.2E+01	3.2E+01	5.5E+01
30	5.5E+00	5.5E+00	5.5E+00	5.5E+00	5.6E+00	6.7E+00	1.0E+01	1.4E+01	1.9E+01	3.4E+01	4.9E+01	8.1E+01
50	1.4E+01	1.4E+01	1.4E+01	1.4E+01	1.4E+01	1.5E+01	2.1E+01	2.8E+01	3.9E+01	7.2E+01	1.0E+02	1.6E+02
Stack Diameter = 1.0 m												
Stack Height (m)	**30**	**50**	**70**	**100**	**200**	**300**	**500**	**700**	**1000**	**2000**	**3000**	**5000**
10	3.2E+00	3.6E+00	4.0E+00	5.4E+00	9.6E+00	1.3E+01	1.8E+01	2.3E+01	2.8E+01	4.5E+01	5.3E+01	6.5E+01
20	5.9E+00	5.9E+00	5.9E+00	6.1E+00	9.6E+00	1.3E+01	1.8E+01	2.3E+01	2.8E+01	4.5E+01	5.3E+01	7.5E+01
30	1.0E+01	1.0E+01	1.0E+01	1.0E+01	1.2E+01	1.3E+01	1.8E+01	2.3E+01	2.8E+01	4.5E+01	6.1E+01	9.3E+01
50	1.8E+01	1.8E+01	1.8E+01	1.8E+01	1.8E+01	1.8E+01	2.3E+01	3.1E+01	4.2E+01	7.7E+01	1.1E+02	1.7E+02
70	7.4E+01	7.4E+01	7.4E+01	7.4E+01	7.4E+01	7.4E+01	8.0E+01	1.0E+02	1.4E+02	2.1E+02	2.7E+02	4.0E+02
Stack Diameter = 1.5 m												
Stack Height (m)	**30**	**50**	**70**	**100**	**200**	**300**	**500**	**700**	**1000**	**2000**	**3000**	**5000**
10	4.1E+00	5.3E+00	6.4E+00	7.9E+00	1.3E+01	2.1E+01	2.7E+01	3.6E+01	4.8E+01	7.6E+01	9.1E+01	1.1E+02
20	7.6E+00	7.6E+00	7.6E+00	7.9E+00	1.3E+01	2.1E+01	2.7E+01	3.6E+01	4.8E+01	7.6E+01	9.1E+01	1.2E+02
30	1.3E+01	1.3E+01	1.3E+01	1.3E+01	1.6E+01	2.1E+01	2.7E+01	3.6E+01	4.8E+01	7.6E+01	9.1E+01	1.2E+02
50	2.3E+01	2.3E+01	2.3E+01	2.3E+01	2.3E+01	2.3E+01	2.7E+01	3.6E+01	4.8E+01	8.6E+01	1.2E+02	1.8E+02
70	1.0E+02	1.0E+02	1.0E+02	1.0E+02	1.0E+02	1.0E+02	1.1E+02	1.4E+02	1.8E+02	3.0E+02	4.0E+02	5.8E+02
Stack Diameter = 2.0 m												
Stack Height (m)	**30**	**50**	**70**	**100**	**200**	**300**	**500**	**700**	**1000**	**2000**	**3000**	**5000**
10	5.0E+00	6.3E+00	7.7E+00	9.8E+00	1.7E+01	2.8E+01	3.3E+01	4.4E+01	5.9E+01	1.0E+02	1.4E+02	1.6E+02
20	9.3E+00	9.3E+00	9.4E+00	1.0E+01	1.7E+01	2.8E+01	3.3E+01	4.4E+01	5.9E+01	1.0E+02	1.4E+02	1.8E+02
30	1.6E+01	1.6E+01	1.6E+01	1.6E+01	1.9E+01	2.8E+01	3.3E+01	4.4E+01	5.9E+01	1.0E+02	1.4E+02	1.8E+02
50	2.9E+01	2.9E+01	2.9E+01	2.9E+01	2.9E+01	2.9E+01	3.3E+01	4.4E+01	5.9E+01	1.0E+02	1.4E+02	2.0E+02
70	1.4E+02	1.4E+02	1.4E+02	1.4E+02	1.4E+02	1.4E+02	1.4E+02	1.8E+02	2.3E+02	3.4E+02	4.3E+02	6.4E+02
100	3.0E+02	3.0E+02	3.0E+02	3.0E+02	3.0E+02	3.0E+02	3.0E+02	3.0E+02	3.5E+02	5.2E+02	6.8E+02	8.2E+02
Stack Diameter = 3.0 m												
Stack Height (m)	**30**	**50**	**70**	**100**	**200**	**300**	**500**	**700**	**1000**	**2000**	**3000**	**5000**
10	6.5E+00	6.9E+00	7.7E+00	9.8E+00	2.2E+01	3.4E+01	5.4E+01	7.4E+01	9.8E+01	1.3E+02	1.6E+02	1.6E+02
20	1.6E+01	1.6E+01	1.7E+01	2.0E+01	2.5E+01	3.7E+01	5.6E+01	7.4E+01	9.8E+01	1.5E+02	2.1E+02	3.0E+02
30	2.0E+01	2.0E+01	2.0E+01	2.0E+01	2.5E+01	3.7E+01	5.6E+01	7.4E+01	9.8E+01	1.7E+02	2.2E+02	3.0E+02
50	4.2E+01	4.2E+01	4.2E+01	4.2E+01	4.4E+01	5.1E+01	5.6E+01	7.4E+01	9.8E+01	1.7E+02	2.2E+02	3.0E+02
70	2.3E+02	2.3E+02	2.3E+02	2.3E+02	2.3E+02	2.4E+02	2.4E+02	2.9E+02	3.6E+02	4.1E+02	5.0E+02	7.0E+02
100	3.5E+02	3.5E+02	3.5E+02	3.5E+02	3.5E+02	3.5E+02	3.5E+02	3.5E+02	3.9E+02	6.3E+02	7.5E+02	8.7E+02
Stack Diameter = 4.0 m												
Stack Height (m)	**30**	**50**	**70**	**100**	**200**	**300**	**500**	**700**	**1000**	**2000**	**3000**	**5000**
30	2.5E+01	2.5E+01	2.5E+01	2.5E+01	3.4E+01	5.6E+01	8.1E+01	1.1E+02	1.4E+02	2.2E+02	2.8E+02	4.3E+02
50	5.1E+01	5.1E+01	5.1E+01	5.1E+01	5.3E+01	6.2E+01	8.1E+01	1.1E+02	1.4E+02	2.4E+02	3.1E+02	4.4E+02
70	2.6E+02	2.6E+02	2.6E+02	2.6E+02	2.7E+02	2.8E+02	3.3E+02	4.6E+02	4.8E+02	5.0E+02	5.7E+02	7.7E+02
100	5.7E+02	5.7E+02	5.7E+02	5.7E+02	5.7E+02	5.7E+02	5.7E+02	5.7E+02	5.8E+02	8.6E+02	9.3E+02	1.1E+03

Table 2 of §63.1215: Annual Average HCl-Equivalent Emission Rate Limits (lbs/hr)--Simple Elevated Terrain

	Distance to property boundary (m)											
Stack Diameter = 0.3 m												
Stack height (m)	**30**	**50**	**70**	**100**	**200**	**300**	**500**	**700**	**1000**	**2000**	**3000**	**5000**
5	1.3E-01	1.8E-01	2.5E-01	3.7E-01	6.4E-01	8.9E-01	1.4E+00	2.0E+00	3.1E+00	7.7E+00	1.3E+01	2.6E+01
10	3.8E-01	3.8E-01	4.4E-01	6.1E-01	6.4E-01	8.9E-01	1.4E+00	2.0E+00	3.1E+00	7.7E+00	1.3E+01	2.6E+01
20	1.1E+00	1.1E+00	1.1E+00	1.2E+00	1.2E+00	1.5E+00	2.3E+00	3.4E+00	5.2E+00	1.2E+01	2.0E+01	3.9E+01
30	2.4E+00	2.4E+00	2.4E+00	2.4E+00	2.7E+00	3.5E+00	4.2E+00	5.2E+00	7.0E+00	1.5E+01	2.6E+01	4.9E+01
50	7.7E+00	7.7E+00	7.7E+00	7.7E+00	7.7E+00	8.6E+00	8.6E+00	8.6E+00	8.6E+00	2.0E+01	3.4E+01	6.5E+01
Stack Diameter = 0.5 m												
Stack height (m)	**30**	**50**	**70**	**100**	**200**	**300**	**500**	**700**	**1000**	**2000**	**3000**	**5000**
5	1.8E-01	2.6E-01	3.5E-01	5.6E-01	1.4E+00	1.6E+00	2.3E+00	3.4E+00	5.2E+00	9.6E+00	1.5E+01	2.8E+01
10	5.3E-01	5.3E-01	6.1E-01	8.5E-01	1.4E+00	1.6E+00	2.3E+00	3.4E+00	5.2E+00	9.6E+00	1.5E+01	2.8E+01
20	1.5E+00	1.5E+00	1.5E+00	1.5E+00	1.5E+00	1.6E+00	2.3E+00	3.4E+00	5.2E+00	1.2E+01	2.0E+01	3.9E+01
30	2.9E+00	2.9E+00	2.9E+00	2.9E+00	2.9E+00	3.5E+00	4.2E+00	5.5E+00	8.1E+00	1.7E+01	2.8E+01	5.2E+01
50	8.0E+00	8.0E+00	8.0E+00	8.0E+00	8.0E+00	8.8E+00	1.2E+01	1.2E+01	1.2E+01	2.3E+01	3.7E+01	6.9E+01
Stack Diameter = 1.0 m												
Stack height (m)	**30**	**50**	**70**	**100**	**200**	**300**	**500**	**700**	**1000**	**2000**	**3000**	**5000**
10	9.7E-01	9.7E-01	1.1E+00	1.7E+00	3.7E+00	3.7E+00	4.2E+00	5.5E+00	7.5E+00	1.5E+01	2.3E+01	4.1E+01
20	2.7E+00	2.7E+00	2.7E+00	3.0E+00	3.7E+00	3.7E+00	4.2E+00	5.5E+00	7.5E+00	1.5E+01	2.3E+01	4.3E+01
30	4.3E+00	4.3E+00	4.3E+00	4.3E+00	4.3E+00	4.3E+00	4.3E+00	5.5E+00	8.1E+00	1.7E+01	2.8E+01	5.2E+01
50	9.5E+00	9.5E+00	9.5E+00	9.5E+00	9.5E+00	9.5E+00	1.2E+01	1.4E+01	1.6E+01	3.1E+01	4.8E+01	8.3E+01
70	4.0E+01	4.0E+01	4.0E+01	4.0E+01	4.0E+01	4.0E+01	4.0E+01	4.1E+01	4.1E+01	4.1E+01	5.8E+01	9.8E+01
Stack Diameter = 1.5 m												
Stack height (m)	**30**	**50**	**70**	**100**	**200**	**300**	**500**	**700**	**1000**	**2000**	**3000**	**5000**
10	2.0E+00	2.0E+00	2.3E+00	3.4E+00	5.1E+00	6.0E+00	6.0E+00	6.6E+00	9.3E+00	1.9E+01	3.0E+01	5.4E+01
20	3.5E+00	3.5E+00	3.5E+00	3.9E+00	5.1E+00	6.0E+00	6.0E+00	6.6E+00	9.3E+00	1.9E+01	3.0E+01	5.4E+01
30	6.0E+00	6.0E+00	6.0E+00	6.0E+00	6.0E+00	6.0E+00	6.0E+00	6.6E+00	9.3E+00	1.9E+01	3.0E+01	5.5E+01
50	1.1E+01	1.1E+01	1.1E+01	1.1E+01	1.1E+01	1.1E+01	1.2E+01	1.4E+01	1.6E+01	3.1E+01	4.8E+01	8.3E+01
70	5.1E+01	5.1E+01	5.1E+01	5.1E+01	5.1E+01	5.1E+01	5.1E+01	5.1E+01	5.1E+01	6.2E+01	7.8E+01	1.2E+02
Stack Diameter = 2.0 m												
Stack height (m)	**30**	**50**	**70**	**100**	**200**	**300**	**500**	**700**	**1000**	**2000**	**3000**	**5000**
10	2.6E+00	2.6E+00	3.0E+00	4.2E+00	6.3E+00	9.2E+00	9.2E+00	1.0E+01	1.4E+01	2.5E+01	3.7E+01	6.3E+01
20	4.2E+00	4.2E+00	4.2E+00	4.7E+00	6.3E+00	9.2E+00	9.2E+00	1.0E+01	1.4E+01	2.5E+01	3.7E+01	6.3E+01
30	8.4E+00	8.4E+00	8.4E+00	8.4E+00	9.2E+00	9.2E+00	9.2E+00	1.0E+01	1.4E+01	2.5E+01	3.7E+01	6.3E+01
50	1.4E+01	1.4E+01	1.4E+01	1.4E+01	1.4E+01	1.4E+01	1.4E+01	1.5E+01	1.6E+01	3.1E+01	4.8E+01	8.3E+01
70	5.9E+01	5.9E+01	5.9E+01	5.9E+01	5.9E+01	5.9E+01	5.9E+01	5.9E+01	5.9E+01	7.0E+01	1.0E+02	1.5E+02
100	8.2E+01	8.2E+01	8.2E+01	8.2E+01	8.2E+01	8.2E+01	8.2E+01	8.2E+01	8.2E+01	8.2E+01	1.1E+02	1.7E+02
Stack Diameter = 3.0 m												
Stack height (m)	**30**	**50**	**70**	**100**	**200**	**300**	**500**	**700**	**1000**	**2000**	**3000**	**5000**
10	3.3E+00	3.4E+00	3.9E+00	5.5E+00	1.1E+01	1.7E+01	1.7E+01	1.7E+01	1.7E+01	3.3E+01	5.0E+01	8.6E+01
20	6.5E+00	6.5E+00	6.5E+00	7.6E+00	1.1E+01	1.7E+01	1.7E+01	1.7E+01	1.7E+01	3.3E+01	5.0E+01	8.6E+01
30	1.1E+01	1.1E+01	1.1E+01	1.1E+01	1.2E+01	1.7E+01	1.7E+01	1.7E+01	1.7E+01	3.3E+01	5.0E+01	8.6E+01
50	1.7E+01	1.7E+01	1.7E+01	1.7E+01	1.7E+01	1.7E+01	1.7E+01	1.7E+01	1.7E+01	3.3E+01	5.0E+01	8.6E+01
70	8.0E+01	8.0E+01	8.0E+01	8.0E+01	8.0E+01	8.0E+01	8.0E+01	8.0E+01	8.0E+01	8.5E+01	1.2E+02	1.9E+02
100	1.3E+02	1.3E+02	1.3E+02	1.3E+02	1.3E+02	1.3E+02	1.3E+02	1.3E+02	1.3E+02	1.3E+02	1.9E+02	2.4E+02
Stack Diameter = 4.0 m												
Stack height (m)	**30**	**50**	**70**	**100**	**200**	**300**	**500**	**700**	**1000**	**2000**	**3000**	**5000**
30	1.3E+01	1.3E+01	1.3E+01	1.3E+01	1.5E+01	2.1E+01	2.1E+01	2.1E+01	2.1E+01	4.0E+01	6.0E+01	9.8E+01
50	2.1E+01	2.1E+01	2.1E+01	2.1E+01	2.1E+01	2.1E+01	2.1E+01	2.1E+01	2.1E+01	4.0E+01	6.0E+01	9.8E+01
70	1.1E+02	1.1E+02	1.1E+02	1.1E+02	1.1E+02	1.1E+02	1.1E+02	1.1E+02	1.1E+02	1.1E+02	1.5E+02	2.3E+02
100	1.5E+02	1.5E+02	1.5E+02	1.5E+02	1.5E+02	1.5E+02	1.5E+02	1.5E+02	1.5E+02	1.5E+02	2.2E+02	3.4E+02

Table 3 of §63.1215: 1-Hour Average HCl-Equivalent Emission Rates (lb/hr)--Flat Terrain

	Distance to property boundary (m)											
Stack Diameter = 0.3 m												
Stack Height (m)	**30**	**50**	**70**	**100**	**200**	**300**	**500**	**700**	**1000**	**2000**	**3000**	**5000**
5	3.9E+00	5.1E+00	7.6E+00	9.6E+00	1.6E+01	2.4E+01	4.3E+01	5.3E+01	6.2E+01	1.1E+02	1.7E+02	3.1E+02
10	9.7E+00	9.8E+00	1.1E+01	1.4E+01	2.0E+01	2.6E+01	4.6E+01	5.3E+01	6.2E+01	1.1E+02	1.7E+02	3.1E+02
20	2.2E+01	2.2E+01	2.2E+01	2.2E+01	2.5E+01	3.5E+01	5.3E+01	7.0E+01	9.5E+01	1.8E+02	2.8E+02	4.9E+02
30	3.9E+01	3.9E+01	3.9E+01	4.0E+01	4.4E+01	5.7E+01	9.0E+01	1.2E+02	1.7E+02	3.1E+02	4.5E+02	7.5E+02
50	1.2E+02	1.2E+02	1.2E+02	1.2E+02	1.2E+02	1.4E+02	1.9E+02	2.6E+02	3.6E+02	6.7E+02	9.7E+02	1.5E+03
Stack Diameter = 0.5 m												
Stack Height (m)	**30**	**50**	**70**	**100**	**200**	**300**	**500**	**700**	**1000**	**2000**	**3000**	**5000**
5	6.9E+00	9.8E+00	1.5E+01	1.8E+01	3.2E+01	4.6E+01	7.5E+01	9.7E+01	1.2E+02	1.6E+02	2.1E+02	3.6E+02
10	1.3E+01	1.4E+01	1.5E+01	2.0E+01	3.7E+01	5.1E+01	7.9E+01	9.7E+01	1.2E+02	1.6E+02	2.2E+02	3.6E+02
20	3.5E+01	3.5E+01	3.5E+01	3.6E+01	4.6E+01	6.2E+01	8.1E+01	9.7E+01	1.2E+02	2.1E+02	3.0E+02	5.2E+02
30	5.2E+01	5.2E+01	5.2E+01	5.2E+01	5.3E+01	6.4E+01	9.8E+01	1.3E+02	1.8E+02	3.2E+02	4.7E+02	7.7E+02
50	1.3E+02	1.3E+02	1.3E+02	1.3E+02	1.3E+02	1.4E+02	2.0E+02	2.7E+02	3.7E+02	6.8E+02	9.7E+02	1.5E+03
Stack Diameter = 1.0 m												
Stack Height (m)	**30**	**50**	**70**	**100**	**200**	**300**	**500**	**700**	**1000**	**2000**	**3000**	**5000**
10	3.0E+01	3.4E+01	3.8E+01	5.1E+01	9.0E+01	1.2E+02	1.7E+02	2.2E+02	2.7E+02	4.3E+02	5.0E+02	6.1E+02
20	5.5E+01	5.5E+01	5.5E+01	5.8E+01	9.0E+01	1.2E+02	1.7E+02	2.2E+02	2.7E+02	4.3E+02	5.0E+02	7.1E+02
30	9.6E+01	9.6E+01	9.6E+01	9.6E+01	1.1E+02	1.2E+02	1.7E+02	2.2E+02	2.7E+02	4.3E+02	5.8E+02	8.8E+02
50	1.7E+02	1.7E+02	1.7E+02	1.7E+02	1.7E+02	1.7E+02	2.2E+02	2.9E+02	4.0E+02	7.3E+02	1.0E+03	1.6E+03
70	7.0E+02	7.0E+02	7.0E+02	7.0E+02	7.0E+02	7.0E+02	7.6E+02	9.9E+02	1.3E+03	2.0E+03	2.6E+03	3.8E+03
Stack Diameter = 1.5 m												
Stack Height (m)	**30**	**50**	**70**	**100**	**200**	**300**	**500**	**700**	**1000**	**2000**	**3000**	**5000**
10	3.9E+01	5.0E+01	6.1E+01	7.5E+01	1.2E+02	2.0E+02	2.5E+02	3.4E+02	4.6E+02	7.2E+02	8.6E+02	1.0E+03
20	7.1E+01	7.1E+01	7.2E+01	7.5E+01	1.2E+02	2.0E+02	2.5E+02	3.4E+02	4.6E+02	7.2E+02	8.6E+02	1.1E+03
30	1.2E+02	1.2E+02	1.2E+02	1.2E+02	1.5E+02	2.0E+02	2.5E+02	3.4E+02	4.6E+02	7.2E+02	8.6E+02	1.1E+03
50	2.2E+02	2.2E+02	2.2E+02	2.2E+02	2.2E+02	2.2E+02	2.5E+02	3.4E+02	4.6E+02	8.1E+02	1.1E+03	1.7E+03
70	9.6E+02	9.6E+02	9.6E+02	9.6E+02	9.6E+02	9.6E+02	1.0E+03	1.3E+03	1.7E+03	2.9E+03	3.8E+03	5.5E+03
Stack Diameter = 2.0 m												
Stack Height (m)	**30**	**50**	**70**	**100**	**200**	**300**	**500**	**700**	**1000**	**2000**	**3000**	**5000**
10	4.7E+01	6.0E+01	7.3E+01	9.2E+01	1.7E+02	2.6E+02	3.2E+02	4.2E+02	5.6E+02	9.7E+02	1.3E+03	1.5E+03
20	8.8E+01	8.8E+01	8.8E+01	9.4E+01	1.7E+02	2.6E+02	3.2E+02	4.2E+02	5.6E+02	9.7E+02	1.3E+03	1.7E+03
30	1.5E+02	1.5E+02	1.5E+02	1.5E+02	1.8E+02	2.6E+02	3.2E+02	4.2E+02	5.6E+02	9.7E+02	1.3E+03	1.7E+03
50	2.7E+02	2.7E+02	2.7E+02	2.7E+02	2.7E+02	2.7E+02	3.2E+02	4.2E+02	5.6E+02	9.7E+02	1.3E+03	1.9E+03
70	1.3E+03	1.3E+03	1.3E+03	1.3E+03	1.3E+03	1.3E+03	1.4E+03	1.7E+03	2.2E+03	3.2E+03	4.1E+03	5.9E+03
100	2.8E+03	2.8E+03	2.8E+03	2.8E+03	2.8E+03	2.8E+03	2.8E+03	2.8E+03	3.3E+03	5.0E+03	6.5E+03	7.7E+03
Stack Diameter = 3.0 m												
Stack Height (m)	**30**	**50**	**70**	**100**	**200**	**300**	**500**	**700**	**1000**	**2000**	**3000**	**5000**
10	6.2E+01	6.5E+01	7.3E+01	9.2E+01	2.1E+02	3.3E+02	5.1E+02	7.0E+02	9.3E+02	1.2E+03	1.5E+03	1.5E+03
20	1.5E+02	1.5E+02	1.6E+02	1.9E+02	2.4E+02	3.5E+02	5.3E+02	7.0E+02	9.3E+02	1.4E+03	2.0E+03	2.8E+03
30	1.9E+02	1.9E+02	1.9E+02	1.9E+02	2.4E+02	3.5E+02	5.3E+02	7.0E+02	9.3E+02	1.6E+03	2.1E+03	2.8E+03
50	4.0E+02	4.0E+02	4.0E+02	4.0E+02	4.2E+02	4.8E+02	5.3E+02	7.0E+02	9.3E+02	1.6E+03	2.1E+03	2.8E+03
70	2.2E+03	2.2E+03	2.2E+03	2.2E+03	2.2E+03	2.3E+03	2.3E+03	2.8E+03	3.4E+03	3.9E+03	4.7E+03	6.6E+03
100	3.3E+03	3.3E+03	3.3E+03	3.3E+03	3.3E+03	3.3E+03	3.3E+03	3.3E+03	3.7E+03	6.0E+03	7.1E+03	8.2E+03
Stack Diameter = 4.0 m												
Stack Height (m)	**30**	**50**	**70**	**100**	**200**	**300**	**500**	**700**	**1000**	**2000**	**3000**	**5000**
30	2.3E+02	2.3E+02	2.3E+02	2.4E+02	3.2E+02	5.3E+02	7.7E+02	1.0E+03	1.3E+03	2.1E+03	2.6E+03	4.1E+03
50	4.8E+02	4.8E+02	4.8E+02	4.8E+02	5.0E+02	5.8E+02	7.7E+02	1.0E+03	1.3E+03	2.3E+03	3.0E+03	4.2E+03
70	2.4E+03	2.4E+03	2.4E+03	2.4E+03	2.5E+03	2.6E+03	3.2E+03	4.3E+03	4.5E+03	4.7E+03	5.4E+03	7.2E+03
100	5.4E+03	5.4E+03	5.4E+03	5.4E+03	5.4E+03	5.4E+03	5.4E+03	5.4E+03	5.5E+03	8.1E+03	8.8E+03	1.0E+04

Table 4 of §63.1215: 1-Hour Average HCl-Equivalent Emission Rate Limits (lb/hr)--Simple Elevated Terrain

	Distance to property boundary (m)											
Stack Diameter = 0.3 m												
Stack Height (m)	**30**	**50**	**70**	**100**	**200**	**300**	**500**	**700**	**1000**	**2000**	**3000**	**5000**
5	1.4E+00	1.9E+00	2.6E+00	3.8E+00	6.8E+00	9.4E+00	1.5E+01	2.1E+01	3.3E+01	8.1E+01	1.4E+02	2.7E+02
10	4.0E+00	4.0E+00	4.6E+00	6.4E+00	6.8E+00	9.4E+00	1.5E+01	2.1E+01	3.3E+01	8.1E+01	1.4E+02	2.7E+02
20	1.1E+01	1.1E+01	1.1E+01	1.1E+01	1.2E+01	1.5E+01	2.4E+01	3.5E+01	5.4E+01	1.3E+02	2.1E+02	4.0E+02
30	2.3E+01	2.3E+01	2.3E+01	2.3E+01	2.5E+01	3.3E+01	4.4E+01	5.5E+01	7.3E+01	1.6E+02	2.7E+02	5.2E+02
50	7.3E+01	7.3E+01	7.3E+01	7.3E+01	7.3E+01	8.3E+01	9.0E+01	9.0E+01	9.0E+01	2.1E+02	3.5E+02	6.8E+02
Stack Diameter = 0.5 m												
Stack Height (m)	**30**	**50**	**70**	**100**	**200**	**300**	**500**	**700**	**1000**	**2000**	**3000**	**5000**
5	1.9E+00	2.7E+00	3.7E+00	5.9E+00	1.4E+01	1.7E+01	2.4E+01	3.5E+01	5.4E+01	1.0E+02	1.6E+02	3.0E+02
10	5.6E+00	5.6E+00	6.4E+00	8.9E+00	1.4E+01	1.7E+01	2.4E+01	3.5E+01	5.4E+01	1.0E+02	1.6E+02	3.0E+02
20	1.6E+01	1.6E+01	1.6E+01	1.6E+01	1.6E+01	1.7E+01	2.4E+01	3.5E+01	5.4E+01	1.3E+02	2.1E+02	4.0E+02
30	2.7E+01	2.7E+01	2.7E+01	2.7E+01	2.7E+01	3.3E+01	4.4E+01	5.8E+01	8.5E+01	1.8E+02	2.9E+02	5.5E+02
50	7.6E+01	7.6E+01	7.6E+01	7.6E+01	7.6E+01	8.3E+01	1.1E+02	1.3E+02	1.3E+02	2.4E+02	3.9E+02	7.2E+02
Stack Diameter = 1.0 m												
Stack Height (m)	**30**	**50**	**70**	**100**	**200**	**300**	**500**	**700**	**1000**	**2000**	**3000**	**5000**
10	1.0E+01	1.0E+01	1.2E+01	1.7E+01	3.9E+01	3.9E+01	4.5E+01	5.8E+01	7.9E+01	1.6E+02	2.4E+02	4.4E+02
20	2.6E+01	2.6E+01	2.6E+01	2.8E+01	3.9E+01	3.9E+01	4.5E+01	5.8E+01	7.9E+01	1.6E+02	2.4E+02	4.5E+02
30	4.2E+01	4.2E+01	4.2E+01	4.2E+01	4.2E+01	4.2E+01	4.5E+01	5.8E+01	8.5E+01	1.8E+02	2.9E+02	5.5E+02
50	8.9E+01	8.9E+01	8.9E+01	8.9E+01	8.9E+01	8.9E+01	1.1E+02	1.4E+02	1.7E+02	3.3E+02	5.0E+02	8.7E+02
70	3.8E+02	3.8E+02	3.8E+02	3.8E+02	3.8E+02	3.8E+02	3.8E+02	4.0E+02	4.1E+02	4.3E+02	6.1E+02	1.0E+03
Stack Diameter = 1.5 m												
Stack Height (m)	**30**	**50**	**70**	**100**	**200**	**300**	**500**	**700**	**1000**	**2000**	**3000**	**5000**
10	2.1E+01	2.1E+01	2.5E+01	3.6E+01	5.4E+01	6.3E+01	6.3E+01	6.9E+01	9.8E+01	2.0E+02	3.2E+02	5.7E+02
20	3.3E+01	3.3E+01	3.3E+01	3.7E+01	5.4E+01	6.3E+01	6.3E+01	6.9E+01	9.8E+01	2.0E+02	3.2E+02	5.7E+02
30	6.3E+01	6.3E+01	6.3E+01	6.3E+01	6.3E+01	6.3E+01	6.3E+01	6.9E+01	9.8E+01	2.0E+02	3.2E+02	5.8E+02
50	1.0E+02	1.0E+02	1.0E+02	1.0E+02	1.0E+02	1.0E+02	1.2E+02	1.4E+02	1.7E+02	3.3E+02	5.0E+02	8.7E+02
70	4.8E+02	4.8E+02	4.8E+02	4.8E+02	4.8E+02	4.8E+02	4.8E+02	4.8E+02	4.8E+02	6.5E+02	8.2E+02	1.3E+03
Stack Diameter = 2.0 m												
Stack Height (m)	**30**	**50**	**70**	**100**	**200**	**300**	**500**	**700**	**1000**	**2000**	**3000**	**5000**
10	2.7E+01	2.7E+01	3.2E+01	4.4E+01	6.6E+01	9.7E+01	9.7E+01	1.1E+02	1.5E+02	2.6E+02	3.9E+02	6.6E+02
20	4.0E+01	4.0E+01	4.0E+01	4.4E+01	6.6E+01	9.7E+01	9.7E+01	1.1E+02	1.5E+02	2.6E+02	3.9E+02	6.6E+02
30	7.9E+01	7.9E+01	7.9E+01	7.9E+01	9.1E+01	9.7E+01	9.7E+01	1.1E+02	1.5E+02	2.6E+02	3.9E+02	6.6E+02
50	1.3E+02	1.3E+02	1.3E+02	1.3E+02	1.3E+02	1.3E+02	1.3E+02	1.4E+02	1.7E+02	3.3E+02	5.0E+02	8.7E+02
70	5.6E+02	5.6E+02	5.6E+02	5.6E+02	5.6E+02	5.6E+02	5.6E+02	5.6E+02	5.6E+02	7.3E+02	1.1E+03	1.5E+03
100	8.6E+02	8.6E+02	8.6E+02	8.6E+02	8.6E+02	8.6E+02	8.6E+02	8.6E+02	8.6E+02	8.6E+02	1.2E+03	1.7E+03
Stack Diameter = 3.0 m												
Stack Height (m)	**30**	**50**	**70**	**100**	**200**	**300**	**500**	**700**	**1000**	**2000**	**3000**	**5000**
10	3.5E+01	3.5E+01	4.1E+01	5.8E+01	1.2E+02	1.6E+02	1.8E+02	1.8E+02	1.8E+02	3.5E+02	5.2E+02	9.0E+02
20	6.2E+01	6.2E+01	6.2E+01	7.2E+01	1.2E+02	1.6E+02	1.8E+02	1.8E+02	1.8E+02	3.5E+02	5.2E+02	9.0E+02
30	1.0E+02	1.0E+02	1.0E+02	1.0E+02	1.2E+02	1.6E+02	1.8E+02	1.8E+02	1.8E+02	3.5E+02	5.2E+02	9.0E+02
50	1.8E+02	1.8E+02	1.8E+02	1.8E+02	1.8E+02	1.8E+02	1.8E+02	1.8E+02	1.8E+02	3.5E+02	5.2E+02	9.0E+02
70	7.5E+02	7.5E+02	7.5E+02	7.5E+02	7.5E+02	7.5E+02	7.5E+02	7.5E+02	7.5E+02	8.9E+02	1.3E+03	2.0E+03
100	1.4E+03	1.4E+03	1.4E+03	1.4E+03	1.4E+03	1.4E+03	1.4E+03	1.4E+03	1.4E+03	1.4E+03	2.0E+03	2.6E+03
Stack Diameter = 4.0 m												
Stack Height (m)	**30**	**50**	**70**	**100**	**200**	**300**	**500**	**700**	**1000**	**2000**	**3000**	**5000**
30	1.2E+02	1.2E+02	1.2E+02	1.2E+02	1.4E+02	2.0E+02	2.2E+02	2.2E+02	2.2E+02	4.2E+02	6.3E+02	1.0E+03
50	2.2E+02	2.2E+02	2.2E+02	2.2E+02	2.2E+02	2.2E+02	2.2E+02	2.2E+02	2.2E+02	4.2E+02	6.3E+02	1.0E+03
70	1.0E+03	1.0E+03	1.0E+03	1.0E+03	1.0E+03	1.0E+03	1.0E+03	1.0E+03	1.0E+03	1.1E+03	1.6E+03	2.4E+03
100	1.6E+03	1.6E+03	1.6E+03	1.6E+03	1.6E+03	1.6E+03	1.6E+03	1.6E+03	1.6E+03	1.6E+03	2.3E+03	3.6E+03

■ 17. Section 63.1216 and an undesignated center heading are added to subpart EEE to read as follows:

Emissions Standards and Operating Limits for Solid Fuel Boilers, Liquid Fuel Boilers, and Hydrochloric Acid Production Furnaces

§ 63.1216 What are the standards for solid fuel boilers that burn hazardous waste?

(a) *Emission limits for existing sources.* You must not discharge or cause combustion gases to be emitted into the atmosphere that contain:

(1) For dioxins and furans, either carbon monoxide or hydrocarbon emissions in excess of the limits provided by paragraph (a)(5) of this section;

(2) Mercury in excess of 11 µg/dscm corrected to 7 percent oxygen;

(3) For cadmium and lead combined, except for an area source as defined under § 63.2, emissions in excess of 180 µg/dscm, corrected to 7 percent oxygen;

(4) For arsenic, beryllium, and chromium combined, except for an area source as defined under § 63.2, emissions in excess of 380 µg/dscm, corrected to 7 percent oxygen;

(5) For carbon monoxide and hydrocarbons, either:

(i) Carbon monoxide in excess of 100 parts per million by volume, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis and corrected to 7 percent oxygen. If you elect to comply with this carbon monoxide standard rather than the hydrocarbon standard under paragraph (a)(5)(ii) of this section, you must also document that, during the destruction and removal efficiency (DRE) test runs or their equivalent as provided by § 63.1206(b)(7), hydrocarbons do not exceed 10 parts per million by volume during those runs, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis, corrected to 7 percent oxygen, and reported as propane; or

(ii) Hydrocarbons in excess of 10 parts per million by volume, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis, corrected to 7 percent oxygen, and reported as propane;

(6) For hydrogen chloride and chlorine combined, except for an area source as defined under § 63.2, emissions in excess of 440 parts per million by volume, expressed as a chloride ($Cl^{(-)}$) equivalent, dry basis and corrected to 7 percent oxygen; and

(7) For particulate matter, except for an area source as defined under § 63.2 or as provided by paragraph (e) of this section, emissions in excess of 68 mg/dscm corrected to 7 percent oxygen.

(b) *Emission limits for new sources.* You must not discharge or cause combustion gases to be emitted into the atmosphere that contain:

(1) For dioxins and furans, either carbon monoxide or hydrocarbon emissions in excess of the limits provided by paragraph (b)(5) of this section;

(2) Mercury in excess of 11 μg/dscm corrected to 7 percent oxygen;

(3) For cadmium and lead combined, except for an area source as defined under § 63.2, emissions in excess of 180 μg/dscm, corrected to 7 percent oxygen;

(4) For arsenic, beryllium, and chromium combined, except for an area source as defined under § 63.2, emissions in excess of 190 μg/dscm, corrected to 7 percent oxygen;

(5) For carbon monoxide and hydrocarbons, either:

(i) Carbon monoxide in excess of 100 parts per million by volume, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis and corrected to 7 percent oxygen. If you elect to comply with this carbon monoxide standard rather than the hydrocarbon standard under paragraph (b)(5)(ii) of this section, you must also document that, during the destruction and removal efficiency (DRE) test runs or their equivalent as provided by § 63.1206(b)(7), hydrocarbons do not exceed 10 parts per million by volume during those runs, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis, corrected to 7 percent oxygen, and reported as propane; or

(ii) Hydrocarbons in excess of 10 parts per million by volume, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis, corrected to 7 percent oxygen, and reported as propane;

(6) For hydrogen chloride and chlorine combined, except for an area source as defined under § 63.2, emissions in excess of 73 parts per million by volume, expressed as a chloride ($Cl^{(-)}$) equivalent, dry basis and corrected to 7 percent oxygen; and

(7) For particulate matter, except for an area source as defined under § 63.2 or as provided by paragraph (e) of this section, emissions in excess of 34 mg/dscm corrected to 7 percent oxygen.

(c) *Destruction and removal efficiency (DRE) standard.* (1) *99.99% DRE.* Except as provided in paragraph (c)(2) of this section, you must achieve a DRE of 99.99% for each principle organic hazardous constituent (POHC) designated under paragraph (c)(3) of this section. You must calculate DRE for each POHC from the following equation:

$$DRE = [1 - (W_{out} \div W_{in})] \times 100\%$$

Where:

W_{in} = mass feedrate of one POHC in a waste feedstream; and

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

(2) *99.9999% DRE.* If you burn the dioxin-listed hazardous wastes F020, F021, F022, F023, F026, or F027 (see § 261.31 of this chapter), you must achieve a DRE of 99.9999% for each POHC that you designate under paragraph (c)(3) of this section. You must demonstrate this DRE performance on POHCs that are more difficult to incinerate than tetra-, penta-, and hexachlorodibenzo-*p*-dioxins and dibenzofurans. You must use the equation in paragraph (c)(1) of this section to calculate DRE for each POHC. In addition, you must notify the Administrator of your intent to incinerate hazardous wastes F020, F021, F022, F023, F026, or F027.

(3) *Principal organic hazardous constituents (POHCs).* (i) You must treat the POHCs in the waste feed that you specify under paragraph (c)(3)(ii) of this section to the extent required by paragraphs (c)(1) and (c)(2) of this section.

(ii) You must specify one or more POHCs that are representative of the most difficult to destroy organic compounds in your hazardous waste feedstream. You must base this specification on the degree of difficulty of incineration of the organic constituents in the hazardous waste and on their concentration or mass in the hazardous waste feed, considering the results of hazardous waste analyses or other data and information.

(d) *Significant figures.* The emission limits provided by paragraphs (a) and (b) of this section are presented with two significant figures. Although you must perform intermediate calculations using at least three significant figures, you may round the resultant emission levels to two significant figures to document compliance.

(e) *Alternative to the particulate matter standard.* (1) *General.* In lieu of complying with the particulate matter standards of this section, you may elect to comply with the following alternative metal emission control requirement:

(2) *Alternative metal emission control requirements for existing solid fuel boilers.* (i) You must not discharge or cause combustion gases to be emitted into the atmosphere that contain cadmium, lead, and selenium in excess of 180 μg/dscm, combined emissions, corrected to 7 percent oxygen; and,

(ii) You must not discharge or cause combustion gases to be emitted into the atmosphere that contain antimony, arsenic, beryllium, chromium, cobalt, manganese, and nickel in excess of 380 μg/dscm, combined emissions, corrected to 7 percent oxygen.

(3) Alternative metal emission control requirements for new solid fuel boilers. (i) You must not discharge or cause combustion gases to be emitted into the atmosphere that contain cadmium, lead, and selenium in excess of 180 μg/dscm, combined emissions, corrected to 7 percent oxygen; and,

(ii) You must not discharge or cause combustion gases to be emitted into the atmosphere that contain antimony, arsenic, beryllium, chromium, cobalt, manganese, and nickel in excess of 190 μg/dscm, combined emissions, corrected to 7 percent oxygen.

(4) *Operating limits.* Semivolatile and low volatile metal operating parameter limits must be established to ensure compliance with the alternative emission limitations described in paragraphs (e)(2) and (e)(3) of this section pursuant to § 63.1209(n), except that semivolatile metal feedrate limits apply to lead, cadmium, and selenium, combined, and low volatile metal feedrate limits apply to arsenic,

beryllium, chromium, antimony, cobalt, manganese, and nickel, combined.

(f) *Elective standards for area sources.* Area sources as defined under § 63.2 are subject to the standards for cadmium and lead, the standards for arsenic, beryllium, and chromium, the standards for hydrogen chloride and chlorine, and the standards for particulate matter under this section if they elect under § 266.100(b)(3) of this chapter to comply with those standards in lieu of the standards under 40 CFR 266.105, 266.106, and 266.107 to control those pollutants.

■ 18. Section 63.1217 is added to read as follows:

§ 63.1217 What are the standards for liquid fuel boilers that burn hazardous waste?

(a) *Emission limits for existing sources.* You must not discharge or cause combustion gases to be emitted into the atmosphere that contain:

(1)(i) Dioxins and furans in excess of 0.40 ng TEQ/dscm, corrected to 7 percent oxygen, for liquid fuel boilers equipped with a dry air pollution control system; or

(ii) Either carbon monoxide or hydrocarbon emissions in excess of the limits provided by paragraph (a)(5) of this section for sources not equipped with a dry air pollution control system;

(iii) A source equipped with a wet air pollution control system followed by a dry air pollution control system is not considered to be a dry air pollution control system, and a source equipped with a dry air pollution control system followed by a wet air pollution control system is considered to be a dry air pollution control system for purposes of this emission limit;

(2) For mercury, except as provided for in paragraph (a)(2)(iii) of this section:

(i) When you burn hazardous waste with an as-fired heating value less than 10,000 Btu/lb, emissions in excess of 19 µg/dscm, corrected to 7 percent oxygen, on an (not-to-exceed) annual averaging period;

(ii) When you burn hazardous waste with an as-fired heating value 10,000 Btu/lb or greater, emissions in excess of 4.2×10^{-5} lbs mercury attributable to the hazardous waste per million Btu heat input from the hazardous waste on an (not-to-exceed) annual averaging period;

(iii) The boiler operated by Diversified Scientific Services, Inc. with EPA identification number TND982109142, and which burns radioactive waste mixed with hazardous waste, must comply with the mercury emission standard under § 63.1219(a)(2);

(3) For cadmium and lead combined, except for an area source as defined under § 63.2,

(i) When you burn hazardous waste with an as-fired heating value less than 10,000 Btu/lb, emissions in excess of 150 µg/dscm, corrected to 7 percent oxygen, on an (not-to-exceed) annual averaging period;

(ii) When you burn hazardous waste with an as-fired heating value of 10,000 Btu/lb or greater, emissions in excess of 8.2×10^{-5} lbs combined cadmium and lead emissions attributable to the hazardous waste per million Btu heat input from the hazardous waste on an (not-to-exceed) annual averaging period;

(4) For chromium, except for an area source as defined under § 63.2:

(i) When you burn hazardous waste with an as-fired heating value less than 10,000 Btu/lb, emissions in excess of 370 µg/dscm, corrected to 7 percent oxygen;

(ii) When you burn hazardous waste with an as-fired heating value of 10,000 Btu/lb or greater, emissions in excess of 1.3×10^{-4} lbs chromium emissions attributable to the hazardous waste per million Btu heat input from the hazardous waste;

(5) For carbon monoxide and hydrocarbons, either:

(i) Carbon monoxide in excess of 100 parts per million by volume, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis and corrected to 7 percent oxygen. If you elect to comply with this carbon monoxide standard rather than the hydrocarbon standard under paragraph (a)(5)(ii) of this section, you must also document that, during the destruction and removal efficiency (DRE) test runs or their equivalent as provided by § 63.1206(b)(7), hydrocarbons do not exceed 10 parts per million by volume during those runs, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis, corrected to 7 percent oxygen, and reported as propane; or

(ii) Hydrocarbons in excess of 10 parts per million by volume, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis, corrected to 7 percent oxygen, and reported as propane;

(6) For hydrogen chloride and chlorine, except for an area source as defined under § 63.2:

(i) When you burn hazardous waste with an as-fired heating value less than 10,000 Btu/lb, emissions in excess of 31 parts per million by volume, combined emissions, expressed as a chloride ($Cl^{(-)}$) equivalent, dry basis and corrected to 7 percent oxygen;

(ii) When you burn hazardous waste with an as-fired heating value of 10,000 Btu/lb or greater, emissions in excess of 5.08×10^{-2} lbs combined emissions of hydrogen chloride and chlorine gas attributable to the hazardous waste per million Btu heat input from the hazardous waste;

(7) For particulate matter, except for an area source as defined under § 63.2 or as provided by paragraph (e) of this section, emissions in excess of 80 mg/dscm corrected to 7 percent oxygen.

(b) *Emission limits for new sources.* You must not discharge or cause combustion gases to be emitted into the atmosphere that contain:

(1)(i) Dioxins and furans in excess of 0.40 ng TEQ/dscm, corrected to 7 percent oxygen, for liquid fuel boilers equipped with a dry air pollution control system; or

(ii) Either carbon monoxide or hydrocarbon emissions in excess of the limits provided by paragraph (b)(5) of this section for sources not equipped with a dry air pollution control system;

(iii) A source equipped with a wet air pollution control system followed by a dry air pollution control system is not considered to be a dry air pollution control system, and a source equipped with a dry air pollution control system followed by a wet air pollution control system is considered to be a dry air pollution control system for purposes of this emission limit;

(2) For mercury:

(i) When you burn hazardous waste with an as-fired heating value less than 10,000 Btu/lb, emissions in excess of 6.8 µg/dscm, corrected to 7 percent oxygen, on an (not-to-exceed) annual averaging period;

(ii) When you burn hazardous waste with an as-fired heating value of 10,000 Btu/lb or greater, emissions in excess of 1.2×10^{-6} lbs mercury emissions attributable to the hazardous waste per million Btu heat input from the hazardous waste on an (not-to-exceed) annual averaging period;

(3) For cadmium and lead combined, except for an area source as defined under § 63.2:

(i) When you burn hazardous waste with an as-fired heating value less than 10,000 Btu/lb, emissions in excess of 78 µg/dscm, corrected to 7 percent oxygen, on an (not-to-exceed) annual averaging period;

(ii) When you burn hazardous waste with an as-fired heating value greater than or equal to 10,000 Btu/lb, emissions in excess of 6.2×10^{-6} lbs combined cadmium and lead emissions attributable to the hazardous waste per million Btu heat input from the hazardous waste on an (not-to-exceed) annual averaging period;

(4) For chromium, except for an area source as defined under § 63.2:

(i) When you burn hazardous waste with an as-fired heating value less than 10,000 Btu/lb, emissions in excess of 12 µg/dscm, corrected to 7 percent oxygen;

(ii) When you burn hazardous waste with an as-fired heating value of 10,000 Btu/lb or greater, emissions in excess of 1.4×10^{-5} lbs chromium emissions attributable to the hazardous waste per million Btu heat input from the hazardous waste;

(5) For carbon monoxide and hydrocarbons, either:

(i) Carbon monoxide in excess of 100 parts per million by volume, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis and corrected to 7 percent oxygen. If you elect to comply with this carbon monoxide standard rather than the hydrocarbon standard under paragraph (b)(5)(ii) of this section, you must also document that, during the destruction and removal efficiency (DRE) test runs or their equivalent as provided by § 63.1206(b)(7), hydrocarbons do not exceed 10 parts per million by volume during those runs, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis, corrected to 7 percent oxygen, and reported as propane; or

(ii) Hydrocarbons in excess of 10 parts per million by volume, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis, corrected to 7 percent oxygen, and reported as propane;

(6) For hydrogen chloride and chlorine, except for an area source as defined under § 63.2:

(i) When you burn hazardous waste with an as-fired heating value less than 10,000 Btu/lb, emissions in excess of 31 parts per million by volume, combined emissions, expressed as a chloride ($Cl^{(-)}$) equivalent, dry basis and corrected to 7 percent oxygen;

(ii) When you burn hazardous waste with an as-fired heating value of 10,000 Btu/lb or greater, emissions in excess of 5.08×10^{-2} lbs combined emissions of hydrogen chloride and chlorine gas attributable to the hazardous waste per million Btu heat input from the hazardous waste;

(7) For particulate matter, except for an area source as defined under § 63.2 or as provided by paragraph (e) of this section, emissions in excess of 20 mg/dscm corrected to 7 percent oxygen.

(c) *Destruction and removal efficiency (DRE) standard.* (1) *99.99% DRE.* Except as provided in paragraph (c)(2) of this section, you must achieve a DRE of 99.99% for each principle organic hazardous constituent (POHC) designated under paragraph (c)(3) of this section. You must calculate DRE for each POHC from the following equation:

$$DRE = [1 - (W_{out} \div W_{in})] \times 100\%$$

Where:

W_{in} = mass feedrate of one POHC in a waste feedstream; and

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

(2) *99.9999% DRE.* If you burn the dioxin-listed hazardous wastes F020, F021, F022, F023, F026, or F027 (see § 261.31 of this chapter), you must achieve a DRE of 99.9999% for each POHC that you designate under paragraph (c)(3) of this section. You must demonstrate this DRE performance on POHCs that are more difficult to incinerate than tetra-, penta-, and hexachlorodibenzo-*p*-dioxins and dibenzofurans. You must use the equation in paragraph (c)(1) of this section to calculate DRE for each POHC. In addition, you must notify the Administrator of your intent to incinerate hazardous wastes F020, F021, F022, F023, F026, or F027.

(3) *Principal organic hazardous constituents (POHCs).* (i) You must treat the POHCs in the waste feed that you specify under paragraph (c)(3)(ii) of this section to the extent required by paragraphs (c)(1) and (c)(2) of this section.

(ii) You must specify one or more POHCs that are representative of the most difficult to destroy organic compounds in your hazardous waste feedstream. You must base this specification on the degree of difficulty of incineration of the organic constituents in the hazardous waste and on their concentration or mass in the hazardous waste feed, considering the results of hazardous waste analyses or other data and information.

(d) *Significant figures.* The emission limits provided by paragraphs (a) and (b) of this section are presented with two significant figures. Although you must perform intermediate calculations using at least three significant figures, you may round the resultant emission levels to two significant figures to document compliance.

(e) *Alternative to the particulate matter standard.* (1) *General.* In lieu of complying with the particulate matter standards of this section, you may elect to comply with the following alternative metal emission control requirement:

(2) *Alternative metal emission control requirements for existing liquid fuel boilers.* (i) When you burn hazardous waste with a heating value less than 10,000 Btu/lb:

(A) You must not discharge or cause combustion gases to be emitted into the atmosphere that contain cadmium, lead, and selenium, combined, in excess of 150 µg/dscm, corrected to 7 percent oxygen; and

(B) You must not discharge or cause combustion gases to be emitted into the atmosphere that contain antimony, arsenic, beryllium, chromium, cobalt, manganese, and nickel, combined, in excess of 370 µg/dscm, corrected to 7 percent oxygen;

(ii) When you burn hazardous waste with a heating value of 10,000 Btu/lb or greater:

(A) You must not discharge or cause combustion gases to be emitted into the atmosphere that contain in excess of 8.2×10^{-5} lbs combined emissions of cadmium, lead, and selenium attributable to the hazardous waste per million Btu heat input from the hazardous waste; and

(B) You must not discharge or cause combustion gases to be emitted into the atmosphere that contain either in excess of 1.3×10^{-4} lbs combined emissions of antimony, arsenic, beryllium, chromium, cobalt, manganese, and nickel attributable to the hazardous waste per million Btu heat input from the hazardous waste;

(3) *Alternative metal emission control requirements for new liquid fuel boilers.* (i) When you burn hazardous waste with a heating value less than 10,000 Btu/lb:

(A) You must not discharge or cause combustion gases to be emitted into the atmosphere that contain cadmium, lead, and selenium, combined, in excess of 78 µg/dscm, corrected to 7 percent oxygen; and

(B) You must not discharge or cause combustion gases to be emitted into the atmosphere that contain antimony, arsenic, beryllium, chromium, cobalt, manganese, and nickel, combined, in excess of 12 µg/dscm, corrected to 7 percent oxygen;

(ii) When you burn hazardous waste with a heating value greater than or equal to 10,000 Btu/lb:

(A) You must not discharge or cause combustion gases to be emitted into the atmosphere that contain in excess of 6.2×10^{-6} lbs combined emissions of cadmium, lead, and selenium attributable to the hazardous waste per million Btu heat input from the hazardous waste; and

(B) You must not discharge or cause combustion gases to be emitted into the atmosphere that contain either in excess of 1.4×10^{-5} lbs combined emissions of antimony, arsenic, beryllium, chromium, cobalt, manganese, and nickel attributable to the hazardous waste per million Btu heat input from the hazardous waste;

(4) *Operating limits.* Semivolatile and low volatile metal operating parameter limits must be established to ensure compliance with the alternative emission limitations described in paragraphs (e)(2) and (e)(3) of this section pursuant to § 63.1209(n), except that semivolatile metal feedrate limits apply to lead, cadmium, and selenium, combined, and low volatile metal feedrate limits apply to arsenic, beryllium, chromium, antimony, cobalt, manganese, and nickel, combined.

(f) *Elective standards for area sources.* Area sources as defined under § 63.2 are subject to the standards for cadmium and lead, the standards for chromium, the standards for hydrogen chloride and chlorine, and the standards for particulate matter under this section if they elect under § 266.100(b)(3) of this chapter to comply with those standards in lieu of the standards under 40 CFR 266.105, 266.106, and 266.107 to control those pollutants.

■ 19. Section 63.1218 is added to read as follows:

§ 63.1218 What are the standards for hydrochloric acid production furnaces that burn hazardous waste?

(a) *Emission limits for existing sources.* You must not discharge or cause combustion gases to be emitted into the atmosphere that contain:

(1) For dioxins and furans, either carbon monoxide or hydrocarbon emissions in excess of the limits provided by paragraph (a)(5) of this section;

(2) For mercury, hydrogen chloride and chlorine gas emissions in excess of the levels provided by paragraph (a)(6) of this section;

(3) For lead and cadmium, except for an area source as defined under § 63.2, hydrogen chloride and chlorine gas emissions in excess of the levels provided by paragraph (a)(6) of this section;

(4) For arsenic, beryllium, and chromium, except for an area source as defined under § 63.2, hydrogen chloride and chlorine gas emissions in excess of the levels provided by paragraph (a)(6) of this section;

(5) For carbon monoxide and hydrocarbons, either:

(i) Carbon monoxide in excess of 100 parts per million by volume, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis and corrected to 7 percent oxygen. If you elect to comply with this carbon monoxide standard rather than the hydrocarbon standard under paragraph (a)(5)(ii) of this section, you must also document that, during the destruction and removal efficiency (DRE) test runs or their equivalent as provided by § 63.1206(b)(7), hydrocarbons do not exceed 10 parts per million by volume during those runs, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis, corrected to 7 percent oxygen, and reported as propane; or

(ii) Hydrocarbons in excess of 10 parts per million by volume, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis, corrected to 7 percent oxygen, and reported as propane;

(6) For hydrogen chloride and chlorine gas, either:

(i) Emission in excess of 150 parts per million by volume, combined emissions, expressed as a chloride ($Cl^{(-)}$ equivalent, dry basis and corrected to 7 percent oxygen; or

(ii) Emissions greater than the levels that would be emitted if the source is achieving a system removal efficiency (SRE) of less than 99.923 percent for total chlorine and chloride fed to the combustor. You must calculate SRE from the following equation:

$$SRE = [1 - (Cl_{out} / Cl_{in})] \times 100\%$$

Where:

Cl in = mass feedrate of total chlorine or chloride in all feedstreams, reported as chloride; and

Cl out = mass emission rate of hydrogen chloride and chlorine gas, reported as chloride, in exhaust emissions prior to release to the atmosphere.

(7) For particulate matter, except for an area source as defined under § 63.2, hydrogen chloride and chlorine gas emissions in excess of the levels provided by paragraph (a)(6) of this section.

(b) *Emission limits for new sources.* You must not discharge or cause combustion gases to be emitted into the atmosphere that contain:

(1) For dioxins and furans, either carbon monoxide or hydrocarbon emissions in excess of the limits provided by paragraph (b)(5) of this section;

(2) For mercury, hydrogen chloride and chlorine gas emissions in excess of the levels provided by paragraph (b)(6) of this section;

(3) For lead and cadmium, except for an area source as defined under § 63.2, hydrogen chloride and chlorine gas emissions in excess of the levels provided by paragraph (b)(6) of this section;

(4) For arsenic, beryllium, and chromium, except for an area source as defined under § 63.2, hydrogen chloride and chlorine gas emissions in excess of the levels provided by paragraph (b)(6) of this section;

(5) For carbon monoxide and hydrocarbons, either:

(i) Carbon monoxide in excess of 100 parts per million by volume, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis and corrected to 7 percent oxygen. If you elect to comply with this carbon monoxide standard rather than the hydrocarbon standard under paragraph (b)(5)(ii) of this section, you must also document that, during the destruction and removal efficiency (DRE) test runs or their equivalent as provided by § 63.1206(b)(7), hydrocarbons do not exceed 10 parts per million by volume during those runs, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis, corrected to 7 percent oxygen, and reported as propane; or

(ii) Hydrocarbons in excess of 10 parts per million by volume, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis, corrected to 7 percent oxygen, and reported as propane;

(6) For hydrogen chloride and chlorine gas, either:

(i) Emission in excess of 25 parts per million by volume, combined emissions, expressed as a chloride ($Cl^{(-)}$ equivalent, dry basis and corrected to 7 percent oxygen; or

(ii) Emissions greater than the levels that would be emitted if the source is achieving a system removal efficiency (SRE) of less than 99.987 percent for total chlorine and chloride fed to the combustor. You must calculate SRE from the following equation:

$$SRE = [1 - (Cl_{out} / Cl_{in})] \times 100\%$$

Where:

Cl in = mass feedrate of total chlorine or chloride in all feedstreams, reported as chloride; and

Cl out = mass emission rate of hydrogen chloride and chlorine gas, reported as chloride, in exhaust emissions prior to release to the atmosphere.

(7) For particulate matter, except for an area source as defined under § 63.2, hydrogen chloride and chlorine gas

emissions in excess of the levels provided by paragraph (b)(6) of this section.

(c) *Destruction and removal efficiency (DRE) standard.* (1) *99.99% DRE.* Except as provided in paragraph (c)(2) of this section, you must achieve a DRE of 99.99% for each principle organic hazardous constituent (POHC) designated under paragraph (c)(3) of this section. You must calculate DRE for each POHC from the following equation:

$$DRE = [1 - (W_{out} / W_{in})] \times 100\%$$

Where:

Win = mass feedrate of one POHC in a waste feedstream; and

Wout = mass emission rate of the same POHC present in exhaust emissions prior to release to the atmosphere.

(2) *99.9999% DRE.* If you burn the dioxin-listed hazardous wastes F020, F021, F022, F023, F026, or F027 (see § 261.31 of this chapter), you must achieve a DRE of 99.9999% for each POHC that you designate under paragraph (c)(3) of this section. You must demonstrate this DRE performance on POHCs that are more difficult to incinerate than tetra-, penta-, and hexachlorodibenzo-*p*-dioxins and dibenzofurans. You must use the equation in paragraph (c)(1) of this section to calculate DRE for each POHC. In addition, you must notify the Administrator of your intent to incinerate hazardous wastes F020, F021, F022, F023, F026, or F027.

(3) *Principal organic hazardous constituents (POHCs).* (i) You must treat the POHCs in the waste feed that you specify under paragraph (c)(3)(ii) of this section to the extent required by paragraphs (c)(1) and (c)(2) of this section.

(ii) You must specify one or more POHCs that are representative of the most difficult to destroy organic compounds in your hazardous waste feedstream. You must base this specification on the degree of difficulty of incineration of the organic constituents in the hazardous waste and on their concentration or mass in the hazardous waste feed, considering the results of hazardous waste analyses or other data and information.

(d) *Significant figures.* The emission limits provided by paragraphs (a) and (b) of this section are presented with two significant figures. Although you must perform intermediate calculations using at least three significant figures, you may round the resultant emission levels to two significant figures to document compliance.

(e) *Elective standards for area sources.* Area sources as defined under § 63.2 are subject to the standards for cadmium and lead, the standards for arsenic, beryllium, and chromium, the standards for hydrogen chloride and chlorine, and the standards for particulate matter under this section if they elect under § 266.100(b)(3) of this chapter to comply with those standards in lieu of the standards under 40 CFR 266.105, 266.106, and 266.107 to control those pollutants.

■ 20. Section 63.1219 and a new undesignated center heading are added to subpart EEE to read as follows:

Replacement Emissions Standards and Operating Limits for Incinerators, Cement Kilns, and Lightweight Aggregate Kilns

§ 63.1219 What are the replacement standards for hazardous waste incinerators?

(a) *Emission limits for existing sources.* You must not discharge or cause combustion gases to be emitted into the atmosphere that contain:

(1) For dioxins and furans:

(i) For incinerators equipped with either a waste heat boiler or dry air pollution control system, either:

(A) Emissions in excess of 0.20 ng TEQ/dscm, corrected to 7 percent oxygen; or

(B) Emissions in excess of 0.40 ng TEQ/dscm, corrected to 7 percent oxygen, provided that the combustion gas temperature at the inlet to the initial particulate matter control device is 400°F or lower based on the average of the test run average temperatures. (For purposes of compliance, operation of a wet particulate matter control device is presumed to meet the 400°F or lower requirement);

(ii) Emissions in excess of 0.40 ng TEQ/dscm, corrected to 7 percent oxygen, for incinerators not equipped with either a waste heat boiler or dry air pollution control system;

(iii) A source equipped with a wet air pollution control system followed by a dry air pollution control system is not considered to be a dry air pollution control system, and a source equipped with a dry air pollution control system followed by a wet air pollution control system is considered to be a dry air pollution control system for purposes of this standard;

(2) Mercury in excess of 130 μg/dscm, corrected to 7 percent oxygen;

(3) Cadmium and lead in excess of 230 μg/dscm, combined emissions, corrected to 7 percent oxygen;

(4) Arsenic, beryllium, and chromium in excess of 92 μg/dscm, combined emissions, corrected to 7 percent oxygen;

(5) For carbon monoxide and hydrocarbons, either:

(i) Carbon monoxide in excess of 100 parts per million by volume, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis and corrected to 7 percent oxygen. If you elect to comply with this carbon monoxide standard rather than the hydrocarbon standard under paragraph (a)(5)(ii) of this section, you must also document that, during the destruction and removal efficiency (DRE) test runs or their equivalent as provided by § 63.1206(b)(7), hydrocarbons do not exceed 10 parts per million by volume during those runs, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis, corrected to 7 percent oxygen, and reported as propane; or

(ii) Hydrocarbons in excess of 10 parts per million by volume, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis, corrected to 7 percent oxygen, and reported as propane;

(6) Hydrogen chloride and chlorine gas (total chlorine) in excess of 32 parts per million by volume, combined emissions, expressed as a chloride ($Cl^{(-)}$) equivalent, dry basis and corrected to 7 percent oxygen; and

(7) Except as provided by paragraph (e) of this section, particulate matter in excess of 0.013 gr/dscf corrected to 7 percent oxygen.

(b) *Emission limits for new sources.* You must not discharge or cause combustion gases to be emitted into the atmosphere that contain:

(1)(i) Dioxins and furans in excess of 0.11 ng TEQ/dscm corrected to 7 percent oxygen for incinerators equipped with either a waste heat boiler or dry air pollution control system; or

(ii) Dioxins and furans in excess of 0.20 ng TEQ/dscm corrected to 7 percent oxygen for sources not equipped with either a waste heat boiler or dry air pollution control system;

(iii) A source equipped with a wet air pollution control system followed by a dry air pollution control system is not considered to be a dry air pollution control system, and a source equipped with a dry air pollution control system followed by a wet air pollution control system is considered to be a dry air pollution control system for purposes of this standard;

(2) Mercury in excess of 8.1 μg/dscm, corrected to 7 percent oxygen;

(3) Cadmium and lead in excess of 10 μg/dscm, combined emissions, corrected to 7 percent oxygen;

(4) Arsenic, beryllium, and chromium in excess of 23 μg/dscm, combined

emissions, corrected to 7 percent oxygen;

(5) For carbon monoxide and hydrocarbons, either:

(i) Carbon monoxide in excess of 100 parts per million by volume, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis and corrected to 7 percent oxygen. If you elect to comply with this carbon monoxide standard rather than the hydrocarbon standard under paragraph (b)(5)(ii) of this section, you must also document that, during the destruction and removal efficiency (DRE) test runs or their equivalent as provided by § 63.1206(b)(7), hydrocarbons do not exceed 10 parts per million by volume during those runs, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis, corrected to 7 percent oxygen, and reported as propane; or

(ii) Hydrocarbons in excess of 10 parts per million by volume, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis, corrected to 7 percent oxygen, and reported as propane;

(6) Hydrogen chloride and chlorine gas in excess of 21 parts per million by volume, combined emissions, expressed as a chloride ($Cl^{(-)}$) equivalent, dry basis and corrected to 7 percent oxygen; and

(7) Except as provided by paragraph (e) of this section, particulate matter in excess of 0.0015 gr/dscf, corrected to 7 percent oxygen.

(c) *Destruction and removal efficiency (DRE) standard.* (1) *99.99% DRE.* Except as provided in paragraph (c)(2) of this section, you must achieve a destruction and removal efficiency (DRE) of 99.99% for each principle organic hazardous constituent (POHC) designated under paragraph (c)(3) of this section. You must calculate DRE for each POHC from the following equation:

$$DRE = [1 - (W_{out} / W_{in})] \times 100\%$$

Where:

W_{in} = mass feedrate of one POHC in a waste feedstream; and

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

(2) *99.9999% DRE.* If you burn the dioxin-listed hazardous wastes F020, F021, F022, F023, F026, or F027 (see § 261.31 of this chapter), you must achieve a DRE of 99.9999% for each POHC that you designate under paragraph (c)(3) of this section. You must demonstrate this DRE performance on POHCs that are more difficult to incinerate than tetra-, penta-, and hexachlorodibenzo-*p*-dioxins and dibenzofurans. You must use the equation in paragraph (c)(1) of this section to calculate DRE for each POHC. In addition, you must notify the Administrator of your intent to incinerate hazardous wastes F020, F021, F022, F023, F026, or F027.

(3) *Principal organic hazardous constituent (POHC).* (i) You must treat each POHC in the waste feed that you specify under paragraph (c)(3)(ii) of this section to the extent required by paragraphs (c)(1) and (c)(2) of this section.

(ii) You must specify one or more POHCs that are representative of the most difficult to destroy organic compounds in your hazardous waste feedstream. You must base this specification on the degree of difficulty of incineration of the organic constituents in the hazardous waste and on their concentration or mass in the hazardous waste feed, considering the results of hazardous waste analyses or other data and information.

(d) *Significant figures.* The emission limits provided by paragraphs (a) and (b) of this section are presented with two significant figures. Although you must perform intermediate calculations using at least three significant figures, you may round the resultant emission levels to two significant figures to document compliance.

(e) *Alternative to the particulate matter standard.* (1). *General.* In lieu of complying with the particulate matter standards of this section, you may elect to comply with the following alternative metal emission control requirement:

(2) *Alternative metal emission control requirements for existing incinerators.* (i) You must not discharge or cause combustion gases to be emitted into the atmosphere that contain cadmium, lead, and selenium in excess of 230 µg/dscm, combined emissions, corrected to 7 percent oxygen; and,

(ii) You must not discharge or cause combustion gases to be emitted into the atmosphere that contain antimony, arsenic, beryllium, chromium, cobalt, manganese, and nickel in excess of 92 µg/dscm, combined emissions, corrected to 7 percent oxygen.

(3) *Alternative metal emission control requirements for new incinerators.* (i) You must not discharge or cause combustion gases to be emitted into the atmosphere that contain cadmium, lead, and selenium in excess of 10 µg/dscm, combined emissions, corrected to 7 percent oxygen; and,

(ii) You must not discharge or cause combustion gases to be emitted into the atmosphere that contain antimony, arsenic, beryllium, chromium, cobalt, manganese, and nickel in excess of 23 µg/dscm, combined emissions, corrected to 7 percent oxygen.

(4) *Operating limits.* Semivolatile and low volatile metal operating parameter limits must be established to ensure compliance with the alternative emission limitations described in paragraphs (e)(2) and (e)(3) of this section pursuant to § 63.1209(n), except that semivolatile metal feedrate limits apply to lead, cadmium, and selenium, combined, and low volatile metal feedrate limits apply to arsenic, beryllium, chromium, antimony, cobalt, manganese, and nickel, combined.

■ 21. Section 63.1220 is added to subpart EEE to read as follows:

§ 63.1220 What are the replacement standards for hazardous waste burning cement kilns?

(a) *Emission and hazardous waste feed limits for existing sources.* You must not discharge or cause combustion gases to be emitted into the atmosphere or feed hazardous waste that contain:

(1) For dioxins and furans, either:

(i) Emissions in excess of 0.20 ng TEQ/dscm corrected to 7 percent oxygen; or

(ii) Emissions in excess of 0.40 ng TEQ/dscm corrected to 7 percent oxygen provided that the combustion gas temperature at the inlet to the initial dry particulate matter control device is 400 °F or lower based on the average of the test run average temperatures;

(2) For mercury, both:

(i) An average as-fired concentration of mercury in all hazardous waste feedstreams in excess of 3.0 parts per million by weight; and

(ii) Emissions in excess of 120 µg/dscm, corrected to 7 percent oxygen; or

(iii) A hazardous waste feedrate corresponding to a maximum theoretical emission concentration (MTEC) in excess of 120 µg/dscm;

(3) For cadmium and lead, both:

(i) Emissions in excess of 7.6×10^{-4} lbs combined emissions of cadmium and lead attributable to the hazardous waste per million Btu heat input from the hazardous waste; and

(ii) Emissions in excess of 330 µg/dscm, combined emissions, corrected to 7 percent oxygen;

(4) For arsenic, beryllium, and chromium, both:

(i) Emissions in excess of 2.1×10^{-5} lbs combined emissions of arsenic, beryllium, and chromium attributable to the hazardous waste per million Btu heat input from the hazardous waste; and

(ii) Emissions in excess of 56 µg/dscm, combined emissions, corrected to 7 percent oxygen;

(5) *Carbon monoxide and hydrocarbons.* (i) For kilns equipped with a by-pass duct or midkiln gas sampling system, either:

(A) Carbon monoxide in the by-pass duct or mid-kiln gas sampling system in excess of 100 parts per million by volume, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis and corrected to 7 percent oxygen. If you elect to comply with this carbon monoxide standard rather than the hydrocarbon standard under paragraph (a)(5)(i)(B) of this section, you must also document that, during the destruction and removal efficiency (DRE) test runs or their equivalent as provided by § 63.1206(b)(7), hydrocarbons in the by-pass duct or mid-kiln gas sampling system do not exceed 10 parts per million by volume during those runs, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis, corrected to 7 percent oxygen, and reported as propane; or

(B) Hydrocarbons in the by-pass duct or midkiln gas sampling system in excess of 10 parts per million by volume, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis, corrected to 7 percent oxygen, and reported as propane;

(ii) For kilns not equipped with a by-pass duct or midkiln gas sampling system, either:

(A) Hydrocarbons in the main stack in excess of 20 parts per million by volume, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis, corrected to 7 percent oxygen, and reported as propane; or

(B) Carbon monoxide in the main stack in excess of 100 parts per million by volume, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis and corrected to 7 percent oxygen. If you elect to comply with this carbon monoxide standard rather than the hydrocarbon standard under paragraph (a)(5)(ii)(A) of this section, you also must document that, during the destruction and removal efficiency (DRE) test runs or their equivalent as provided by § 63.1206(b)(7), hydrocarbons in the main stack do not exceed 20 parts per million by volume during those runs, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis, corrected to 7 percent oxygen, and reported as propane.

(6) Hydrogen chloride and chlorine gas in excess of 120 parts per million by volume, combined emissions, expressed as a chloride ($Cl^{(-)}$) equivalent, dry basis, corrected to 7 percent oxygen; and

(7) For particulate matter, both:

(i) Emissions in excess of 0.028 gr/dscf corrected to 7 percent oxygen; and

(ii) Opacity greater than 20 percent, unless your source is equipped with a bag leak detection system under § 63.1206(c)(8) or a particulate matter detection system under § 63.1206(c)(9).

(b) *Emission and hazardous waste feed limits for new sources.* You must not discharge or cause combustion gases to be emitted into the atmosphere or feed hazardous waste that contain:

(1) For dioxins and furans, either:

(i) Emissions in excess of 0.20 ng TEQ/dscm corrected to 7 percent oxygen; or

(ii) Emissions in excess of 0.40 ng TEQ/dscm corrected to 7 percent oxygen provided that the combustion gas temperature at the inlet to the initial dry particulate matter control device is 400 °F or lower based on the average of the test run average temperatures;

(2) For mercury, both:

(i) An average as-fired concentration of mercury in all hazardous waste feedstreams in excess of 1.9 parts per million by weight; and

(ii) Emissions in excess of 120 µg/dscm, corrected to 7 percent oxygen; or

(iii) A hazardous waste feedrate corresponding to a maximum theoretical emission concentration (MTEC) in excess of 120 µg/dscm;

(3) For cadmium and lead, both:

(i) Emissions in excess of 6.2×10^{-5} lbs combined emissions of cadmium and lead attributable to the hazardous waste per million Btu heat input from the hazardous waste; and

(ii) Emissions in excess of 180 µg/dscm, combined emissions, corrected to 7 percent oxygen;

(4) For arsenic, beryllium, and chromium, both:

(i) Emissions in excess of 1.5×10^{-5} lbs combined emissions of arsenic, beryllium, and chromium attributable to the hazardous waste per million Btu heat input from the hazardous waste; and

(ii) Emissions in excess of 54 µg/dscm, combined emissions, corrected to 7 percent oxygen;

(5) *Carbon monoxide and hydrocarbons.* (i) For kilns equipped with a by-pass duct or midkiln gas sampling system, carbon monoxide and hydrocarbons emissions are limited in both the bypass duct or midkiln gas sampling system and the main stack as follows:

(A) Emissions in the by-pass or midkiln gas sampling system are limited to either:

(*1*) Carbon monoxide in excess of 100 parts per million by volume, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis and corrected to 7 percent oxygen. If you elect to comply with this carbon monoxide standard rather than the hydrocarbon standard under paragraph (b)(5)(i)(A)(*2*) of this section, you also must document that, during the destruction and removal efficiency (DRE) test runs or their equivalent as provided by § 63.1206(b)(7), hydrocarbons do not exceed 10 parts per million by volume during those runs, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis, corrected to 7 percent oxygen, and reported as propane; or

(*2*) Hydrocarbons in the by-pass duct or midkiln gas sampling system in excess of 10 parts per million by volume, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis, corrected to 7 percent oxygen, and reported as propane; and

(B) Hydrocarbons in the main stack are limited, if construction of the kiln commenced after April 19, 1996 at a plant site where a cement kiln (whether burning hazardous waste or not) did not previously exist, to 50 parts per million by volume, over a 30-day block average (monitored continuously with a continuous monitoring system), dry basis, corrected to 7 percent oxygen, and reported as propane.

(ii) For kilns not equipped with a by-pass duct or midkiln gas sampling system, hydrocarbons and carbon monoxide are limited in the main stack to either:

(A) Hydrocarbons not exceeding 20 parts per million by volume, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis, corrected to 7 percent oxygen, and reported as propane; or

(B)(*1*) Carbon monoxide not exceeding 100 parts per million by volume, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis, corrected to 7 percent oxygen; and

(*2*) Hydrocarbons not exceeding 20 parts per million by volume, over an hourly rolling average (monitored continuously with a continuous monitoring system), dry basis, corrected to 7 percent oxygen, and reported as propane at any time during the destruction and removal efficiency (DRE) test runs or their equivalent as provided by § 63.1206(b)(7); and

(*3*) If construction of the kiln commenced after April 19, 1996 at a plant site where a cement kiln (whether burning hazardous waste or not) did not previously exist, hydrocarbons are limited to 50 parts per million by volume, over a 30-day block average (monitored continuously with a continuous monitoring system), dry basis, corrected to 7 percent oxygen, and reported as propane.

(6) Hydrogen chloride and chlorine gas in excess of 86 parts per million by volume, combined emissions, expressed as a chloride ($Cl^{(-)}$) equivalent, dry basis and corrected to 7 percent oxygen; and

(7) For particulate matter, both:

(i) Emissions in excess of 0.0023 gr/dscf corrected to 7 percent oxygen; and

(ii) Opacity greater than 20 percent, unless your source is equipped with a bag leak detection system under § 63.1206(c)(8) or a particulate matter detection system under § 63.1206(c)(9).

(c) *Destruction and removal efficiency (DRE) standard.* (1) *99.99% DRE.* Except as provided in paragraph (c)(2) of this section, you must achieve a destruction and removal efficiency (DRE) of 99.99% for each principle organic hazardous constituent (POHC) designated under paragraph (c)(3) of this section. You must calculate DRE for each POHC from the following equation:

$$DRE = [1 - (W_{out} / W_{in})] \times 100\%$$

Where:

W_{in} = mass feedrate of one POHC in a waste feedstream; and
W_{out} = mass emission rate of the same POHC present in exhaust emissions prior to release to the atmosphere.

(2) *99.9999% DRE.* If you burn the dioxin-listed hazardous wastes F020, F021, F022, F023, F026, or F027 (see § 261.31 of this chapter), you must achieve a DRE of 99.9999% for each POHC that you designate under paragraph (c)(3) of this section. You must demonstrate this DRE performance on POHCs that are more difficult to incinerate than tetra-, penta-, and hexachlorodibenzo-*p*-dioxins and dibenzofurans. You must use the equation in paragraph (c)(1) of this section to calculate DRE for each POHC. In addition, you must notify the Administrator of your intent to incinerate hazardous wastes F020, F021, F022, F023, F026, or F027.

(3) *Principal organic hazardous constituent (POHC).* (i) You must treat each POHC in the waste feed that you specify under paragraph (c)(3)(ii) of this section to the extent required by paragraphs (c)(1) and (c)(2) of this section.

(ii) You must specify one or more POHCs that are representative of the most difficult to destroy organic compounds in your hazardous waste feedstream. You must base this specification on the degree of difficulty of incineration of the organic constituents in the hazardous waste and on their concentration or mass in the hazardous waste feed, considering the results of hazardous waste analyses or other data and information.

(d) *Cement kilns with in-line kiln raw mills.* (1) *General.* (i) You must conduct performance testing when the raw mill is on-line and when the mill is off-line to demonstrate compliance with the emission standards, and you must establish separate operating parameter limits under § 63.1209 for each mode of operation, except as provided by paragraphs (d)(1)(iv) and (d)(1)(v) of this section.

(ii) You must document in the operating record each time you change from one mode of operation to the alternate mode and begin complying with the operating parameter limits for that alternate mode of operation.

(iii) You must calculate rolling averages for operating parameter limits as provided by § 63.1209(q)(2).

(iv) If your in-line kiln raw mill has dual stacks, you may assume that the dioxin/furan emission levels in the by-pass stack and the operating parameter limits determined during performance testing of the by-pass stack when the raw mill is off-line are the same as when the mill is on-line.

(v) In lieu of conducting a performance test to demonstrate compliance with the dioxin/furan emission standards for the mode of operation when the raw mill is on-line, you may specify in the performance test workplan and Notification of Compliance the same operating parameter limits required under § 63.1209(k) for the mode of operation when the raw mill is on-line as you establish during performance testing for the mode of operation when the raw mill is off-line.

(2) *Emissions averaging.* You may comply with the mercury, semivolatile metal, low volatile metal, and hydrogen chloride/chlorine gas emission standards on a time-weighted average basis under the following procedures:

(i) *Averaging methodology.* You must calculate the time-weighted average emission concentration with the following equation:

$$C_{total} = \{C_{mill\text{-}off} \times (T_{mill\text{-}off} / (T_{mill\text{-}off} + T_{mill\text{-}on}))\} + \{C_{mill\text{-}on} \times (T_{mill\text{-}on} / (T_{mill\text{-}off} + T_{mill\text{-}on}))\}$$

Where:

C_{total} = time-weighted average concentration of a regulated constituent considering both raw mill on time and off time;
$C_{mill\text{-}off}$ = average performance test concentration of regulated constituent with the raw mill off-line;
$C_{mill\text{-}on}$ = average performance test concentration of regulated constituent with the raw mill on-line;
$T_{mill\text{-}off}$ = time when kiln gases are not routed through the raw mill; and
$T_{mill\text{-}on}$ = time when kiln gases are routed through the raw mill.

(ii) *Compliance.* (A) If you use this emission averaging provision, you must document in the operating record compliance with the emission standards on an annual basis by using the equation provided by paragraph (d)(2) of this section.

(B) Compliance is based on one-year block averages beginning on the day you submit the initial notification of compliance.

(iii) *Notification.* (A) If you elect to document compliance with one or more emission standards using this emission averaging provision, you must notify the Administrator in the initial comprehensive performance test plan submitted under § 63.1207(e).

(B) You must include historical raw mill operation data in the performance test plan to estimate future raw mill down-time and document in the performance test plan that estimated emissions and estimated raw mill down-time will not result in an exceedance of an emission standard on an annual basis.

(C) You must document in the notification of compliance submitted under § 63.1207(j) that an emission standard will not be exceeded based on the documented emissions from the performance test and predicted raw mill down-time.

(e) *Preheater or preheater/precalciner kilns with dual stacks.* (1) *General.* You must conduct performance testing on each stack to demonstrate compliance with the emission standards, and you must establish operating parameter limits under § 63.1209 for each stack, except as provided by paragraph (d)(1)(iv) of this section for dioxin/furan emissions testing and operating parameter limits for the by-pass stack of in-line raw mills.

(2) *Emissions averaging.* You may comply with the mercury, semivolatile metal, low volatile metal, and hydrogen

chloride/chlorine gas emission standards specified in this section on a gas flowrate-weighted average basis under the following procedures:

(i) *Averaging methodology.* You must calculate the gas flowrate-weighted average emission concentration using the following equation:

$$C_{tot} = \{C_{main} \times (Q_{main} / (Q_{main} + Q_{bypass}))\} + \{C_{bypass} \times (Q_{bypass} / (Q_{main} + Q_{bypass}))\}$$

Where:

C_{tot} = gas flowrate-weighted average concentration of the regulated constituent;
C_{main} = average performance test concentration demonstrated in the main stack;
C_{bypass} = average performance test concentration demonstrated in the bypass stack;
Q_{main} = volumetric flowrate of main stack effluent gas; and
Q_{bypass} = volumetric flowrate of bypass effluent gas.

(ii) *Compliance.* (A) You must demonstrate compliance with the emission standard(s) using the emission concentrations determined from the performance tests and the equation provided by paragraph (e)(1) of this section; and

(B) You must develop operating parameter limits for bypass stack and main stack flowrates that ensure the emission concentrations calculated with the equation in paragraph (e)(1) of this section do not exceed the emission standards on a 12-hour rolling average basis. You must include these flowrate limits in the Notification of Compliance.

(iii) *Notification.* If you elect to document compliance under this emissions averaging provision, you must:

(A) Notify the Administrator in the initial comprehensive performance test plan submitted under § 63.1207(e). The performance test plan must include, at a minimum, information describing the flowrate limits established under paragraph (e)(2)(ii)(B) of this section; and

(B) Document in the Notification of Compliance submitted under § 63.1207(j) the demonstrated gas flowrate-weighted average emissions that you calculate with the equation provided by paragraph (e)(2) of this section.

(f) *Significant figures.* The emission limits provided by paragraphs (a) and (b) of this section are presented with two significant figures. Although you must perform intermediate calculations using at least three significant figures, you may round the resultant emission levels to two significant figures to document compliance.

(g) [Reserved].

(h) When you comply with the particulate matter requirements of paragraphs (a)(7) or (b)(7) of this section, you are exempt from the New Source Performance Standard for particulate matter and opacity under § 60.60 of this chapter.

■ 22. Section 63.1221 is added to subpart EEE to read as follows:

§ 63.1221 What are the replacement standards for hazardous waste burning lightweight aggregate kilns?

(a) *Emission and hazardous waste feed limits for existing sources.* You must not discharge or cause combustion gases to be emitted into the atmosphere or feed hazardous waste that contain:

(1) For dioxins and furans, either:

(i) Emissions in excess of 0.20 ng TEQ/dscm corrected to 7 percent oxygen; or

(ii) Rapid quench of the combustion gas temperature at the exit of the (last) combustion chamber (or exit of any waste heat recovery system that immediately follows the last combustion chamber) to 400°F or lower based on the average of the test run average temperatures. You must also notify in writing the RCRA authority that you are complying with this option;

(2) For mercury, either:

(i) Emissions in excess of 120 µg/dscm, corrected to 7 percent oxygen; or

(ii) A hazardous waste feedrate corresponding to a maximum theoretical emission concentration (MTEC) in excess of 120 µg/dscm;

(3) For cadmium and lead, both:

(i) Emissions in excess of 3.0×10^{-4} lbs combined emissions of cadmium and lead attributable to the hazardous waste per million Btu heat input from the hazardous waste; and

(ii) Emissions in excess of 250 µg/dscm, combined emissions, corrected to 7 percent oxygen;

(4) For arsenic, beryllium, and chromium, both:

(i) In excess of 9.5×10^{-5} lbs combined emissions of arsenic, beryllium, and chromium attributable to the hazardous waste per million Btu heat input from the hazardous waste;

(ii) Emissions in excess of 110 µg/dscm, combined emissions, corrected to 7 percent oxygen;

(5) *Carbon monoxide and hydrocarbons.* (i) Carbon monoxide in excess of 100 parts per million by volume, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis and corrected to 7 percent oxygen. If you elect to comply with this carbon monoxide standard rather than the hydrocarbon standard under paragraph (a)(5)(ii) of this section, you also must document that, during the destruction and removal efficiency (DRE) test runs or their equivalent as provided by § 63.1206(b)(7), hydrocarbons do not exceed 20 parts per million by volume during those runs, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis, corrected to 7 percent oxygen, and reported as propane; or

(ii) Hydrocarbons in excess of 20 parts per million by volume, over an hourly rolling average, dry basis, corrected to 7 percent oxygen, and reported as propane;

(6) Hydrogen chloride and chlorine gas in excess of 600 parts per million by volume, combined emissions, expressed as a chloride ($Cl^{(-)}$) equivalent, dry basis and corrected to 7 percent oxygen; and

(7) Particulate matter emissions in excess of 0.025 gr/dscf, corrected to 7 percent oxygen.

(b) *Emission and hazardous waste feed limits for new sources.* You must not discharge or cause combustion gases to be emitted into the atmosphere or feed hazardous waste that contain:

(1) For dioxins and furans, either:

(i) Emissions in excess of 0.20 ng TEQ/dscm corrected to 7 percent oxygen; or

(ii) Rapid quench of the combustion gas temperature at the exit of the (last) combustion chamber (or exit of any waste heat recovery system that immediately follows the last combustion chamber) to 400°F or lower based on the average of the test run average temperatures. You must also notify in writing the RCRA authority that you are complying with this option;

(2) For mercury, either:

(i) Emissions in excess of 120 µg/dscm, corrected to 7 percent oxygen; or

(ii) A hazardous waste feedrate corresponding to a maximum theoretical emission concentration (MTEC) in excess of 120 µg/dscm;

(3) For cadmium and lead, both:

(i) Emissions in excess of 3.7×10^{-5} lbs combined emissions of cadmium and lead attributable to the hazardous waste per million Btu heat input from the hazardous waste; and

(ii) Emissions in excess of 43 µg/dscm, combined emissions, corrected to 7 percent oxygen;

(4) For arsenic, beryllium, and chromium, both:

(i) In excess of 3.3×10^{-5} lbs combined emissions of arsenic, beryllium, and chromium attributable to the hazardous waste per million Btu heat input from the hazardous waste;

(ii) Emissions in excess of 110 µg/dscm, combined emissions, corrected to 7 percent oxygen;

(5) *Carbon monoxide and hydrocarbons.* (i) Carbon monoxide in excess of 100 parts per million by volume, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis and corrected to 7 percent oxygen. If you elect to comply with this carbon monoxide standard rather than the hydrocarbon standard under paragraph (b)(5)(ii) of this section, you also must document that, during the destruction and removal efficiency (DRE) test runs or their equivalent as provided by § 63.1206(b)(7), hydrocarbons do not exceed 20 parts per million by volume during those runs, over an hourly rolling average (monitored continuously with a continuous emissions monitoring system), dry basis, corrected to 7 percent oxygen, and reported as propane; or

(ii) Hydrocarbons in excess of 20 parts per million by volume, over an hourly rolling average, dry basis, corrected to 7 percent oxygen, and reported as propane;

(6) Hydrogen chloride and chlorine gas in excess of 600 parts per million by volume, combined emissions, expressed as a chloride ($Cl^{(-)}$) equivalent, dry basis and corrected to 7 percent oxygen; and

(7) Particulate matter emissions in excess of 0.0098 gr/dscf corrected to 7 percent oxygen.

(c) *Destruction and removal efficiency (DRE) standard.* (1) *99.99% DRE.* Except as provided in paragraph (c)(2) of this section, you must achieve a destruction and removal efficiency (DRE) of 99.99% for each principal organic hazardous constituent (POHC) designated under paragraph (c)(3) of this section. You must calculate DRE for each POHC from the following equation:

$$DRE = [1 - (W_{out} / Win)] \times 100\%$$

Where:

W_{in} = mass feedrate of one POHC in a waste feedstream; and

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

(2) *99.9999% DRE.* If you burn the dioxin-listed hazardous wastes F020, F021, F022, F023, F026, or F027 (see § 261.31 of this chapter), you must achieve a destruction and removal efficiency (DRE) of 99.9999% for each POHC that you designate under paragraph (c)(3) of this section. You must demonstrate this DRE performance on POHCs that are more difficult to incinerate than tetra-, penta-, and hexachlorodibenzo-dioxins and dibenzofurans. You must use the equation in paragraph (c)(1) of this section to calculate DRE for each POHC. In addition, you must notify the Administrator of your intent to burn hazardous wastes F020, F021, F022, F023, F026, or F027.

(3) *Principal organic hazardous constituents (POHCs).* (i) You must treat each POHC in the waste feed that you specify under paragraph (c)(3)(ii) of this section to the extent required by paragraphs (c)(1) and (c)(2) of this section.

(ii) You must specify one or more POHCs that are representative of the most difficult to destroy organic compounds in your hazardous waste feedstream. You must base this specification on the degree of difficulty of incineration of the organic constituents in the hazardous waste and on their concentration or mass in the hazardous waste feed, considering the results of hazardous waste analyses or other data and information.

(d) *Significant figures.* The emission limits provided by paragraphs (a) and (b) of this section are presented with two significant figures. Although you must perform intermediate calculations using at least three significant figures, you may round the resultant emission levels to two significant figures to document compliance.

PART 260—HAZARDOUS WASTE MANAGEMENT SYSTEM: GENERAL

■ 1. The authority citation for part 260 continues to read as follows:

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

■ 2. Section 260.11 is amended by

■ a. Revising the first sentence in paragraph (a).

■ b. Revising paragraph (c)(1).

The revisions and additions read as follows:

§ 260.11 References.

(a) When used in parts 260 through 268 of this chapter, the following publications are incorporated by reference. * * *

* * * * *

(c) * * *

(1) ''APTI Course 415: Control of Gaseous Emissions,'' EPA Publication EPA–450/2–81–005, December 1981, IBR approved for §§ 264.1035 and 265.1035.

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

■ 1. The authority citation for part 264 continues to read as follows:

Authority: 42 U.S.C. 6905, 6912(a), 6924, 6925, 6927, 6928(h), and 6974.

■ 2. Section 264.340 is amended by revising the first sentence of paragraph (b)(1) and adding paragraph (b)(5) to read as follows:

§ 264.340 Applicability.

* * * * *

(b) * * * (1) Except as provided by paragraphs (b)(2) through (b)(5) of this section, the standards of this part do not apply to a new hazardous waste incineration unit that becomes subject to RCRA permit requirements after October 12, 2005; or no longer apply when an owner or operator of an existing hazardous waste incineration unit demonstrates compliance with the maximum achievable control technology (MACT) requirements of part 63, subpart EEE, of this chapter by conducting a comprehensive performance test and submitting to the Administrator a Notification of Compliance under §§ 63.1207(j) and 63.1210(d) of this chapter documenting compliance with the requirements of part 63, subpart EEE, of this chapter. * * *

* * * * *

(5) The particulate matter standard of § 264.343(c) remains in effect for incinerators that elect to comply with the alternative to the particulate matter standard of §§ 63.1206(b)(14) and 63.1219(e) of this chapter.

* * * * *

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

■ 1. The authority citation for part 265 continues to read as follows:

Authority: 42 U.S.C. 6905, 6906, 6912, 6922, 6923, 6924, 6925, 6935, 6936, and 6937.

■ 2. Section 265.340 is amended by revising paragraph (b)(1) to read as follows:

§ 265.340 Applicability.

* * * * *

(b) * * * (1) Except as provided by paragraphs (b)(2) and (b)(3) of this section, the standards of this part no longer apply when an owner or operator demonstrates compliance with the maximum achievable control technology (MACT) requirements of part 63, subpart EEE, of this chapter by conducting a comprehensive performance test and submitting to the Administrator a Notification of Compliance under §§ 63.1207(j) and 63.1210(d) of this chapter documenting compliance with the requirements of part 63, subpart EEE, of this chapter.

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PART 266—STANDARDS FOR THE MANAGEMENT OF SPECIFIC HAZARDOUS WASTES AND SPECIFIC TYPES OF HAZARDOUS WASTE MANAGEMENT FACILITIES

■ 1. The authority citation for part 266 continues to read as follows:

Authority: 42 U.S.C. 1006, 2002(a), 3001–3009, 3014, 6905, 6906, 6912, 6921, 6922, 6924–6927, 6934, and 6937.

■ 2. Section 266.100 is amended by revising the first sentence of paragraph (b)(1) and adding paragraphs (b)(3) and (b)(4) to read as follows:

§ 266.100 Applicability.

* * * * *

(b) * * * (1) Except as provided by paragraphs (b)(2), (b)(3), and (b)(4) of this section, the standards of this part do not apply to a new hazardous waste boiler or industrial furnace unit that becomes subject to RCRA permit requirements after October 12, 2005; or no longer apply when an owner or operator of an existing hazardous waste boiler or industrial furnace unit demonstrates compliance with the maximum achievable control technology (MACT) requirements of part 63, subpart EEE, of this chapter by conducting a comprehensive performance test and submitting to the Administrator a Notification of Compliance under §§ 63.1207(j) and 63.1210(d) of this chapter documenting compliance with the requirements of part 63, subpart EEE, of this chapter. * * *

* * * * *

(3) If you own or operate a boiler or hydrochloric acid production furnace that is an area source under § 63.2 of this chapter and you elect not to comply with the emission standards under §§ 63.1216, 63.1217, and 63.1218 of this chapter for particulate matter, semivolatile and low volatile metals, and total chlorine, you also remain subject to:

(i) Section 266.105—Standards to control particulate matter;

(ii) Section 266.106—Standards to control metals emissions, except for mercury; and

(ii) Section 266.107—Standards to control hydrogen chloride and chlorine gas.

(4) The particulate matter standard of § 266.105 remains in effect for boilers that elect to comply with the alternative to the particulate matter standard under §§ 63.1216(e) and 63.1217(e) of this chapter.

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

■ 1. The authority citation for part 270 continues to read as follows:

Authority: 42 U.S.C. 6905, 6912, 6924, 6925, 6927, 6939, and 6974.

■ 2. Section 270.6 is revised to read as follows:

§ 270.6 References.

(a) When used in part 270 of this chapter, the following publications are incorporated by reference. These incorporations by reference were approved by the Director of the Federal Register pursuant to 5 U.S.C. 552(a) and 1 CFR part 51. These materials are incorporated as they exist on the date of approval and a notice of any change in these materials will be published in the **Federal Register**. Copies may be inspected at the Library, U.S. Environmental Protection Agency, 1200 Pennsylvania Ave., NW., (3403T), Washington, DC 20460, *libraryhq@epa.gov*; or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to: *http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.*

(b) The following materials are available for purchase from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 605–6000 or (800) 553–6847; or for purchase from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, (202) 512–1800:

(1) ‘‘APTI Course 415: Control of Gaseous Emissions,’’ EPA Publication EPA–450/2–81–005, December 1981, IBR approved for §§ 270.24 and 270.25.

(2) [Reserved].

■ 3. Section 270.10 is amended by adding paragraph (l) to read as follows:

§ 270.10 General application requirements.

* * * * *

(l) If the Director concludes, based on one or more of the factors listed in paragraph (l)(1) of this section that compliance with the standards of 40 CFR part 63, subpart EEE alone may not be protective of human health or the environment, the Director shall require the additional information or assessment(s) necessary to determine whether additional controls are necessary to ensure protection of human health and the environment. This includes information necessary to evaluate the potential risk to human health and/or the environment resulting from both direct and indirect exposure pathways. The Director may also require a permittee or applicant to provide information necessary to determine whether such an assessment(s) should be required.

(1) The Director shall base the evaluation of whether compliance with the standards of 40 CFR part 63, subpart EEE alone is protective of human health or the environment on factors relevant to the potential risk from a hazardous waste combustion unit, including, as appropriate, any of the following factors:

(i) Particular site-specific considerations such as proximity to receptors (such as schools, hospitals, nursing homes, day care centers, parks, community activity centers, or other potentially sensitive receptors), unique dispersion patterns, etc.;

(ii) Identities and quantities of emissions of persistent, bioaccumulative or toxic pollutants considering enforceable controls in place to limit those pollutants;

(iii) Identities and quantities of nondioxin products of incomplete combustion most likely to be emitted and to pose significant risk based on known toxicities (confirmation of which should be made through emissions testing);

(iv) Identities and quantities of other off-site sources of pollutants in proximity of the facility that significantly influence interpretation of a facility-specific risk assessment;

(v) Presence of significant ecological considerations, such as the proximity of a particularly sensitive ecological area;

(vi) Volume and types of wastes, for example wastes containing highly toxic constituents;

(vii) Other on-site sources of hazardous air pollutants that significantly influence interpretation of the risk posed by the operation of the source in question;

(viii) Adequacy of any previously conducted risk assessment, given any subsequent changes in conditions likely to affect risk; and

(ix) Such other factors as may be appropriate.

(2) [Reserved]

■ 4. Section 270.19 is amended by revising paragraph (e) to reads as follows:

§ 270.19 Specific part B information requirements for incinerators.

* * * * *

(e) When an owner or operator of a hazardous waste incineration unit becomes subject to RCRA permit requirements after October 12, 2005, or when an owner or operator of an existing hazardous waste incineration unit demonstrates compliance with the air emission standards and limitations in part 63, subpart EEE, of this chapter (*i.e.*, by conducting a comprehensive performance test and submitting a Notification of Compliance under §§ 63.1207(j) and 63.1210(d) of this chapter documenting compliance with all applicable requirements of part 63, subpart EEE, of this chapter), the requirements of this section do not apply, except those provisions the Director determines are necessary to ensure compliance with §§ 264.345(a) and 264.345(c) of this chapter if you elect to comply with § 270.235(a)(1)(i) to minimize emissions of toxic compounds from startup, shutdown, and malfunction events. Nevertheless, the Director may apply the provisions of this section, on a case-by-case basis, for purposes of information collection in accordance with §§ 270.10(k), 270.10(l), 270.32(b)(2), and 270.32(b)(3).

■ 5. Section 270.22 is amended by revising the introductory text to read as follows:

§ 270.22 Specific part B information requirements for boilers and industrial furnaces burning hazardous waste.

When an owner or operator of a cement kiln, lightweight aggregate kiln, solid fuel boiler, liquid fuel boiler, or hydrochloric acid production furnace becomes subject to RCRA permit requirements after October 12, 2005, or when an owner or operator of an existing cement kiln, lightweight aggregate kiln, solid fuel boiler, liquid fuel boiler, or hydrochloric acid production furnace demonstrates compliance with the air emission standards and limitations in part 63, subpart EEE, of this chapter (*i.e.*, by conducting a comprehensive performance test and submitting a Notification of Compliance under §§ 63.1207(j) and 63.1210(d) of this chapter documenting compliance with all applicable requirements of part 63, subpart EEE, of this chapter), the requirements of this section do not apply. The requirements of this section do apply, however, if the Director determines certain provisions are necessary to ensure compliance with §§ 266.102(e)(1) and 266.102(e)(2)(iii) of this chapter if you elect to comply with § 270.235(a)(1)(i) to minimize emissions of toxic compounds from startup, shutdown, and malfunction events; or if you are an area source and elect to comply with the §§ 266.105, 266.106, and 266.107 standards and associated requirements for particulate matter, hydrogen chloride and chlorine gas, and non-mercury metals; or the Director determines certain provisions apply, on a case-by-case basis, for purposes of information collection in accordance with §§ 270.10(k), 270.10(l), 270.32(b)(2), and 270.32(b)(3).

* * * * *

■ 6. Section 270.24 is amended by revising paragraph (d)(3) to read as follows:

§ 270.24 Specific part B information requirements for process vents.

* * * * *

(d) * * *

(3) A design analysis, specifications, drawings, schematics, and piping and instrumentation diagrams based on the appropriate sections of ''APTI Course 415: Control of Gaseous Emissions'' (incorporated by reference as specified in § 270.6) or other engineering texts acceptable to the Regional Administrator that present basic control device information. The design analysis shall address the vent stream characteristics and control device operation parameters as specified in § 264.1035(b)(4)(iii).

* * * * *

■ 7. Section 270.25 is amended by revising paragraph (e)(3) to read as follows:

§ 270.25 Specific part B information requirements for equipment.

* * * * *

(e) * * *

(3) A design analysis, specifications, drawings, schematics, and piping and instrumentation diagrams based on the appropriate sections of ''APTI Course 415: Control of Gaseous Emissions'' (incorporated by reference as specified in § 270.6) or other engineering texts acceptable to the Regional Administrator that present basic control device information. The design analysis shall address the vent stream characteristics and control device operation parameters as specified in § 264.1035(b)(4)(iii).

* * * * *

■ 8. Section 270.32 is amended by adding paragraph (b)(3) to read as follows:

§ 270.32 Establishing permit conditions.

* * * * *

(b) * * *

(3) If, as the result of an assessment(s) or other information, the Administrator or Director determines that conditions are necessary in addition to those required under 40 CFR parts 63, subpart EEE, 264 or 266 to ensure protection of human health and the environment, he shall include those terms and conditions in a RCRA permit for a hazardous waste combustion unit.

* * * * *

■ 9. Section 270.42 is amended by:

■ a. Revising paragraph (j)(1).

■ b. Redesignating paragraph (j)(2) as (j)(3).

■ c. Adding new paragraph (j)(2).

■ d. Adding new paragraph (k); and

■ e. Adding a new entry 10 in numerical order in the table under section L of Appendix I.

The revisions and additions read as follows:

§ 270.42 Permit modification at the request of the permittee.

* * * * *

(j) * * *

(1) Facility owners or operators must have complied with the Notification of Intent to Comply (NIC) requirements of 40 CFR 63.1210 that were in effect prior to October 11, 2000, (See 40 CFR part 63 §§ 63.1200–63.1499 revised as of July 1, 2000) in order to request a permit modification under this section for the purpose of technology changes needed to meet the standards under 40 CFR 63.1203, 63.1204, and 63.1205.

(2) Facility owners or operators must comply with the Notification of Intent to Comply (NIC) requirements of 40 CFR 63.1210(b) and 63.1212(a) before a permit modification can be requested under this section for the purpose of technology changes needed to meet the 40 CFR 63.1215, 63.1216, 63.1217, 63.1218, 63.1219, 63.1220, and 63.1221 standards promulgated on October 12, 2005.

* * * * *

(k) *Waiver of RCRA permit conditions in support of transition to the part 63 MACT standards.* (1) You may request to have specific RCRA operating and emissions limits waived by submitting a Class 1 permit modification request under Appendix I of this section, section L(10). You must:

(i) Identify the specific RCRA permit operating and emissions limits which you are requesting to waive;

(ii) Provide an explanation of why the changes are necessary in order to minimize or eliminate conflicts between the RCRA permit and MACT compliance; and

(iii) Discuss how the revised provisions will be sufficiently protective.

(iv) The Director shall approve or deny the request within 30 days of receipt of the request. The Director may, as his or her discretion, extend this 30 day deadline one time for up to 30 days by notifying the facility owner or operator.

(2) To request this modification in conjunction with MACT performance testing where permit limits may only be waived during actual test events and pretesting, as defined under 40 CFR 63.1207(h)(2)(i) and (ii), for an aggregate time not to exceed 720 hours of operation (renewable at the discretion of the Administrator) you must:

(i) Submit your modification request to the Director at the same time you submit your test plans to the Administrator; and

(ii) The Director may elect to approve or deny the request continent upon approval of the test plans.

* * * * *

Appendix I to § 270.42—Classification of Permit Modification

Modifications	Class
* * * * * * *	
L. * * *	[1] 1
10. Changes to RCRA permit provisions needed to support transition to 40 CFR part 63 (Subpart EEE—National Emission Standards for Hazardous Air Pollutants From Hazardous Waste Combustors), provided the procedures of § 270.42(k) are followed..	
* * * * * * *	

[1] Class 1 modifications requiring prior Agency approval.

* * * * *

■ 10. Section 270.62 is amended by revising the introductory text to read as follows:

§ 270.62 Hazardous waste incinerator permits.

When an owner or operator of a hazardous waste incineration unit becomes subject to RCRA permit requirements after October 12, 2005, or when an owner or operator of an existing hazardous waste incineration unit demonstrates compliance with the air emission standards and limitations in part 63, subpart EEE, of this chapter (*i.e.*, by conducting a comprehensive performance test and submitting a Notification of Compliance under §§ 63.1207(j) and 63.1210(d) of this chapter documenting compliance with all applicable requirements of part 63, subpart EEE, of this chapter), the requirements of this section do not apply, except those provisions the Director determines are necessary to ensure compliance with §§ 264.345(a) and 264.345(c) of this chapter if you elect to comply with § 270.235(a)(1)(i) to minimize emissions of toxic compounds from startup, shutdown, and malfunction events. Nevertheless, the Director may apply the provisions of this section, on a case-by-case basis, for purposes of information collection in accordance with §§ 270.10(k), 270.10(l), 270.32(b)(2), and 270.32(b)(3).

* * * * *

■ 11. Section 270.66 is amended by revising the introductory text to read as follows:

§ 270.66 Permits for boilers and industrial furnaces burning hazardous waste.

When an owner or operator of a cement kiln, lightweight aggregate kiln, solid fuel boiler, liquid fuel boiler, or hydrochloric acid production furnace becomes subject to RCRA permit requirements after October 12, 2005 or when an owner or operator of an existing cement kiln, lightweight aggregate kiln, solid fuel boiler, liquid fuel boiler, or hydrochloric acid production furnace demonstrates compliance with the air emission standards and limitations in part 63, subpart EEE, of this chapter (*i.e.*, by conducting a comprehensive performance test and submitting a Notification of Compliance under §§ 63.1207(j) and 63.1210(d) of this chapter documenting compliance with all applicable requirements of part 63, subpart EEE, of this chapter), the requirements of this section do not apply. The requirements of this section do apply, however, if the Director determines certain provisions are necessary to ensure compliance with §§ 266.102(e)(1) and 266.102(e)(2)(iii) of this chapter if you elect to comply with § 270.235(a)(1)(i) to minimize emissions of toxic compounds from startup, shutdown, and malfunction events; or if you are an area source and elect to comply with the §§ 266.105, 266.106, and 266.107 standards and associated requirements for particulate matter, hydrogen chloride and chlorine gas, and non-mercury metals; or the Director determines certain provisions apply, on a case-by-case basis, for purposes of information collection in accordance with §§ 270.10(k), 270.10(l), 270.32(b)(2), and 270.32(b)(3).

* * * * *

■ 12. Section 270.235 is amended by:

■ a. Revising the section heading and paragraphs (a)(1) introductory text and (a)(2) introductory text.

■ b. Revising paragraphs (b)(1) introductory text and (b)(2).

■ c. Adding new paragraph (c).

The revisions read as follows:

* * * * *

§ 270.235 Options for incinerators, cement kilns, lightweight aggregate kilns, solid fuel boilers, liquid fuel boilers and hydrochloric acid production furnaces to minimize emissions from startup, shutdown, and malfunction events.

(a) * * * (1) *Revisions to permit conditions after documenting compliance with MACT.* The owner or operator of a RCRA-permitted incinerator, cement kiln, lightweight aggregate kiln, solid fuel boiler, liquid fuel boiler, or hydrochloric acid production furnace may request that the Director address permit conditions that minimize emissions from startup, shutdown, and malfunction events under any of the following options when requesting removal of permit conditions that are no longer applicable according to §§ 264.340(b) and 266.100(b) of this chapter:

* * * * *

(2) *Addressing permit conditions upon permit reissuance.* The owner or operator of an incinerator, cement kiln, lightweight aggregate kiln, solid fuel boiler, liquid fuel boiler, or hydrochloric acid production furnace that has conducted a comprehensive performance test and submitted to the Administrator a Notification of Compliance documenting compliance with the standards of part 63, subpart EEE, of this chapter may request in the application to reissue the permit for the combustion unit that the Director control emissions from startup,

shutdown, and malfunction events under any of the following options:

* * * * *

(b) * * * (1) *Interim status operations.* In compliance with §§ 265.340 and 266.100(b), the owner or operator of an incinerator, cement kiln, lightweight aggregate kiln, solid fuel boiler, liquid fuel boiler, or hydrochloric acid production furnace that is operating under the interim status standards of part 265 or 266 of this chapter may control emissions of toxic compounds during startup, shutdown, and malfunction events under either of the following options after conducting a comprehensive performance test and submitting to the Administrator a Notification of Compliance documenting compliance with the standards of part 63, subpart EEE, of this chapter.

* * * * *

(2) *Operations under a subsequent RCRA permit.* When an owner or operator of an incinerator, cement kiln, lightweight aggregate kiln, solid fuel boiler, liquid fuel boiler, or hydrochloric acid production furnace that is operating under the interim status standards of parts 265 or 266 of this chapter submits a RCRA permit application, the owner or operator may request that the Director control emissions from startup, shutdown, and malfunction events under any of the options provided by paragraphs (a)(2)(i), (a)(2)(ii), or (a)(2)(iii) of this section.

(c) *New units.* Hazardous waste incinerator, cement kiln, lightweight aggregate kiln, solid fuel boiler, liquid fuel boiler, or hydrochloric acid production furnace units that become subject to RCRA permit requirements after October 12, 2005 must control emissions of toxic compounds during startup, shutdown, and malfunction events under either of the following options:

(1) Comply with the requirements specified in § 63.1206(c)(2) of this chapter; or

(2) Request to include in the RCRA permit, conditions that ensure emissions of toxic compounds are minimized from startup, shutdown, and malfunction events, including releases from emergency safety vents, based on review of information including the source's startup, shutdown, and malfunction plan and design. The director will specify that these permit conditions apply only when the facility is operating under its startup, shutdown, and malfunction plan.

PART 271—REQUIREMENTS FOR AUTHORIZATION OF STATE HAZARDOUS WASTE PROGRAMS

■ 1. The authority citation for part 271 continues to read as follows:

Authority: 42 U.S.C. 6905, 6912(a), and 6926.

■ 2. Section 271.1(j) is amended by adding the following entries to Table 1 in chronological order by date of publication in the **Federal Register**, to read as follows:

§ 271.1 Purpose and scope.

* * * * *

(j) * * *

TABLE 1.—REGULATIONS IMPLEMENTING THE HAZARDOUS AND SOLID WASTE AMENDMENTS OF 1984

Promulgation date	Title of Reglation	**Federal Register** reference	Effective date
* *	* *	*	* *
Oct. 12, 2005	Standards for Hazardous Air Pollutants for Hazardous Waste Combustors.	[Insert FR page numbers]	Oct. 12, 2005.

[FR Doc. 05–18824 Filed 10–11–05; 8:45 am]

BILLING CODE 6560–50–P