

boiler or industrial furnace are subject to part 263 of this chapter.

(c) *Storage facilities.* (1) Owners and operators of facilities that store hazardous waste that is burned in a boiler or industrial furnace are subject to the applicable provisions of subparts A through L of part 264, subparts A through L of part 265, and part 270 of this chapter, except as provided by paragraph (c)(2) of this section. These standards apply to storage by the burner as well as to storage facilities operated by intermediaries (processors, blenders, distributors, etc.) between the generator and the burner.

(2) Owners and operators of facilities that burn, in an on-site boiler or industrial furnace exempt from regulation under the small quantity burner provisions of § 266.108, hazardous waste that they generate are exempt from regulation under subparts A through L of part 264, subparts A through L of part 265, and part 270 of this chapter with respect to the storage of mixtures of hazardous waste and the primary fuel to the boiler or industrial furnace in tanks that feed the fuel mixture directly to the burner. Storage of hazardous waste prior to mixing with the primary fuel is subject to regulation as prescribed in paragraph (c)(1) of this section.

#### § 266.102 Permit standards for burners.

(a) *Applicability*—(1) *General.* Owners and operators of boilers and industrial furnaces burning hazardous waste and not operating under interim status must comply with the requirements of this section and §§ 270.22 and 270.66 of this chapter, unless exempt under the small quantity burner exemption of § 266.108.

(2) *Applicability of part 264 standards.* Owners and operators of boilers and industrial furnaces that burn hazardous waste are subject to the following provisions of part 264 of this chapter, except as provided otherwise by this subpart:

- (i) In subpart A (General), 264.4;
- (ii) In subpart B (General facility standards), §§ 264.11–264.18;
- (iii) In subpart C (Preparedness and prevention), §§ 264.31–264.37;
- (iv) In subpart D (Contingency plan and emergency procedures), §§ 264.51–264.56;
- (v) In subpart E (Manifest system, recordkeeping, and reporting), the applicable provisions of §§ 264.71–264.77;
- (vi) In subpart F (Corrective Action), §§ 264.90 and 264.101;
- (vii) In subpart G (Closure and post-closure), §§ 264.111–264.115;

(viii) In subpart H (Financial requirements), §§ 264.141, 264.142, 264.143, and 264.147–264.151, except that States and the Federal government are exempt from the requirements of subpart H; and

(ix) Subpart BB (Air emission standards for equipment leaks), except §§ 264.1050(a).

(b) *Hazardous waste analysis.* (1) The owner or operator must provide an analysis of the hazardous waste that quantifies the concentration of any constituent identified in appendix VIII of part 261 of this chapter that may reasonably be expected to be in the waste. Such constituents must be identified and quantified if present, at levels detectable by analytical procedures prescribed by Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods (incorporated by reference, see § 260.11 of this chapter). The appendix VIII, part 261 constituents excluded from this analysis must be identified and the basis for their exclusion explained. This analysis will be used to provide all information required by this subpart and § 270.22 and § 270.66 of this chapter and to enable the permit writer to prescribe such permit conditions as necessary to protect human health and the environment. Such analysis must be included as a portion of the part B permit application, or, for facilities operating under the interim status standards of this subpart, as a portion of the trial burn plan that may be submitted before the part B application under provisions of § 270.66(g) of this chapter as well as any other analysis required by the permit authority in preparing the permit. Owners and operators of boilers and industrial furnaces not operating under the interim status standards must provide the information required by §§ 270.22 or 270.66(c) of this chapter in the part B application to the greatest extent possible.

(2) Throughout normal operation, the owner or operator must conduct sampling and analysis as necessary to ensure that the hazardous waste, other fuels, and industrial furnace feedstocks fired into the boiler or industrial furnace are within the physical and chemical composition limits specified in the permit.

(c) *Emissions standards.* Owners and operators must comply with emissions standards provided by §§ 266.104 through 266.107.

(d) *Permits.* (1) The owner or operator may burn only hazardous wastes specified in the facility permit and only under the operating conditions specified under paragraph (e) of this section;

except in approved trial burns under the conditions specified in § 270.66 of this chapter.

(2) Hazardous wastes not specified in the permit may not be burned until operating conditions have been specified under a new permit or permit modification, as applicable. Operating requirements for new wastes may be based on either trial burn results or alternative data included with part B of a permit application under § 270.22 of this chapter.

(3) Boilers and industrial furnaces operating under the interim status standards of § 266.103 are permitted under procedures provided by § 270.66(g) of this chapter.

(4) A permit for a new boiler or industrial furnace (those boilers and industrial furnaces not operating under the interim status standards) must establish appropriate conditions for each of the applicable requirements of this section, including but not limited to allowable hazardous waste firing rates and operating conditions necessary to meet the requirements of paragraph (e) of this section, in order to comply with the following standards:

(i) For the period beginning with initial introduction of hazardous waste and ending with initiation of the trial burn, and only for the minimum time required to bring the device to a point of operational readiness to conduct a trial burn, not to exceed a duration of 720 hours operating time when burning hazardous waste, the operating requirements must be those most likely to ensure compliance with the emission standards of §§ 266.104 through 266.107, based on the Director's engineering judgment. If the applicant is seeking a waiver from a trial burn to demonstrate conformance with a particular emission standard, the operating requirements during this initial period of operation shall include those specified by the applicable provisions of § 266.104, § 266.105, § 266.106, or § 266.107. The Director may extend the duration of this period for up to 720 additional hours when good cause for the extension is demonstrated by the applicant.

(ii) For the duration of the trial burn, the operating requirements must be sufficient to demonstrate compliance with the emissions standards of §§ 266.104 through 266.107 and must be in accordance with the approved trial burn plan;

(iii) For the period immediately following completion of the trial burn, and only for the minimum period sufficient to allow sample analysis, data computation, submission of the trial burn results by the applicant, review of

the trial burn results and modification of the facility permit by the Director to reflect the trial burn results, the operating requirements must be those most likely to ensure compliance with the emission standards §§ 266.104 through 266.107 based on the Director's engineering judgment.

(D) For the remaining duration of the permit, the operating requirements must be those demonstrated in a trial burn or by alternative data specified in § 270.22 of this chapter, as sufficient to ensure compliance with the emissions standards of §§ 266.104 through 266.107.

(e) *Operating requirements—(1) General.* A boiler or industrial furnace burning hazardous waste must be operated in accordance with the operating requirements specified in the permit at all times where there is hazardous waste in the unit.

(2) *Requirements to ensure compliance with the organic emissions standards—(i) DRE standard.*

Operating conditions will be specified either on a case-by-case basis for each hazardous waste burned as those demonstrated (in a trial burn or by alternative data as specified in § 270.22) to be sufficient to comply with the destruction and removal efficiency (DRE) performance standard of § 266.104(a) or as those special operating requirements provided by § 266.104(a)(4) for the waiver of the DRE trial burn. When the DRE trial burn is not waived under § 266.104(a)(4), each set of operating requirements will specify the composition of the hazardous waste (including acceptable variations in the physical and chemical properties of the hazardous waste which will not affect compliance with the DRE performance standard) to which the operating requirements apply. For each such hazardous waste, the permit will specify acceptable operating limits including, but not limited to, the following conditions as appropriate:

(A) Feed rate of hazardous waste and other fuels measured and specified as prescribed in paragraph (e)(6) of this section;

(B) Minimum and maximum device production rate when producing normal product expressed in appropriate units, measured and specified as prescribed in paragraph (e)(6) of this section;

(C) Appropriate controls of the hazardous waste firing system;

(D) Allowable variation in boiler and industrial furnace system design or operating procedures;

(E) Minimum combustion gas temperature measured at a location indicative of combustion chamber temperature, measured and specified as

prescribed in paragraph (e)(6) of this section;

(F) An appropriate indicator of combustion gas velocity, measured and specified as prescribed in paragraph (e)(6) of this section, unless documentation is provided under § 270.66 of this chapter demonstrating adequate combustion gas residence time; and

(G) Such other operating requirements as are necessary to ensure that the DRE performance standard of § 266.104(a) is met.

(ii) *Carbon monoxide and hydrocarbon standards.* The permit must incorporate a carbon monoxide (CO) limit and, as appropriate, a hydrocarbon (HC) limit as provided by paragraphs (b), (c), (d), (e) and (f) of § 266.104. The permit limits will be specified as follows:

(A) When complying with the CO standard of § 266.104(b)(1), the permit limit is 100 ppmv;

(B) When complying with the alternative CO standard under § 266.104(c), the permit limit for CO is based on the trial burn and is established as the average over all valid runs of the highest hourly rolling average CO level of each run, and the permit limit for HC is 20 ppmv (as defined in § 266.104(c)(1)), except as provided in § 266.104(f).

(C) When complying with the alternative HC limit for industrial furnaces under § 266.104(f), the permit limit for HC and CO is the baseline level when hazardous waste is not burned as specified by that paragraph.

(iii) *Start-up and shut-down.* During start-up and shut-down of the boiler or industrial furnace, hazardous waste (except waste fed solely as an ingredient under the Tier I (or adjusted Tier I) feed rate screening limits for metals and chloride/chlorine, and except low risk waste exempt from the trial burn requirements under §§ 266.104(a)(5), 266.105, 266.106, and 266.107) must not be fed into the device unless the device is operating within the conditions of operation specified in the permit.

(3) *Requirements to ensure conformance with the particulate standard.* (i) Except as provided in paragraphs (e)(3) (ii) and (iii) of this section, the permit shall specify the following operating requirements to ensure conformance with the particulate standard specified in § 266.105:

(A) Total ash feed rate to the device from hazardous waste, other fuels, and industrial furnace feedstocks, measured and specified as prescribed in paragraph (e)(6) of this section;

(B) Maximum device production rate when producing normal product expressed in appropriate units, and measured and specified as prescribed in paragraph (e)(6) of this section;

(C) Appropriate controls on operation and maintenance of the hazardous waste firing system and any air pollution control system;

(D) Allowable variation in boiler and industrial furnace system design including any air pollution control system or operating procedures; and

(E) Such other operating requirements as are necessary to ensure that the particulate standard in § 266.111(b) is met.

(ii) Permit conditions to ensure conformance with the particulate matter standard shall not be provided for facilities exempt from the particulate matter standard under § 266.105(b);

(iii) For cement kilns and light-weight aggregate kilns, permit conditions to ensure compliance with the particulate standard shall not limit the ash content of hazardous waste or other feed materials.

(4) *Requirements to ensure conformance with the metals emissions standard.* (i) For conformance with the Tier I (or adjusted Tier I) metals feed rate screening limits of paragraphs (b) or (e) of § 266.106, the permit shall specify the following operating requirements:

(A) Total feed rate of each metal in hazardous waste, other fuels, and industrial furnace feedstocks measured and specified under provisions of paragraph (e)(6) of this section;

(B) Total feed rate of hazardous waste measured and specified as prescribed in paragraph (e)(6) of this section;

(C) sampling and metals analysis program for the hazardous waste, other fuels, and industrial furnace feedstocks;

(ii) For conformance with the Tier II metals emission rate screening limits under § 266.106(c) and the Tier III metals controls under § 266.106(d), the permit shall specify the following operating requirements:

(A) Maximum emission rate for each metal specified as the average emission rate during the trial burn;

(B) Feed rate of total hazardous waste and pumpable hazardous waste, each measured and specified as prescribed in paragraph (e)(6)(i) of this section;

(C) Feed rate of each metal in the following feedstreams, measured and specified as prescribed in paragraphs (e)(6) of this section:

(1) Total feed streams;

(2) Total hazardous waste feed; and

(3) Total pumpable hazardous waste feed;

(D) Total feed rate of chlorine and chloride in total feed streams measured and specified as prescribed in paragraph (e)(6) of this section;

(E) Maximum combustion gas temperature measured at a location indicative of combustion chamber temperature, and measured and specified as prescribed in paragraph (e)(6) of this section;

(F) Maximum flue gas temperature at the inlet to the particulate matter air pollution control system measured and specified as prescribed in paragraph (e)(6) of this section;

(G) Maximum device production rate when producing normal product expressed in appropriate units and measured and specified as prescribed in paragraph (e)(6) of this section;

(H) Appropriate controls on operation and maintenance of the hazardous waste firing system and any air pollution control system;

(I) Allowable variation in boiler and industrial furnace system design including any air pollution control system or operating procedures; and

(J) Such other operating requirements as are necessary to ensure that the metals standards under §§ 266.106(c) or 266.106(d) are met.

(iii) For conformance with an alternative implementation approach approved by the Director under § 266.106(f), the permit will specify the following operating requirements:

(A) Maximum emission rate for each metal specified as the average emission rate during the trial burn;

(B) Feed rate of total hazardous waste and pumpable hazardous waste, each measured and specified as prescribed in paragraph (e)(6)(i) of this section;

(C) Feed rate of each metal in the following feedstreams, measured and specified as prescribed in paragraph (e)(6) of this section:

(1) Total hazardous waste feed; and

(2) Total pumpable hazardous waste feed;

(D) Total feed rate of chlorine and chloride in total feed streams measured and specified as prescribed in paragraph (e)(6) of this section;

(E) Maximum combustion gas temperature measured at a location indicative of combustion chamber temperature, and measured and specified as prescribed in paragraph (e)(6) of this section;

(F) Maximum flue gas temperature at the inlet to the particulate matter air pollution control system measured and specified as prescribed in paragraph (e)(6) of this section;

(G) Maximum device production rate when producing normal product expressed in appropriate units and

measured and specified as prescribed in paragraph (e)(6) of this section;

(H) Appropriate controls on operation and maintenance of the hazardous waste firing system and any air pollution control system;

(I) Allowable variation in boiler and industrial furnace system design including any air pollution control system or operating procedures; and

(J) Such other operating requirements as are necessary to ensure that the metals standards under §§ 266.106(c) or 266.106(d) are met.

(5) *Requirements to ensure conformance with the hydrogen chloride and chlorine gas standards.* (i) For conformance with the Tier I total chloride and chlorine feed rate screening limits of § 266.107(b)(1), the permit will specify the following operating requirements:

(A) Feed rate of total chloride and chlorine in hazardous waste, other fuels, and industrial furnace feedstocks measured and specified as prescribed in paragraph (e)(6) of this section;

(B) Feed rate of total hazardous waste measured and specified as prescribed in paragraph (e)(6) of this section;

(C) A sampling and analysis program for total chloride and chlorine for the hazardous waste, other fuels, and industrial furnace feedstocks;

(ii) For conformance with the Tier II HCl and Cl<sub>2</sub> emission rate screening limits under § 266.107(b)(2) and the Tier III HCl and Cl<sub>2</sub> controls under § 266.107(c), the permit will specify the following operating requirements:

(A) Maximum emission rate for HCl and for Cl<sub>2</sub> specified as the average emission rate during the trial burn;

(B) Feed rate of total hazardous waste measured and specified as prescribed in paragraph (e)(6) of this section;

(C) Total feed rate of chlorine and chloride in total feed streams, measured and specified as prescribed in paragraph (e)(6) of this section;

(D) Maximum device production rate when producing normal product expressed in appropriate units, measured and specified as prescribed in paragraph (e)(6) of this section;

(E) Appropriate controls on operation and maintenance of the hazardous waste firing system and any air pollution control system;

(F) Allowable variation in boiler and industrial furnace system design including any air pollution control system or operating procedures; and

(G) Such other operating requirements as are necessary to ensure that the HCl and Cl<sub>2</sub> standards under § 266.107 (b)(2) or (c) are met.

(6) *Measuring parameters and establishing limits based on trial burn*

*data—(i) General requirements.* As specified in paragraphs (e)(2) through (e)(5) of this section, each operating parameter shall be measured, and permit limits on the parameter shall be established, according to either of the following procedures:

(A) *Instantaneous limits.* A parameter may be measured and recorded on an instantaneous basis (i.e., the value that occurs at any time) and the permit limit specified as the time-weighted average during all valid runs of the trial burn; or

(B) *Hourly rolling average.* (1) The limit for a parameter may be established and continuously monitored on an hourly rolling average basis defined as follows:

(i) A continuous monitor is one which continuously samples the regulated parameter without interruption, and evaluates the detector response at least once each 15 seconds, and computes and records the average value at least every 60 seconds.

(ii) An hourly rolling average is the arithmetic means of the 60 most recent 1-minute average values recorded by the continuous monitoring system.

(2) The permit limit for the parameter shall be established based on trial burn data as the average over all valid test runs of the highest hourly rolling average value for each run.

(ii) *Rolling average limits for carcinogenic metals and lead.* Feed rate limits for the carcinogenic metals (i.e., arsenic, beryllium, cadmium and chromium) and lead may be established either on an hourly rolling average basis as prescribed by paragraph (e)(6)(i) of this section or on (up to) a 24 hour rolling average basis. If the owner or operator elects to use an average period from 2 to 24 hours:

(A) The feed rate of each metal shall be limited at any time to ten times the feed rate that would be allowed on an hourly rolling average basis;

(B) The continuous monitor shall meet the following specifications:

(1) A continuous monitor is one which continuously samples the regulated parameter without interruption, and evaluates the detector response at least once each 15 seconds, and computes and records the average value at least every 60 seconds.

(2) The rolling average for the selected averaging period is defined as the arithmetic mean of the most recent one hour block average for the average period. A one hour block average is the arithmetic mean of the one minute averages recorded during the 60-minute period beginning at one minute after the beginning of preceding clock hour; and

(C) The permit limit for the feed rate of each metal shall be established based on trial burn data as the average over all valid test runs of the highest hourly rolling average feed rate for each run.

(iii) *Feed rate limits for metals, total chloride and chlorine, and ash.* Feed rate limits for metals, total chlorine and chloride, and ash are established and monitored by knowing the concentration of the substance (i.e., metals, chloride/chlorine, and ash) in each feedstream and the flow rate of the feedstream. To monitor the feed rate of these substances, the flow rate of each feedstream must be monitored under the continuous monitoring requirements of paragraphs (e)(6) (i) and (ii) of this section.

(iv) *Conduct of trial burn testing.* (A) If compliance with all applicable emissions standards of §§ 266.104 through 266.107 is not demonstrated simultaneously during a set of test runs, the operating conditions of additional test runs required to demonstrate compliance with remaining emissions standards must be as close as possible to the original operating conditions.

(B) Prior to obtaining test data for purposes of demonstrating compliance with the emissions standards of §§ 266.104 through 266.107 or establishing limits on operating parameters under this section, the facility must operate under trial burn conditions for a sufficient period to reach steady-state operations. The Director may determine, however, that industrial furnaces that recycle collected particulate matter back into the furnace and that comply with an alternative implementation approach for metals under § 266.106(f), need not reach steady state conditions with respect to the flow of metals in the system prior to beginning compliance testing for metals emissions.

(C) Trial burn data on the level of an operating parameter for which a limit must be established in the permit must be obtained during emissions sampling for the pollutant(s) (i.e., metals, PM, HCl/Cl<sub>2</sub>, organic compounds) for which the parameter must be established as specified by paragraph (e) of this section.

(7) *General requirements—(i) Fugitive emissions.* Fugitive emissions must be controlled by:

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

(B) Maintaining the combustion zone pressure lower than atmospheric pressure; or

(C) An alternate means of control demonstrated (with part B of the permit application) to provide fugitive

emissions control equivalent to maintenance of combustion zone pressure lower than atmospheric pressure.

(ii) *Automatic waste feed cutoff.* A boiler or industrial furnace must be operated with a functioning system that automatically cuts off the hazardous waste feed when operating conditions deviate from those established under this section. The Director may limit the number of cutoffs per an operating period on a case-by-case basis. In addition:

(A) The permit limit for (the indicator of) minimum combustion chamber temperature must be maintained while hazardous waste or hazardous waste residues remain in the combustion chamber,

(B) Exhaust gases must be ducted to the air pollution control system operated in accordance with the permit requirements while hazardous waste or hazardous waste residues remain in the combustion chamber; and

(C) Operating parameters for which permit limits are established must continue to be monitored during the cutoff, and the hazardous waste feed shall not be restarted until the levels of those parameters comply with the permit limits. For parameters that may be monitored on an instantaneous basis, the Director will establish a minimum period of time after a waste feed cutoff during which the parameter must not exceed the permit limit before the hazardous waste feed may be restarted.

(iii) *Changes.* A boiler or industrial furnace must cease burning hazardous waste when changes in combustion properties, or feed rates of the hazardous waste, other fuels, or industrial furnace feedstocks, or changes in the boiler or industrial furnace design or operating conditions deviate from the limits as specified in the permit.

(8) *Monitoring and Inspections.* (i) The owner or operator must monitor and record the following, at a minimum, while burning hazardous waste:

(A) If specified by the permit, feed rates and composition of hazardous waste, other fuels, and industrial furnace feedstocks, and feed rates of ash, metals, and total chloride and chlorine;

(B) If specified by the permit, carbon monoxide (CO), hydrocarbons (HC), and oxygen on a continuous basis at a common point in the boiler or industrial furnace downstream of the combustion zone and prior to release of stack gases to the atmosphere in accordance with operating requirements specified in paragraph (e)(2)(ii) of this section. CO, HC, and oxygen monitors must be

installed, operated, and maintained in accordance with methods specified in appendix IX of this part.

(C) Upon the request of the Director, sampling and analysis of the hazardous waste (and other fuels and industrial furnace feedstocks as appropriate), residues, and exhaust emissions must be conducted to verify that the operating requirements established in the permit achieve the applicable standards of §§ 266.104, 266.105, 266.106, and 266.107.

(ii) All monitors shall record data in units corresponding to the permit limit unless otherwise specified in the permit.

(iii) The boiler or industrial furnace and associated equipment (pumps, valves, pipes, fuel storage tanks, etc.) must be subjected to thorough visual inspection when it contains hazardous waste, at least daily for leaks, spills, fugitive emissions, and signs of tampering.

(iv) The automatic hazardous waste feed cutoff system and associated alarms must be tested at least once every 7 days when hazardous waste is burned to verify operability, unless the applicant demonstrates to the Director that weekly inspections will unduly restrict or upset operations and that less frequent inspections will be adequate. At a minimum, operational testing must be conducted at least once every 30 days.

(v) These monitoring and inspection data must be recorded and the records must be placed in the operating record required by § 264.73 of this chapter.

(9) *Direct transfer to the burner.* If hazardous waste is directly transferred from a transport vehicle to a boiler or industrial furnace without the use of a storage unit, the owner and operator must comply with § 266.111.

(10) *Recordkeeping.* The owner or operator must keep in the operating record of the facility all information and data required by this section for not less than three years.

(11) *Closure.* At closure, the owner or operator must remove all hazardous waste and hazardous waste residues (including, but not limited to, ash, scrubber waters, and scrubber sludges) from the boiler or industrial furnace.

(Approved by the Office of Management and Budget under control number 2050-0073)

#### § 266.103 Interim status standards for burners.

(a) *Purpose, scope, applicability.*—(1) *General.* (i) The purpose of this section is to establish minimum national standards for owners and operators of "existing" boilers and industrial furnaces that burn hazardous waste where such standards define the

acceptable management of hazardous waste during the period of interim status. The standards of this section apply to owners and operators of existing facilities until either a permit is issued under § 266.102(d) or until closure responsibilities identified in this section are fulfilled.

(ii) *Existing or in existence* means a boiler or industrial furnace that on or before August 21, 1991 is either in operation burning or processing hazardous waste or for which construction (including the ancillary facilities to burn to process the hazardous waste) has commenced. A facility has commenced construction if the owner or operator has obtained the Federal, State, and local approvals or permits necessary to begin physical construction; and either:

(A) A continuous on-site, physical construction program has begun; or

(B) The owner or operator has entered into contractual obligations—which cannot be canceled or modified without substantial loss—for physical construction of the facility to be completed within a reasonable time.

(iii) If a boiler or industrial furnace is located at a facility that already has a permit or interim status, then the facility must comply with the applicable regulations dealing with permit modifications in § 270.42 or changes in interim status in § 270.72 of this chapter.

(2) *Exemptions.* The requirements of this section do not apply to hazardous waste and facilities exempt under §§ 266.100(b), or 266.108.

(3) *Prohibition or burning dioxin-listed wastes.* Hazardous waste listed for dioxin or derived from any of the following dioxin-listed wastes may not be burned in a boiler or industrial furnace operating under interim status: EPA Hazardous Waste Numbers F020, F021, F022, F023, F026, or F027.

(4) *Applicability of part 265 standards.* Owners and operators of boilers and industrial furnaces that burn hazardous waste and are operating under interim status are subject to the following provisions of part 265 of this chapter, except as provided otherwise by this section:

(i) In subpart A (General), § 265.4;

(ii) In subpart B (General facility standards), §§ 265.11–265.17;

(iii) In subpart C (Preparedness and prevention), §§ 265.31–265.37;

(iv) In subpart D (Contingency plan and emergency procedures), §§ 265.51–265.56;

(v) In subpart E (Manifest system, recordkeeping, and reporting), §§ 265.71–265.77, except that §§ 265.71, 265.72, and 265.76 do not apply to owners and operators of on-site

facilities that do not receive any hazardous waste from off-site sources;

(vi) In subpart G (Closure and post-closure), §§ 265.111–265.115;

(vii) In subpart H (Financial requirements), §§ 265.141, 265.142, 265.143, and 265.147–265.151, except that States and the Federal government are exempt from the requirements of subpart H; and

(viii) Subpart BB (Air emission standards for equipment leaks), except § 265.1050(a).

(5) *Special requirements for furnaces.* The following controls apply during interim status to industrial furnaces (e.g., kilns, cupolas) that feed hazardous waste for a purpose other than solely as an ingredient (see paragraph (a)(5)(ii) of this section) at any location other than the hot end where products are normally discharged and where fuels are normally fired:

(i) *Controls.* (A) The hazardous waste shall be fed at a location where combustion gas temperatures are at least 1800 °F;

(B) The owner or operator must determine that adequate oxygen is present in combustion gases to combust organic constituents in the waste and retain documentation of such determination in the facility record;

(C) For cement kiln systems, the hazardous waste shall be fed into the kiln; and

(D) The hydrocarbon controls of § 266.104(c) or paragraph (c)(7)(ii) of this section apply upon certification of compliance under paragraph (c) of this section irrespective of the CO level achieved during the compliance test.

(ii) *Burning hazardous waste solely as an ingredient.* A hazardous waste is burned for a purpose other than solely as an ingredient if it meets either of these criteria:

(A) The hazardous waste has a total concentration of nonmetal compounds listed in part 261, appendix VIII, of this chapter exceeding 500 ppm by weight as-generated (and, so, is considered to be burned for destruction); or

(B) The hazardous waste has a heating value of 5,000 Btu/lb or more, as-generated or as-fired (and, so, is considered to be burned as fuel).

(6) *Restrictions on burning hazardous waste that is not a fuel.* Prior to certification of compliance under paragraph (c) of this section, owners and operators shall not feed hazardous waste (other than hazardous waste burned solely as an ingredient) in a boiler or industrial furnace that has a heating value less than 5,000 Btu/lb, as-generated, except for purposes of compliance testing (or testing prior to

compliance testing) for a total period of time not to exceed 720 hours.

(7) *Direct transfer to the burner.* If hazardous waste is directly transferred from a transport vehicle to a boiler or industrial furnace without the use of a storage unit, the owner and operator must comply with § 266.111.

(b) *Certification of precompliance—*

(1) *General.* The owner or operator must provide complete and accurate information specified in paragraph (b)(2) of this section to the Director on or before August 21, 1991, and must establish limits for the operating parameters specified in paragraph (b)(3) of this section. Such information is termed a “certification of precompliance” and constitutes a certification that the owner or operator has determined that, when the facility is operated within the limits specified in paragraph (b)(3) of this section, the owner or operator believes that, using best engineering judgment, emissions of particulate matter, metals, and HCl and Cl<sub>2</sub> are not likely to exceed the limits provided by §§ 266.105, 266.106, and 266.107. The facility may burn hazardous waste only under the operating conditions that the owner or operator establishes under paragraph (b)(3) of this section until the owner or operator submits a revised certification of precompliance under paragraph (b)(8) of this section or a certification of compliance under paragraph (c) of this section, or until a permit is issued.

(2) *Information required.* The following information must be submitted with the certification of precompliance to support the determination that the limits established for the operating parameters identified in paragraph (b)(3) of this section are not likely to result in an exceedance of the allowable emission rates for particulate matter, metals, and HCl and Cl<sub>2</sub>:

(i) General facility information:

(A) EPA facility ID number;

(B) Facility name, contact person, telephone number, and address;

(C) Description of boilers and industrial furnaces burning hazardous waste, including type and capacity of device;

(D) A scaled plot plan showing the entire facility and location of the boilers and industrial furnaces burning hazardous waste; and

(E) A description of the air pollution control system on each device burning hazardous waste, including the temperature of the flue gas at the inlet to the particulate matter control system.

(ii) Except for facilities complying with the Tier I feed rate screening limits for metals or total chlorine and chloride

provided by §§ 266.106 (b) or (e) and 266.107 (b)(1) or (e) respectively, the estimated uncontrolled (at the inlet to the air pollution control system) emissions of particulate matter, each metal controlled by § 266.106, and hydrogen chloride and chlorine, and the following information to support such determinations:

(A) The feed rate (lb/hr) of ash, chlorine, antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, silver, thallium in each feedstream (hazardous waste, other fuels, industrial furnace feedstocks);

(B) The estimated partitioning factor to the combustion gas for the materials identified in paragraph (b)(ii)(A) of this section and the basis for the estimate and an estimate of the partitioning to HCl and Cl<sub>2</sub> of total chloride and chlorine in feed materials. To estimate the partitioning factor, the owner or operator must use either best engineering judgment or the procedures specified in appendix IX of this part.

(C) For industrial furnaces that recycle collected particulate matter (PM) back into the furnace and that will certify compliance with the metals emissions standards under paragraph (c)(3)(ii)(A), the estimated enrichment factor for each metal. To estimate the enrichment factor, the owner or operator must use either best engineering judgment or the procedures specified in "Alternative Methodology for Implementing Metals Controls" in appendix IX of this part.

(D) If best engineering judgment is used to estimate partitioning factors or enrichment factors under paragraphs (b)(ii)(B) or (b)(ii)(C) respectively, the basis for the judgment. When best engineering judgment is used to develop or evaluate data or information and make determinations under this section, the determinations must be made by a qualified, registered professional engineer and a certification of his/her determinations in accordance with § 270.11(d) of this chapter must be provided in the certification of precompliance.

(iii) For facilities complying with the Tier I feed rate screening limits for metals or total chlorine and chloride provided by §§ 266.106 (b) or (e) and 266.107 (b)(1) or (e), the feed rate (lb/hr) of total chloride and chlorine, antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, silver, and thallium in each feedstream (hazardous waste, other fuels, industrial furnace feedstocks).

(iv) For facilities complying with the Tier II or Tier III emission limits for metals or HCl and Cl<sub>2</sub> (under §§ 266.106 (c) or (d) or 266.107(b)(2) or (c)), the

estimated controlled (outlet of the air pollution control system) emissions rates of particulate matter, each metal controlled by § 266.106, and HCl and Cl<sub>2</sub>, and the following information to support such determinations:

(A) The estimated air pollution control system (APCS) removal efficiency for particulate matter, HCl, Cl<sub>2</sub>, antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, silver, and thallium.

(B) To estimate APCS removal efficiency, the owner or operator must use either best engineering judgment or the procedures prescribed in appendix IX of this part.

(C) If best engineering judgment is used to estimate APCS removal efficiency, the basis for the judgment. Use of best engineering judgment must be in conformance with provisions of paragraph (b)(2)(ii)(D) of this section.

(v) Determination of allowable emissions rates for HCl, Cl<sub>2</sub>, antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, silver, and thallium, and the following information to support such determinations:

(A) For all facilities:

(1) Physical stack height;

(2) Good engineering practice stack height as defined by 40 CFR 51.100(ii);

(3) Maximum flue gas flow rate;

(4) Maximum flue gas temperature;

(5) Attach a US Geological Service topographic map (or equivalent) showing the facility location and surrounding land within 5 km of the facility.

(6) Identify terrain type: complex or noncomplex; and

(7) Identify land use: urban or rural.

(B) For owners and operators using Tier III site specific dispersion modeling to determine allowable levels under § 266.106(d) or § 266.107(c), or adjusted Tier I feed rate screening limits under §§ 266.106(e) or 266.107(e):

(1) Dispersion model and version used;

(2) Source of meteorological data;

(3) The dilution factor in micrograms per cubic meter per gram per second of emissions for the maximum annual average off-site (unless on-site is required) ground level concentration (MEI location); and

(4) Indicate the MEI location on the map required under paragraph (b)(2)(v)(A)(5);

(vi) For facilities complying with the Tier II or III emissions rate controls for metals or HCl and Cl<sub>2</sub>, a comparison of the estimated controlled emissions rates determined under paragraph (b)(2)(iv) with the allowable emission rates determined under paragraph (b)(2)(v);

(vii) For facilities complying with the Tier I (or adjusted Tier I) feed rate

screening limits for metals or total chloride and chlorine, a comparison of actual feed rates of each metal and total chlorine and chloride determined under paragraph (b)(2)(iii) of this section to the Tier I allowable feed rates; and

(viii) For industrial furnaces that feed hazardous waste for any purpose other than solely as an ingredient (as defined by paragraph (a)(5)(ii) of this section) at any location other than the product discharge end of the device, documentation of compliance with the requirements of paragraphs (a)(5)(i) (A), (B), and (C) of this section.

(ix) For industrial furnaces that recycle collected particulate matter (PM) back into the furnace and that will certify compliance with the metals emissions standards under paragraph (c)(3)(ii) (A) of this section:

(A) The applicable particulate matter standard in lb/hr; and

(B) The precompliance limit on the concentration of each metal in collected PM.

(3) *Limits on operating conditions.* The owner and operator shall establish limits on the following parameters consistent with the determinations made under paragraph (b)(2) of this section and certify (under provisions of paragraph (b)(9) of this section) to the Director that the facility will operate within the limits during interim status when there is hazardous waste in the unit until revised certification of precompliance under paragraph (b)(8) of this section or certification of compliance under paragraph (c) of this section:

(i) Feed rate of total hazardous waste and (unless complying with the Tier I or adjusted Tier I metals feed rate screening limits under § 266.106(b) or (e)) pumpable hazardous waste;

(ii) Feed rate of each metal in the following feed streams;

(A) Total feed streams, except that industrial furnaces that comply with the alternative metals implementation approach under paragraph (b)(4) of this section must specify limits on the concentration of each metal in collected particulate matter in lieu of feed rate limits for total feedstreams;

(B) Total hazardous waste feed; and

(C) Total pumpable hazardous waste feed, unless complying with the Tier I or adjusted Tier I metals feed rate screening limits under § 266.106 (b) or (e);

(iii) Total feed rate of chlorine and chloride in total feed streams;

(iv) Total feed rate of ash in total feed streams, except that the ash feed rate for cement kilns and light-weight aggregate kilns is not limited; and

(v) Maximum production rate of the device in appropriate units when producing normal product.

(4) *Operating requirements for furnaces that recycle PM.* Owners and operators of furnaces that recycle collected particulate matter (PM) back into the furnace and that will certify compliance with the metals emissions controls under paragraph (c)(3)(ii)(A) of this section must comply with the special operating requirements provided in "Alternative Methodology for Implementing Metals Controls" in appendix IX of this part.

(5) *Measurement of feed rates and production rate—(i) General requirements.* Limits on each of the parameters specified in paragraph (b)(3) of this section (except for limits on metals concentrations in collected particulate matter (PM) for industrial furnaces that recycle collected PM) shall be established and continuously monitored under either of the following methods:

(A) *Instantaneous limits.* A limit for a parameter may be established and continuously monitored on an instantaneous basis (i.e., the value that occurs at any time) not to be exceeded at any time; or

(B) *Hourly rolling average limits.* A limit for a parameter may be established and continuously monitored on an hourly rolling average basis defined as follows:

(1) A continuous monitor is one which continuously samples the regulated parameter without interruption, and evaluates the detector response at least once each 15 seconds, and computes and records the average value at least every 60 seconds.

(2) An hourly rolling average is the arithmetic mean of the 60 most recent 1-minute average values recorded by the continuous monitoring system.

(ii) *Rolling average limits for carcinogenic metals and lead.* Feed rate limits for the carcinogenic metals (arsenic, beryllium, cadmium, and chromium) and lead may be established either on an hourly rolling average basis as prescribed by paragraph (b)(5)(i)(B) or on (up to) a 24 hour rolling average basis. If the owner or operator elects to use an averaging period from 2 to 24 hours:

(A) The feed rate of each metal shall be limited at any time to ten times the feed rate that would be allowed on a hourly rolling average basis;

(B) The continuous monitor shall meet the following specifications:

(1) A continuous monitor is one which continuously samples the regulated parameter without interruption, and evaluates the detector response at least

once each 15 seconds, and computes and records the average value at least every 60 seconds.

(2) The rolling average for the selected averaging period is defined as the arithmetic mean of the most recent one hour block averages for the averaging period. A one hour block average is the arithmetic mean of the one minute averages recorded during the 60-minute period beginning at one minute after the beginning of preceding clock hour.

(iii) *Feed rate limits for metals, total chloride and chlorine, and ash.* Feed rate limits for metals, total chlorine and chloride, and ash are established and monitored by knowing the concentration of the substance (i.e., metals, chloride/chlorine, and ash) in each feedstream and the flow rate of the feedstream. To monitor the feed rate of these substances, the flow rate of each feedstream must be monitored under the continuous monitoring requirements of paragraphs (b)(5) (i) and (ii) of this section.

(6) *Public notice requirements at precompliance.* On or before [the effective date of this rule] the owner or operator must submit a notice with the following information for publication in a major local newspaper of general circulation and send a copy of the notice to the appropriate units of State and local government. The owner and operator must provide to the Director with the certification of precompliance evidence of submitting the notice for publication. The notice, which shall be entitled "Notice of Certification of Precompliance with Hazardous Waste Burning Requirements of 40 CFR 266.103(b)", must include:

(i) Name and address of the owner and operator of the facility as well as the location of the device burning hazardous waste;

(ii) Date that the certification of precompliance is submitted to the Director;

(iii) Brief description of the regulatory process required to comply with the interim status requirements of this section including required emissions testing to demonstrate conformance with emissions standards for organic compounds, particulate matter, metals, and HCl and Cl<sub>2</sub>;

(iv) Types and quantities of hazardous waste burned including, but not limited to, source, whether solids or liquids, as well as an appropriate description of the waste;

(v) Type of device(s) in which the hazardous waste is burned including a physical description and maximum production rate of each device;

(vi) Types and quantities of other fuels and industrial furnace feedstocks fed to each unit;

(vii) Brief description of the basis for this certification of precompliance as specified in paragraph (b)(2) of this section;

(viii) Locations where the operating record for the facility can be viewed and copied by interested parties. These locations shall at a minimum include:

(A) The Agency office where the supporting documentation was submitted or another location designated by the Director; and

(B) The facility site where the device is located;

(ix) Notification of the establishment of a facility mailing list whereby interested parties shall notify the Agency that they wish to be placed on the mailing list to receive future information and notices about this facility; and

(x) Location (mailing address) of the applicable EPA Regional Office, Hazardous Waste Division, where further information can be obtained on EPA regulation of hazardous waste burning.

(7) *Monitoring other operating parameters.* When the monitoring systems for the operating parameters listed in paragraphs (c)(1)(v through xiii) of this section are installed and operating in conformance with vendor specifications or (for CO, HC, and oxygen) specifications provided by appendix IX of this part, as appropriate, the parameters shall be continuously monitored and records shall be maintained in the operating record.

(8) *Revised certification of precompliance.* The owner or operator may revise at any time the information and operating conditions documented under paragraphs (b)(2) and (b)(3) of this section in the certification of precompliance by submitting a revised certification of precompliance under procedures provided by those paragraphs.

(i) The public notice requirements of paragraph (b)(6) of this section do not apply to recertifications.

(ii) The owner and operator must operate the facility within the limits established for the operating parameters under paragraph (b)(3) of this section until a revised certification is submitted under this paragraph or a certification of compliance is submitted under paragraph (c) of this section.

(9) *Certification of precompliance statement.* The owner or operator must include the following signed statement with the certification of precompliance submitted to the Director:

"I certify under penalty of law that this information was prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gathered and evaluated the information and supporting documentation. Copies of all emissions tests, dispersion modeling results and other information used to determine conformance with the requirements of § 266.103(b) are available at the facility and can be obtained from the facility contact person listed above. Based on my inquiry of the person or persons who manages the facility, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I also acknowledge that the operating limits established in this certification pursuant to § 266.103(b) (3) and (4) are enforceable limits at which the facility can legally operate during interim status until: (1) A revised certification of precompliance is submitted, (2) a certification of compliance is submitted, or (3) an operating permit is issued."

(c) *Certification of compliance.* On or before August 21, 1992, the owner or operator shall conduct emissions testing to document compliance with the emissions standards of §§ 266.104 (b) through (e), 266.105, 266.106, 266.107, and paragraph (a)(5)(i)(D) of this section, under the procedures prescribed by this paragraph, except under extensions of time provided by paragraph (c)(7). Based on the compliance test, the owner or operator shall submit to the Director a complete and accurate "certification of compliance" (under paragraph (c)(4) of this section) with those emission standards establishing limits on the operating parameters specified in paragraph (c)(1).

(1) *Limits on operating conditions.* The owner or operator shall establish limits on the following parameters based on operations during the compliance test (under procedures prescribed in paragraph (c)(4)(iv) of this section) and include these limits with the certification of compliance. The boiler or industrial furnace must be operated in accordance with these operating limits at all times when there is hazardous waste in the unit until an operating permit is issued.

(i) Feed rate of total hazardous waste and (unless complying with the Tier I or adjusted Tier I metals feed rate screening limits under § 266.106 (b) or (e)), pumpable hazardous waste;

(ii) Feed rate of each metal in the following feedstreams:

(A) Total feedstreams, except that industrial furnaces that must comply with the alternative metals

implementation approach under paragraph (c)(3)(ii) of this section must specify limits on the concentration of each metal in collected particulate matter in lieu of feed rate limits for total feedstreams;

(B) Total hazardous waste feed (unless complying with the Tier I or adjusted Tier I metals feed rate screening limits under § 266.106 (b) or (e)); and

(C) Total pumpable hazardous waste feed:

(iii) Total feed rate of chlorine and chloride in total feed streams;

(iv) Total feed rate of ash in total feed streams, except that the ash feed rate for cement kilns and light-weighted aggregate kilns is not limited;

(v) Carbon monoxide concentration, and where required, hydrocarbon concentration in stack gas. When complying with the CO controls of § 266.104(b), the CO limit is 100 ppmv, and when complying with the HC controls of § 266.104(c), the HC limit is 20 ppmv. When complying with the CO controls of § 266.104(c), the CO limit is established based on the compliance test;

(vi) Maximum production rate of the device in appropriate units when producing normal product;

(vii) Maximum combustion chamber temperature where the temperature measurement is as close to the combustion zone as possible and is upstream of any quench water injection, (unless complying with the Tier I or adjusted Tier I metals feed rate screening limits under § 266.106 (b) or (e));

(viii) Maximum flue gas temperature entering a particulate matter control device (unless complying with Tier I or adjusted Tier I metals feed rate screening limits under § 266.106 (b) or (e));

(ix) For systems using wet scrubbers, including wet ionizing scrubbers (unless complying with the Tier I or adjusted Tier I metals feed rate screening limits under § 266.106 (b) or (e) and the total chlorine and chloride feed rate screening limits under § 266.107(b) (1) or (e));

(A) Minimum liquid to flue gas ratio;

(B) Minimum scrubber blowdown from the system or maximum suspended solids content of scrubber water; and

(C) Minimum pH level of the scrubber water;

(x) For systems using venturi scrubbers, the minimum differential gas pressure across the venturi (unless complying with the Tier I or adjusted Tier I metals feed rate screening limits under § 266.106 (b) or (e) and the total chlorine

and chloride feed rate screening limits under § 266.107(b) (1) or (e));

(xi) For system using dry scrubbers (unless complying with the Tier I or adjusted Tier I metals feed rate screening limits under § 266.106 (b) or (e) and the total chlorine and chloride feed rate screening limits under § 266.107(b) (1) or (e));

(A) Minimum caustic feed rate; and

(B) Maximum flue gas flow rate;

(xii) For systems using wet ionizing scrubbers or electrostatic precipitators (unless complying with the Tier I or adjusted Tier I metals feed rate screening limits under § 266.106 (b) or (e) and the total chlorine and chloride feed rate screening limits under § 266.107(b) (1) or (e));

(A) Minimum electrical power in kilovolt amperes (kVA) to the precipitator plates; and

(B) Maximum flue gas flow rate;

(xiii) For systems using fabric filters (baghouses), the minimum pressure drop (unless complying with the Tier I or adjusted Tier I metals feed rate screening limits under § 266.106 (b) or (e) and the total chlorine and chloride feed rate screening limits under § 266.107(b)(1) or (e)).

(2) *Prior notice of compliance testing.* At least 30 days prior to the compliance testing required by paragraph (c)(3) of this section, the owner or operator shall notify the Director and submit the following information:

(i) General facility information including:

(A) EPA facility ID number;

(B) Facility name, contact person, telephone number, and address;

(C) Person responsible for conducting compliance test, including company name, address, and telephone number, and a statement of qualifications;

(D) Planned date of the compliance test;

(ii) Specific information on each device to be tested including:

(A) Description of boiler or industrial furnace;

(B) A scaled plot plan showing the entire facility and location of the boiler or industrial furnace;

(C) A description of the air pollution control system;

(D) Identification of the continuous emission monitors that are installed, including:

(1) Carbon monoxide monitor;

(2) Oxygen monitor;

(3) Hydrocarbon monitor, specifying the minimum temperature of the system and, if the temperature is less than 150 °C, an explanation of why a heated system is not used (see paragraph (c)(5)

of this section) and a brief description of the sample gas conditioning system;

(E) Indication of whether the stack is shared with another device that will be in operation during the compliance test;

(F) Other information useful to an understanding of the system design or operation.

(iii) Information on the testing planned, including a complete copy of the test protocol and Quality Assurance/Quality Control (QA/QC) plan, and a summary description for each test providing the following information at a minimum:

(A) Purpose of the test (e.g., demonstrate compliance with emissions of particulate matter); and

(B) Planned operating conditions, including levels for each pertinent parameter specified in paragraph (c)(1) of this section.

(3) *Compliance testing*—(i) *General*. Compliance testing must be conducted under conditions for which the owner or operator has submitted a certification of precompliance under paragraph (b) of this section and under conditions established in the notification of compliance testing required by paragraph (c)(2) of this section.

(ii) *Special requirements for industrial furnaces that recycle collected PM*.

Owners and operators of industrial furnaces that recycle back into the furnace particulate matter (PM) from the air pollution control system must comply with one of the following procedures for testing to determine compliance with the metals standards of § 266.106(c) or (d):

(A) The special testing requirements prescribed in "Alternative Method for Implementing Metals Controls" in appendix IX of this part; or

(B) Stack emissions testing for a minimum of 6 hours each day while hazardous waste is burned during interim status. The testing must be conducted when burning normal hazardous waste for that day at normal feed rates for that day and when the air pollution control system is operated under normal conditions. During interim status, hazardous waste analysis for metals content must be sufficient for the owner or operator to determine if changes in metals content may affect the ability of the facility to meet the metals emissions standards established under § 266.106(c) or (d). Under this option, operating limits (under paragraph (c)(1) of this section) must be established during compliance testing under paragraph (c)(3) of this section only on the following parameters:

(1) Feed rate of total hazardous waste;

(2) Total feed rate of chlorine and chloride in total feed streams;

(3) Total feed rate of ash in total feed streams, except that the ash feed rate for cement kilns and light-weight aggregate kilns is not limited;

(4) Carbon monoxide concentration, and where required, hydrocarbon concentration in stack gas;

(5) Maximum production rate of the device in appropriate units when producing normal product; or

(C) Conduct compliance testing to determine compliance with the metals standards to establish limits on the operating parameters of paragraph (c)(1) of this section only after the kiln system has been conditioned to enable it to reach equilibrium with respect to metals fed into the system and metals emissions. During conditioning, hazardous waste and raw materials having the same metals content as will be fed during the compliance test must be fed at the feed rates that will be fed during the compliance test.

(iii) *Conduct of compliance testing*.

(A) If compliance with all applicable emissions standards of §§ 266.104 through 266.107 is not demonstrated simultaneously during a set of test runs, the operating conditions of additional test runs required to demonstrate compliance with remaining emissions standards must be as close as possible to the original operating conditions.

(B) Prior to obtaining test data for purposes of demonstrating compliance with the applicable emissions standards of §§ 266.104 through 266.107 or establishing limits on operating parameters under this section, the facility must operate under compliance test conditions for a sufficient period to reach steady-state operations. Industrial furnaces that recycle collected particulate matter back into the furnace and that comply with paragraphs (c)(3)(ii)(A) or (B) of this section, however, need not reach steady state conditions with respect to the flow of metals in the system prior to beginning compliance testing for metals.

(C) Compliance test data on the level of an operating parameter for which a limit must be established in the certification of compliance must be obtained during emissions sampling for the pollutant(s) (i.e., metals, PM, HCl/Cl<sub>2</sub>, organic compounds) for which the parameter must be established as specified by paragraph (c)(1) of this section.

(4) *Certification of compliance*.

Within 90 days of completing compliance testing, the owner or operator must certify to the Director compliance with the emissions standards of §§ 266.104(b), (c), and (e), 266.105, 266.106, 266.107, and paragraph (a)(5)(i)(D) of this section. The

certification of compliance must include the following information:

(i) General facility and testing information including:

(A) EPA facility ID number;

(B) Facility name, contact person, telephone number, and address;

(C) Person responsible for conducting compliance test, including company name, address, and telephone number, and a statement of qualifications;

(D) Date(s) of each compliance test;

(E) Description of boiler or industrial furnace tested;

(F) Person responsible for quality assurance/quality control (QA/QC), title, and telephone number, and statement that procedures prescribed in the QA/QC plan submitted under § 266.103(c)(2)(iii) have been followed, or a description of any changes and an explanation of why changes were necessary.

(G) Description of any changes in the unit configuration prior to or during testing that would alter any of the information submitted in the prior notice of compliance testing under paragraph (c)(2) of this section, and an explanation of why the changes were necessary;

(H) Description of any changes in the planned test conditions prior to or during the testing that alter any of the information submitted in the prior notice of compliance testing under paragraph (c)(2) of this section, and an explanation of why the changes were necessary; and

(I) The complete report on results of emissions testing.

(ii) Specific information on each test including:

(A) Purpose(s) of test (e.g., demonstrate conformance with the emissions limits for particulate matter, metals, HCl, Cl<sub>2</sub>, and CO)

(B) Summary of test results for each run and for each test including the following information:

(1) Date of run;

(2) Duration of run;

(3) Time-weighted average and highest hourly rolling average CO level for each run and for the test;

(4) Highest hourly rolling average HC level, if HC monitoring is required for each run and for the test;

(5) If dioxin and furan testing is required under § 266.104(e), time-weighted average emissions for each run and for the test of chlorinated dioxin and furan emissions, and the predicted maximum annual average ground level concentration of the toxicity equivalency factor;

(6) Time-weighted average particulate matter emissions for each run and for the test;

(7) Time-weighted average HCl and Cl<sub>2</sub> emissions for each run and for the test;

(8) Time-weighted average emissions for the metals subject to regulation under § 266.106 for each run and for the test; and

(9) QA/QC results.

(iii) Comparison of the actual emissions during each test with the emissions limits prescribed by §§ 266.104 (b), (c), and (e), 266.105, 266.106, and 266.107 and established for the facility in the certification of precompliance under paragraph (b) of this section.

(iv) Determination of operating limits based on all valid runs of the compliance test for each applicable parameter listed in paragraph (c)(1) of this section using either of the following procedures:

(A) *Instantaneous limits.* A parameter may be measured and recorded on an instantaneous basis (i.e., the value that occurs at any time) and the operating limit specified as the time-weighted average during all runs of the compliance test; or

(B) *Hourly rolling average basis.* (1) The limit for a parameter may be established and continuously monitored on an hourly rolling average basis defined as follows:

(i) A continuous monitor is one which continuously samples the regulated parameter without interruption, and evaluates the detector response at least once each 15 seconds, and computes and records the average value at least every 60 seconds.

(ii) An hourly rolling average is the arithmetic mean of the 60 most recent 1-minute average values recorded by the continuous monitoring system.

(2) The operating limit for the parameter shall be established based on compliance test data as the average over all test runs of the highest hourly rolling average value for each run.

(C) *Rolling average limits for carcinogenic metals and lead.* Feed rate limits for the carcinogenic metals (i.e., arsenic, beryllium, cadmium and chromium) and lead may be established either on an hourly rolling average basis as prescribed by paragraph (c)(4)(iv)(B) of this section or on (up to) a 24 hour rolling average basis. If the owner or operator elects to use an averaging period from 2 to 24 hours:

(1) The feed rate of each metal shall be limited at any time to ten times the feed rate that would be allowed on a hourly rolling average basis;

(2) The continuous monitor shall meet the following specifications:

(i) A continuous monitor is one which continuously samples the regulated

parameter without interruption, and evaluates the detector response at least once each 15 seconds, and computes and records the average value at least every 60 seconds.

(ii) The rolling average for the selected averaging period is defined as the arithmetic mean of the most recent one hour block averages for the averaging period. A one hour block average is the arithmetic mean of the one minute averages recorded during the 60-minute period beginning at one minute after the beginning of preceding clock hour; and

(3) The operating limit for the feed rate of each metal shall be established based on compliance test data as the average over all test runs of the highest hourly rolling average feed rate for each run.

(D) *Feed rate limits for metals, total chloride and chlorine, and ash.* Feed rate limits for metals, total chlorine and chloride, and ash are established and monitored by knowing the concentration of the substance (i.e., metals, chloride/chlorine, and ash) in each feedstream and the flow rate of the feedstream. To monitor the feed rate of these substances, the flow rate of each feedstream must be monitored under the continuous monitoring requirements of paragraphs (c)(4)(iv) (A) through (C) of this section.

(v) *Certification of compliance statement.* The following statement shall accompany the certification of compliance:

"I certify under penalty of law that this information was prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gathered and evaluated the information and supporting documentation. Copies of all emissions tests, dispersion modeling results and other information used to determine conformance with the requirements of § 266.103(c) are available at the facility and can be obtained from the facility contact person listed above. Based on my inquiry of the person or persons who manages the facility, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I also acknowledge that the operating conditions established in this certification pursuant to § 266.103(c)(4)(iv) are enforceable limits at which the facility can legally operate during interim status until a revised certification of compliance is submitted."

(5) *Special requirements for HC monitoring systems.* When an owner or operator is required to comply with the hydrocarbon (HC) controls provided by §§ 266.104(c) or paragraph (a)(5)(i)(D) of

this section, a conditioned gas monitoring system may be used in conformance with specifications provided in appendix IX of this part provided that the owner or operator submits a certification of compliance without using extensions of time provided by paragraph (c)(7) of this section.

(6) *Special operating requirements for industrial furnaces that recycle collected PM.* Owners and operators of industrial furnaces that recycle back into the furnace particulate matter (PM) from the air pollution control system must:

(i) When complying with the requirements of paragraph (c)(3)(ii)(A) of this section, comply with the operating requirements prescribed in "Alternative Method to Implement the Metals Controls" in appendix IX of this part; and

(ii) When complying with the requirements of paragraph (c)(3)(ii)(B) of this section, comply with the operating requirements prescribed by that paragraph.

(7) *Extensions of time.* (i) If the owner or operator does not submit a complete certification of compliance for all of the applicable emissions standards of §§ 266.104, 266.105, 266.106, and 266.107 by August 21, 1992, he/she must either:

(A) Stop burning hazardous waste and begin closure activities under paragraph (1) of this section for the hazardous waste portion of the facility; or

(B) Limit hazardous waste burning to a total period of 720 hours for the period of time beginning August 21, 1992, submit a notification to the Director by August 21, 1992 stating that the facility is operating under restricted interim status and intends to resume burning hazardous waste, and submit a complete certification of compliance by August 23, 1993; or

(C) Obtain a case-by-case extension of time under paragraph (c)(7)(ii) of this section.

(ii) The owner or operator may request a case-by-case extension of time to extend any time limit provided by paragraph (c) of this section if compliance with the time limit is not practicable for reasons beyond the control of the owner or operator.

(A) In granting an extension, the Director may apply conditions as the facts warrant to ensure timely compliance with the requirements of this section and that the facility operates in a manner that does not pose a hazard to human health and the environment;

(B) When an owner and operator request an extension of time to enable them to obtain a RCRA operating permit

because the facility cannot meet the HC limit of § 266.104(c) of this chapter:

(j) The Director shall, in considering whether to grant the extension:

(i) Determine whether the owner and operator have submitted in a timely manner a complete Part B permit application that includes information required under § 270.22(b) of this chapter; and

(ii) Consider whether the owner and operator have made a good faith effort to certify compliance with all other emission controls, including the controls on dioxins and furans of § 266.104(e) and the controls on PM, metals, and HCl/Cl<sub>2</sub>.

(2) If an extension is granted, the Director shall, as a condition of the extension, require the facility to operate under flue gas concentration limits on CO and HC that, based on available information, including information in the part B permit application, are baseline CO and HC levels as defined by § 266.104(f)(1).

(8) *Revised certification of compliance.* The owner or operator may submit at any time a revised certification of compliance (recertification of compliance) under the following procedures:

(i) Prior to submittal of a revised certification of compliance, hazardous waste may not be burned for more than a total of 720 hours under operating conditions that exceed those established under a current certification of compliance, and such burning may be conducted only for purposes of determining whether the facility can operate under revised conditions and continue to meet the applicable emissions standards of §§ 266.104, 266.105, 266.106, and 266.107;

(ii) At least 30 days prior to first burning hazardous waste under operating conditions that exceed those established under a current certification of compliance, the owner or operator shall notify the Director and submit the following information:

(A) EPA facility ID number, and facility name, contact person, telephone number, and address;

(B) Operating conditions that the owner or operator is seeking to revise and description of the changes in facility design or operation that prompted the need to seek to revise the operating conditions;

(C) A determination that when operating under the revised operating conditions, the applicable emissions standards of §§ 266.104, 266.105, 266.106, and 266.107 are not likely to be exceeded. To document this determination, the owner or operator shall submit the applicable information

required under paragraph (b)(2) of this section; and

(D) Complete emissions testing protocol for any pretesting and for a new compliance test to determine compliance with the applicable emissions standards of §§ 266.104, 266.105, 266.106, and 266.107 when operating under revised operating conditions. The protocol shall include a schedule of pre-testing and compliance testing. If the owner and operator revises the scheduled date for the compliance test, he/she shall notify the Director in writing at least 30 days prior to the revised date of the compliance test;

(iii) Conduct a compliance test under the revised operating conditions and the protocol submitted to the Director to determine compliance with the applicable emissions standards of §§ 266.104, 266.105, 266.106, and 266.107; and

(iv) Submit a revised certification of compliance under paragraph (c)(4) of this section.

(d) *Periodic Recertifications.* The owner or operator must conduct compliance testing and submit to the Director a recertification of compliance under provisions of paragraph (c) of this section within three years from submitting the previous certification or recertification. If the owner or operator seeks to recertify compliance under new operating conditions, he/she must comply with the requirements of paragraph (c)(8) of this section.

(e) *Noncompliance with certification schedule.* If the owner or operator does not comply with the interim status compliance schedule provided by paragraphs (b), (c), and (d) of this section, hazardous waste burning must terminate on the date that the deadline is missed, closure activities must begin under paragraph (l) of this section, and hazardous waste burning may not resume except under an operating permit issued under § 270.66 of this chapter.

(f) *Start-up and shut-down.* Hazardous waste (except waste fed solely as an ingredient under the Tier I (or adjusted Tier I) feed rate screening limits for metals and chloride/chlorine) must not be fed into the device during start-up and shut-down of the boiler or industrial furnace, unless the device is operating within the conditions of operation specified in the certification of compliance.

(g) *Automatic waste feed cutoff.* During the compliance test required by paragraph (c)(3) of this section, and upon certification of compliance under paragraph (c) of this section, a boiler or industrial furnace must be operated with

a functioning system that automatically cuts off the hazardous waste feed when the applicable operating conditions specified in paragraphs (c)(1) (i) and (v through xiii) of this section deviate from those established in the certification of compliance. In addition:

(1) To minimize emissions of organic compounds, the minimum combustion chamber temperature (or the indicator of combustion chamber temperature) that occurred during the compliance test must be maintained while hazardous waste or hazardous waste residues remain in the combustion chamber, with the minimum temperature during the compliance test defined as either:

(i) If compliance with the combustion chamber temperature limit is based on a hourly rolling average, the minimum temperature during the compliance test is considered to be the average over all runs of the lowest hourly rolling average for each run; or

(ii) If compliance with the combustion chamber temperature limit is based on an instantaneous temperature measurement, the minimum temperature during the compliance test is considered to be the time-weighted average temperature during all runs of the test; and

(2) Operating parameters limited by the certification of compliance must continue to be monitored during the cutoff, and the hazardous waste feed shall not be restarted until the levels of those parameters comply with the limits established in the certification of compliance.

(h) *Fugitive emissions.* Fugitive emissions must be controlled by:

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

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

(3) An alternate means of control that the owner or operator can demonstrate provide fugitive emissions control equivalent to maintenance of combustion zone pressure lower than atmospheric pressure. Support for such demonstration shall be included in the operating record.

(i) *Changes.* A boiler or industrial furnace must cease burning hazardous waste when changes in combustion properties, or feed rates of the hazardous waste, other fuels, or industrial furnace feedstocks, or changes in the boiler or industrial furnace design or operating conditions deviate from the limits specified in the certification of compliance.

(j) *Monitoring and Inspections.* (1) The owner or operator must monitor and

record the following, at a minimum, while burning hazardous waste:

(i) Feed rates and composition of hazardous waste, other fuels, and industrial furnace feed stocks, and feed rates of ash, metals, and total chloride and chlorine as necessary to ensure conformance with the certification of precompliance or certification of compliance;

(ii) Carbon monoxide (CO), oxygen, and if applicable, hydrocarbons (HC), on a continuous basis at a common point in the boiler or industrial furnace downstream of the combustion zone and prior to release of stack gases to the atmosphere in accordance with the operating limits specified in the certification of compliance. CO, HC, and oxygen monitors must be installed, operated, and maintained in accordance with methods specified in Appendix IX of this part.

(iii) Upon the request of the Director, sampling and analysis of the hazardous waste (and other fuels and industrial furnace feed stocks as appropriate) and the stack gas emissions must be conducted to verify that the operating conditions established in the certification of precompliance or certification of compliance achieve the applicable standards of §§ 266.104, 266.105, 266.106, and 266.107.

(2) The boiler or industrial furnace and associated equipment (pumps, valves, pipes, fuel storage tanks, etc.) must be subjected to thorough visual inspection when they contain hazardous waste, at least daily for leaks, spills, fugitive emissions, and signs of tampering.

(3) The automatic hazardous waste feed cutoff system and associated alarms must be tested at least once every 7 days when hazardous waste is burned to verify operability, unless the owner or operator can demonstrate that weekly inspections will unduly restrict or upset operations and that less frequent inspections will be adequate. Support for such demonstration shall be included in the operating record. At a minimum, operational testing must be conducted at least once every 30 days.

(4) These monitoring and inspection data must be recorded and the records must be placed in the operating log.

(k) *Recordkeeping.* The owner or operator must keep in the operating record of the facility all information and data required by this section for a period of three years.

(l) *Closure.* At closure, the owner or operator must remove all hazardous waste and hazardous waste residues (including, but not limited to, ash, scrubber waters, and scrubber sludges) from the boiler or industrial furnace and

must comply with §§ 265.111–265.115 of this chapter.

(Approved by the Office of Management and Budget under control number 2050–0073)

**§ 266.104 Standards to control organic emissions.**

(a) *DRE standard*—(1) *General.* Except as provided in paragraph (a)(3) of this section, a boiler or industrial furnace burning hazardous waste must achieve a destruction and removal efficiency (DRE) of 99.99% for all organic hazardous constituents in the waste feed. To demonstrate conformance with this requirement, 99.99% DRE must be demonstrated during a trial burn for each principal organic hazardous constituent (POHC) designated (under paragraph (a)(2) of this section) in its permit for each waste feed. DRE is determined for each POHC from the following equation:

$$DRE = \left[ \frac{1 - W_{out}}{W_{in}} \right] \times 100$$

where:

$W_{in}$  = Mass feed rate of one principal organic hazardous constituent (POHC) in the hazardous waste fired to the boiler or industrial furnace; and

$W_{out}$  = Mass emission rate of the same POHC present in stack gas prior to release to the atmosphere.

(2) *Designation of POHCs.* Principal organic hazardous constituents (POHCs) are those compounds for which compliance with the DRE requirements of this section shall be demonstrated in a trial burn in conformance with procedures prescribed in § 270.66 of this chapter. One or more POHCs shall be designated by the Director for each waste feed to be burned. POHCs shall be designated based on the degree of difficulty of destruction of the organic constituents in the waste and on their concentrations or mass in the waste feed considering the results of waste analyses submitted with part B of the permit application. POHCs are most likely to be selected from among those compounds listed in part 261, appendix VIII of this chapter that are also present in the normal waste feed. However, if the applicant demonstrates to the Regional Administrator's satisfaction that a compound not listed in appendix VIII or not present in the normal waste feed is a suitable indicator of compliance with the DRE requirements of this section, that compound may be designated as a POHC. Such POHCs need not be toxic or organic compounds.

(3) *Dioxin-listed waste.* A boiler or industrial furnace burning hazardous waste containing (or derived from) EPA Hazardous Wastes Nos. F020, F021, F022, F023, F026, or F027 must achieve a destruction and removal efficiency (DRE) of 99.9999% for each POHC designated (under paragraph (a)(2) of this section) in its permit. This performance must be demonstrated on POHCs that are more difficult to burn than tetra-, penta-, and hexachlorodibenzo-*p*-dioxins and dibenzofurans. DRE is determined for each POHC from the equation in paragraph (a) of this section. In addition, the owner or operator of the boiler or industrial furnace must notify the Director of intent to burn EPA Hazardous Waste Nos. F020, F021, F022, F023, F026, or F027.

(4) *Automatic waiver of DRE trial burn.* Owners and operators of boilers operated under the special operating requirements provided by § 266.110 are considered to be in compliance with the DRE standard of paragraph (a)(1) of this section and are exempt from the DRE trial burn.

(5) *Low risk waste.* Owners and operators of boilers or industrial furnaces that burn hazardous waste in compliance with the requirements of § 266.109(a) are considered to be in compliance with the DRE standard of paragraph (a)(1) of this section and are exempt from the DRE trial burn.

(b) *Carbon monoxide standard.* (1) Except as provided in paragraph (c) of this section, the stack gas concentration of carbon monoxide (CO) from a boiler or industrial furnace burning hazardous waste cannot exceed 100 ppmv on an hourly rolling average basis (i.e., over any 60 minute period), continuously corrected to 7 percent oxygen, dry gas basis.

(2) CO and oxygen shall be continuously monitored in conformance with "Performance Specifications for Continuous Emission Monitoring of Carbon Monoxide and Oxygen in Hazardous Waste Incinerators, Boilers, and Industrial Furnaces" in appendix IX of this part.

(3) Compliance with the 100 ppmv CO limit must be demonstrated during the trial burn (for new facilities or an interim status facility applying for a permit) or the compliance test (for interim status facilities). To demonstrate compliance, the highest hourly rolling average CO level during any valid run of the trial burn or compliance test must not exceed 100 ppmv.

(c) *Alternative carbon monoxide standard.* (1) The stack gas concentration of carbon monoxide (CO)

from a boiler or industrial furnace burning hazardous waste may exceed the 100 ppmv limit provided that stack gas concentrations of hydrocarbons (HC) do not exceed 20 ppmv, except as provided by paragraph (f) of this section for certain industrial furnaces.

(2) HC limits must be established under this section on an hourly rolling average basis (i.e., over any 60 minute period), reported as propane, and continuously corrected to 7 percent oxygen, dry gas basis.

(3) HC shall be continuously monitored in conformance with "Performance Specifications for Continuous Emission Monitoring of Hydrocarbons for Incinerators, Boilers, and Industrial Furnaces" in appendix IX of this part. CO oxygen shall be continuously monitored in conformance with paragraph (b)(2) of this section.

(4) The alternative CO standard is established based on CO data during the trial burn (for a new facility) and the compliance test (for an interim status facility). The alternative CO standard is the average over all valid runs of the highest hourly average CO level for each run. The CO limit is implemented on an hourly rolling average basis, and continuously corrected to 7 percent oxygen, dry gas basis.

(d) *Special requirements for furnaces.* Owners and operators of industrial furnaces (e.g., kilns, cupolas) that feed hazardous waste for a purpose other than solely as an ingredient (see § 266.103(a)(5)(ii)) at any location other than the end where products are normally discharged and where fuels are normally fired must comply with the hydrocarbon limits provided by paragraphs (c) or (f) of this section irrespective of whether stack gas CO concentrations meet the 100 ppmv limit of paragraph (b) of this section.

(e) *Controls for dioxins and furans.* Owners and operators of boilers and industrial furnaces that are equipped with a dry particulate matter control device that operates within the temperature range of 450–750 °F, and industrial furnaces operating under an alternative hydrocarbon limit established under paragraph (f) of this section must conduct a site-specific risk assessment as follows to demonstrate that emissions of chlorinated dibenzo-*p*-dioxins and dibenzofurans do not result in an increased lifetime cancer risk to the hypothetical maximum exposed individual (MEI) exceeding 1 in 100,000:

(1) During the trial burn (for new facilities or an interim status facility applying for a permit) or compliance test (for interim status facilities), determine emission rates of the tetra-octa congeners of chlorinated dibenzo-*p*-

dioxins and dibenzofurans (CDDs/ CDFs) using Method 23, "Determination of Polychlorinated Dibenzop-Dioxins and Polychlorinated Dibenzofurans (PCDFs) from Stationary Sources", in appendix IX of this part.

(2) Estimate the 2,3,7,8-TCDD toxicity equivalence of the tetra-octa CDDs/ CDFs congeners using "Procedures for Estimating the Toxicity Equivalence of Chlorinated Dibenzop-Dioxin and Dibenzofuran Congeners" in appendix IX of this part. Multiply the emission rates of CDD/CDF congeners with a toxicity equivalence greater than zero (see the procedure) by the calculated toxicity equivalence factor to estimate the equivalent emission rate of 2,3,7,8-TCDD.

(3) Conduct dispersion modeling using methods recommended in *Guideline on Air Quality Models (Revised)* or the "Hazardous Waste Combustion Air Quality Screening Procedure", which are provided in appendices X and IX, respectively, of this part, or "EPA SCREEN Screening Procedure" as described in *Screening Procedures for Estimating Air Quality Impact of Stationary Sources* (incorporated by reference in § 260.11) to predict the maximum annual average off-site ground level concentration of 2,3,7,8-TCDD equivalents determined under paragraph (e)(2) of this section. The maximum annual average on-site concentration must be used when a person resides on-site; and

(4) The ratio of the predicted maximum annual average ground level concentration of 2,3,7,8-TCDD equivalents to the risk-specific dose for 2,3,7,8-TCDD provided in appendix V of this part  $2.2 \times 10^{-7}$  shall not exceed 1.0.

(f) *Alternative HC limit for furnaces with organic matter in raw material.* For industrial furnaces that cannot meet the 20 ppmv HC limit because of organic matter in normal raw material, the Director may establish an alternative HC limit on a case-by-case basis (under a part B permit proceeding) at a level that ensures that flue gas HC (and CO) concentrations when burning hazardous waste are not greater than when not burning hazardous waste (the baseline HC level) provided that the owner or operator complies with the following requirements. However, cement kilns equipped with a by-pass duct meeting the requirements of paragraph (g) of this section, are not eligible for an alternative HC limit.

(1) The owner or operator must demonstrate that the facility is designed and operated to minimize hydrocarbon emissions from fuels and raw materials when the baseline HC (and CO) level is determined. The baseline HC (and CO)

level is defined as the average over all valid test runs of the highest hourly rolling average value for each run when the facility does not burn hazardous waste, and produces normal products under normal operating conditions feeding normal feedstocks and fuels. More than one baseline level may be determined if the facility operates under different modes that may generate significantly different HC (and CO) levels;

(2) The owner or operator must develop an approach to monitor over time changes in the operation of the facility that could reduce the baseline HC level;

(3) The owner or operator must conduct emissions testing during the trial burn to:

(i) Determine the baseline HC (and CO) level;

(ii) Demonstrate that, when hazardous waste is burned, HC (and CO) levels do not exceed the baseline level; and

(iii) Identify the types and concentrations of organic compounds listed in appendix VIII, part 261 of this chapter, that are emitted and conducts dispersion modeling to predict the maximum annual average ground level concentration of each organic compound. On-site ground level concentrations must be considered for this evaluation if a person resides on site.

(A) Sampling and analysis of organic emissions shall be conducted using procedures prescribed by the Director.

(B) Dispersion modeling shall be conducted according to procedures provided by paragraph (e)(2) of this section; and

(iv) Demonstrate that maximum annual average ground level concentrations of the organic compounds identified in paragraph (f)(3)(iii) of this section do not exceed the following levels:

(A) For the noncarcinogenic compounds listed in appendix IV of this part, the levels established in appendix IV;

(B) For the carcinogenic compounds listed in appendix V of this part, the sum for all compounds of the ratios of the actual ground level concentration to the level established in appendix V cannot exceed 1.0. To estimate the health risk from chlorinated dibenzo-*p*-dioxins and dibenzofuran congeners, use the procedures prescribed by paragraph (e)(3) of this section to estimate the 2,3,7,8-TCDD toxicity equivalence of the congeners.

(C) For compounds not listed in appendix IV or V, 0.1 micrograms per cubic meter.

(4) All hydrocarbon levels specified under this paragraph are to be monitored and reported as specified in paragraphs (c)(1) and (c)(2) of this section.

(g) *Monitoring CO and HC in the by-pass duct of a cement kiln.* Cement kilns may comply with the carbon monoxide and hydrocarbon limits provided by paragraphs (b), (c), and (d) of this section by monitoring in the by-pass duct provided that:

(1) Hazardous waste is fired only into the kiln and not at any location downstream from the kiln exit relative to the direction of gas flow; and

2. The by-pass duct diverts a minimum of 10% of kiln off-gas into the duct.

(h) *Use of emissions test data to demonstrate compliance and establish operating limits.* Compliance with the requirements of this section must be demonstrated simultaneously by emissions testing or during separate runs under identical operating conditions. Further, data to demonstrate compliance with the CO and HC limits of this section or to establish alternative CO or HC limits under this section must be obtained during the time that DRE testing, and where applicable, CDD/CDF testing under paragraph (e) of this section and comprehensive organic emissions testing under paragraph (f) is conducted.

(i) *Enforcement.* For the purposes of permit enforcement, compliance with the operating requirements specified in the permit (under § 266.102) will be regarded as compliance with this section. However, evidence that compliance with those permit conditions is insufficient to ensure compliance with the requirements of this section may be "information" justifying modification or revocation and re-issuance of a permit under § 270.41 of this chapter.

#### § 266.105 Standards to control particulate matter.

(a) A boiler or industrial furnace burning hazardous waste may not emit particulate matter in excess of 180 milligrams per dry standard cubic meter (0.08 grains per dry standard cubic foot) after correction to a stack gas concentration of 7% oxygen, using procedures prescribed in 40 CFR part 60, appendix A, methods 1 through 5, and appendix IX of this part.

(b) An owner or operator meeting the requirements of § 266.109(b) for the low risk waste exemption is exempt from the particulate matter standard.

(c) For the purposes of permit enforcement, compliance with the operating requirements specified in the permit (under § 266.102) will be regarded

as compliance with this section. However, evidence that compliance with those permit conditions is insufficient to ensure compliance with the requirements of this section may be "information" justifying modification or revocation and re-issuance of a permit under § 270.41 of this chapter.

#### § 266.106 Standards to control metals emissions.

(a) *General.* The owner or operator must comply with the metals standards provided by paragraphs (b), (c), (d), (e), or (f) of this section for each metal listed in paragraph (b) of this section that is present in the hazardous waste at detectable levels using analytical procedures specified in Test Methods for Evaluation Solid Waste, Physical/Chemical Methods (SW-846), incorporated by reference in § 260.11 of this chapter.

(b) *Tier I feed rate screening limits.* Feed rate screening limits for metals are specified in appendix I of this part as a function of terrain-adjusted effective stack height and terrain and land use in the vicinity of the facility. Criteria for facilities that are not eligible to comply with the screening limits are provided in paragraph (b)(7) of this section.

(1) *Noncarcinogenic metals.* The feed rates of antimony, barium, lead, mercury, thallium, and silver in all feed streams, including hazardous waste, fuels, and industrial furnace feed stocks shall not exceed the screening limits specified in appendix I of this part.

(i) The feed rate screening limits for antimony, barium, mercury, thallium, and silver are based on either:

(A) An hourly rolling average as defined in § 266.102(e)(6)(i)(B); or  
(B) An instantaneous limit not to be exceeded at any time.

(ii) The feed rate screening limit for lead is based on one of the following:

(A) An hourly rolling average as defined in § 266.102(e)(6)(i)(B);  
(B) An averaging period of 2 to 24 hours as defined in § 266.102(e)(6)(ii) with an instantaneous feed rate limit not to exceed 10 times the feed rate that would be allowed on an hourly rolling average basis; or  
(C) An instantaneous limit not to be exceeded at any time.

(2) *Carcinogenic metals.* (i) The feed rates of arsenic, cadmium, beryllium, and chromium in all feed streams, including hazardous waste, fuels, and industrial furnace feed stocks shall not exceed values derived from the screening limits specified in appendix I of this part. The feed rate of each of these metals is limited to a level such that the sum of the ratios of the actual feed rate to the feed rate screening limit

specified in appendix I shall not exceed 1.0, as provided by the following equation:

$$\sum_{i=1}^n \frac{AFR_i}{FRSL_i} < 1.0$$

where:

n = number of carcinogenic metals  
AFR = actual feed rate to the device for metal "i"

FRSL = feed rate screening limit provided by appendix I of this part for metal "i".

(ii) The feed rate screening limits for the carcinogenic metals are based on either:

(A) An hourly rolling average; or

(B) An averaging period of 2 to 24 hours with an instantaneous feed rate limit not to exceed 10 times the feed rate that would be allowed on an hourly rolling average basis.

(3) *TESH.* (i) The terrain-adjusted effective stack height is determined according to the following equation:

$$TESH = Ha + H1 - Tr$$

where:

Ha = Actual physical stack height

H1 = Plume rise as determined from appendix VI of this part as a function of stack flow rate and stack gas exhaust temperature.

Tr = Terrain rise within five kilometers of the stack.

(ii) The stack height (Ha) may not exceed good engineering practice as specified in 40 CFR 51.100(ii).

(iii) If the TESH for a particular facility is not listed in the table in the appendices, the nearest lower TESH listed in the table shall be used. If the TESH is four meters or less, a value of four meters shall be used.

(4) *Terrain type.* The screening limits are a function of whether the facility is located in noncomplex or complex terrain. A device located where any part of the surrounding terrain within 5 kilometers of the stack equals or exceeds the elevation of the physical stack height (Ha) is considered to be in complex terrain and the screening limits for complex terrain apply. Terrain measurements are to be made from U.S. Geological Survey 7.5-minute topographic maps of the area surrounding the facility.

(5) *Land use.* The screening limits are a function of whether the facility is located in an area where the land use is urban or rural. To determine whether land use in the vicinity of the facility is urban or rural, procedures provided in appendices IX or X of this part.

(6) *Multiple stacks.* Owners and operators of facilities with more than one on-site stack from a boiler, industrial furnace, incinerator, or other thermal treatment unit subject to controls of metals emissions under a RCRA operating permit or interim status controls must comply with the screening limits for all such units assuming all hazardous waste is fed into the device with the worst-case stack based on dispersion characteristics. The worst-case stack is determined from the following equation as applied to each stack:

$$K = HVT$$

Where:

- K = a parameter accounting for relative influence of stack height and plume rise;
- K = physical stack height (meters);
- K = stack gas flow rate (m<sup>3</sup>/second); and
- T = exhaust temperature (\*K).

The stack with the lowest value of K is the worst-case stack.

(7) *Criteria for facilities not eligible for screening limits.* If any criteria below are met, the Tier I (and Tier II) screening limits do not apply. Owners and operators of such facilities must comply with the Tier III standards provided by paragraph (d) of this section.

- (i) The device is located in a narrow valley less than one kilometer wide;
- (ii) The device has a stack taller than 20 meters and is located such that the terrain rises to the physical height within one kilometer of the facility;
- (iii) The device has a stack taller than 20 meters and is located within five kilometers of a shoreline of a large body of water such as an ocean or large lake;
- (iv) The physical stack height of any stack is less than 2.5 times the height of any building within five building heights or five projected building widths of the stack and the distance from the stack to the closest boundary is within five building heights or five projected building widths of the associated building; or
- (v) The Director determines that standards based on site-specific dispersion modeling are required.

(8) *Implementation.* The feed rate of metals in each feedstream must be monitored to ensure that the feed rate screening limits are not exceeded.

(c) *Tier II emission rate screening limits.* Emission rate screening limits are specified in Appendix I as a function of terrain-adjusted effective stack height and terrain and land use in the vicinity of the facility. Criteria for facilities that are not eligible to comply with the screening limits are provided in paragraph (b)(7) of this section.

(1) *Noncarcinogenic metals.* The emission rates of antimony, barium,

lead, mercury, thallium, and silver shall not exceed the screening limits specified in Appendix I of this part.

(2) *Carcinogenic metals.* The emission rates of arsenic, cadmium, beryllium, and chromium shall not exceed values derived from the screening limits specified in Appendix I of this part. The emission rate of each of these metals is limited to a level such that the sum of the ratios of the actual emission rate to the emission rate screening limit specified in Appendix I shall not exceed 1.0, as provided by the following equation:

$$\sum_{i=1}^n \frac{AER_{(i)}}{ERSL_{(i)}} \leq 1.0$$

where:

- n = number of carcinogenic metals
- AER = actual emission rate for metal "i"
- ERSL = emission rate screening limit provided by appendix I of this part for metal "i".

(3) *Implementation.* The emission rate limits must be implemented by limiting feed rates of the individual metals to levels during the trial burn (for new facilities or an interim status facility applying for a permit) or the compliance test (for interim status facilities). The feed rate averaging periods are the same as provided by paragraphs (b)(1)(i) and (ii) and (b)(2)(ii) of this section. The feed rate of metals in each feedstream must be monitored to ensure that the feed rate limits for the feedstreams specified under §§ 266.102 or 266.103 are not exceeded.

(4) *Definitions and limitations.* The definitions and limitations provided by paragraph (b) of this section for the following terms also apply to the Tier II emission rate screening limits provided by paragraph (c) of this section: terrain-adjusted effective stack height, good engineering practice stack height, terrain type, land use, and criteria for facilities not eligible to use the screening limits.

(5) *Multiple stacks.* (i) Owners and operators of facilities with more than one onsite stack from a boiler, industrial furnace, incinerator, or other thermal treatment unit subject to controls on metals emissions under a RCRA operating permit or interim status controls must comply with the emissions screening limits for any such stacks assuming all hazardous waste is fed into the device with the worst-case stack based on dispersion characteristics.

(ii) The worst-case stack is determined by procedures provided in paragraph (b)(8) of this section.

(iii) For each metal, the total emissions of the metal from those stacks

shall not exceed the screening limit for the worst-case stack.

(d) *Tier III site-specific risk assessment—(1) General.* Conformance with the Tier III metals controls must be demonstrated by emissions testing to determine the emission rate for each metal, air dispersion modeling to predict the maximum annual average off-site ground level concentration for each metal, and a demonstration that acceptable ambient levels are not exceeded.

(2) *Acceptable ambient levels.* Appendices IV and V of this part list the acceptable ambient levels for purposes of this rule. Reference air concentrations (RACs) are listed for the noncarcinogenic metals and 10<sup>-6</sup> risk-specific doses (RSDs) are listed for the carcinogenic metals. The RSD for a metal is the acceptable ambient level for that metal provided that only one of the four carcinogenic metals is emitted. If more than one carcinogenic metal is emitted, the acceptable ambient level for the carcinogenic metals is a fraction of the RSD as described in paragraph (d)(3) of this section.

(3) *Carcinogenic metals.* For the carcinogenic metals, arsenic, cadmium, beryllium, and chromium, the sum of the ratios of the predicted maximum annual average off-site ground level concentrations (except that on-site concentrations must be considered if a person resides on site) to the risk-specific dose (RSD) for all carcinogenic metals emitted shall not exceed 1.0 as determined by the following equation:

$$\sum_{i=1}^n \frac{\text{Predicted Ambient Concentration}_{(i)}}{\text{Risk-Specific Dose}_{(i)}} \leq 1.0$$

where: n = number of carcinogenic metals

(4) *Noncarcinogenic metals.* For the noncarcinogenic metals, the predicted maximum annual average off-site ground level concentration for each metal shall not exceed the reference air concentration (RAC).

(5) *Multiple stacks.* Owners and operators of facilities with more than one on-site stack from a boiler, industrial furnace, incinerator, or other thermal treatment unit subject to controls on metals emissions under a RCRA operating permit or interim status controls must conduct emissions testing and dispersion modeling to demonstrate that the aggregate emissions from all such on-site stacks do not result in an exceedance of the acceptable ambient levels:

(6) *Implementation.* Under Tier III, the metals controls must be implemented by limiting feed rates of the individual metals to levels during the trial burn (for new facilities or an interim status facility applying for a permit) or the compliance test (for interim status facilities). The feed rate averaging periods are the same as provided by paragraphs (b)(1)(i) and (ii) and (b)(2)(ii) of this section. The feed rate of metals in each feedstream must be monitored to ensure that the feed rate limits for the feedstreams specified under §§ 266.102 or 266.103 are not exceeded.

(e) *Adjusted Tier I feed rate screening limits.* The owner or operator may adjust the feed rate screening limits provided by appendix I of this part to account for site-specific dispersion modeling. Under this approach, the adjusted feed rate screening limit for each metal is determined by back-calculating from the acceptable ambient levels provided by appendices IV and V of this part using dispersion modeling to determine the maximum allowable emission rate. This emission rate becomes the adjusted Tier I feed rate screening limit. The feed rate screening limits for carcinogenic metals are implemented as prescribed in paragraph (b)(2) of this section.

(f) *Alternative implementation approaches.* (1) The Director may approve on a case-by-case basis approaches to implement the Tier II or Tier III metals emission limits provided by paragraphs (c) or (d) of this section alternative to monitoring the feed rate of metals in each feedstream.

(2) The emission limits provided by paragraph (d) of this section must be determined as follows:

(i) For each noncarcinogenic metal, by back-calculating from the RAC provided in appendix IV of this part to determine the allowable emission rate for each metal using the dilution factor for the maximum annual average ground level concentration predicted by dispersion modeling in conformance with paragraph (h) of this section; and

(ii) For each carcinogenic metal; by:

(A) Back-calculating from the RSD provided in appendix V of this part to determine the allowable emission rate for each metal if that metal were the only carcinogenic metal emitted using the dilution factor for the maximum annual average ground level concentration predicted by dispersion modeling in conformance with paragraph (h) of this section; and

(B) If more than one carcinogenic metal is emitted, selecting an emission limit for each carcinogenic metal not to exceed the emission rate determined by

paragraph (f)(2)(ii)(A) of this section such that the sum for all carcinogenic metals of the ratio of the selected emission limit to the emission rate determined by that paragraph does not exceed 1.0.

(g) *Emission testing—(1) General.* Emission testing for metals shall be conducted using the Multiple Metals Train as described in appendix IX of this part.

(2) *Hexavalent chromium.* Emissions of chromium are assumed to be hexavalent chromium unless the owner or operator conducts emissions testing to determine hexavalent chromium emissions using procedures prescribed in Appendix IX of this part.

(h) *Dispersion modeling.* Dispersion modeling required under this section shall be conducted according to methods recommended in appendix X of this part, the "Hazardous Waste Combustion Air Quality Screening Procedure" described in appendix IX of this part, or "EPA SCREEN Screening Procedure" as described in Screening Procedures for Estimating Air Quality Impact of Stationary Sources (the latter document is incorporated by reference, see § 260.11) to predict the maximum annual average off-site ground level concentration. However, on-site concentrations must be considered when a person resides on-site.

(i) *Enforcement.* For the purposes of permit enforcement, compliance with the operating requirements specified in the permit (under § 266.102) will be regarded as compliance with this section. However, evidence that compliance with those permit conditions is insufficient to ensure compliance with the requirements of this section may be "information" justifying modification or revocation and re-issuance of a permit under § 270.41 of this chapter.

**§ 266.107 Standards to control hydrogen chloride (HCl) and chlorine gas (Cl<sub>2</sub>) emissions.**

(a) *General.* The owner or operator must comply with the hydrogen chloride (HCl) and chlorine (Cl<sub>2</sub>) controls provided by paragraphs (b), (c), or (d) of this section.

(b) *Screening limits—(1) Tier I feed rate screening limits.* Feed rate screening limits are specified for total chlorine in Appendix II of this part as a function of terrain-adjusted effective stack height and terrain and land use in the vicinity of the facility. The feed rate of total chlorine and chloride, both organic and inorganic, in all feed streams, including hazardous waste, fuels, and industrial furnace feed stocks shall not exceed the levels specified.

(2) *Tier II emission rate screen limits.* Emission rate screening limits for HCl and Cl<sub>2</sub> are specified in Appendix III of this part as a function of terrain-adjusted effective stack height and terrain and land use in the vicinity of the facility. The stack emission rates of HCl and Cl<sub>2</sub> shall not exceed the levels specified.

(3) *Definitions and limitations.* The definitions and limitations provided by § 266.106(b) for the following terms also apply to the screening limits provided by this paragraph: terrain-adjusted effective stack height, good engineering practice stack height, terrain type, land use, and criteria for facilities not eligible to use the screen limits.

(4) *Multiple stacks.* Owners and operators of facilities with more than one on-site stack from a boiler, industrial furnace, incinerator, or other thermal treatment unit subject to controls on HCl or Cl<sub>2</sub> emissions under a RCRA operating permit or interim status controls must comply with the Tier I and Tier II screening limits for those stacks assuming all hazardous waste is fed into the device with the worst-case stack based on dispersion characteristics.

(i) The worst-case stack is determined by procedures provided in § 266.106(b)(6).

(ii) Under Tier I, the total feed rate of chlorine and chloride to all subject devices shall not exceed the screening limit for the worst-case stack.

(iii) Under Tier II, the total emissions of HCl and Cl<sub>2</sub> from all subject stacks shall not exceed the screening limit for the worst-case stack.

(c) *Tier III site-specific risk assessments—(1) General.* Conformance with the Tier III controls must be demonstrated by emissions testing to determine the emission rate for HCl and Cl<sub>2</sub>, air dispersion modeling to predict the maximum annual average off-site ground level concentration for each compound, and a demonstration that acceptable ambient levels are not exceeded.

(2) *Acceptable ambient levels.* Appendix IV of this part lists the reference air concentrations (RACs) for HCl (7 micrograms per cubic meter) and Cl<sub>2</sub> (0.4 micrograms per cubic meter).

(3) *Multiple stacks.* Owners and operators of facilities with more than one on-site stack from a boiler, industrial furnace, incinerator, or other thermal treatment unit subject to controls on HCl or Cl<sub>2</sub> emissions under a RCRA operating permit or interim status controls must conduct emissions testing and dispersion modeling to demonstrate that the aggregate emissions from all such on-site stacks do not result in an

exceedance of the acceptable ambient levels for HCl and Cl<sub>2</sub>.

(d) *Averaging periods.* The HCl and Cl<sub>2</sub> controls are implemented by limiting the feed rate of total chlorine and chloride in all feedstreams, including hazardous waste, fuels, and industrial furnace feed stocks. Under Tier I, the feed rate of total chloride and chlorine is limited to the Tier I Screening Limits. Under Tier II and Tier III, the feed rate of total chloride and chlorine is limited to the feed rates during the trial burn (for new facilities or an interim status facility applying for a permit) or the compliance test (for interim status facilities). The feed rate limits are based on either:

- (i) An hourly rolling average as defined in § 266.102(e)(6); or
- (ii) An instantaneous basis not to be exceeded at any time.

(e) *Adjusted Tier I feed rate screening limits.* The owner or operator may adjust the feed rate screening provided by Appendix I of this part to account for site-specific dispersion modeling. Under this approach, the adjusted feed rate screening limit is determined by back-calculating from the acceptable ambient level for Cl<sub>2</sub> provided by Appendix IV of this part using dispersion modeling to determine the maximum allowable emission rate. This emission rate becomes the adjusted Tier I feed rate screening limit.

(f) *Emissions testing.* Emissions testing for HCl and Cl<sub>2</sub> shall be conducted using the procedures described in Appendix IX of this part.

(g) *Dispersion modeling.* Dispersion modeling shall be conducted according to the provisions of § 266.106(h).

(h) *Enforcement.* For the purposes of permit enforcement, compliance with the operating requirements specified in the permit (under § 266.102) will be regarded as compliance with this section. However, evidence that compliance with those permit conditions is insufficient to ensure compliance with the requirements of this section may be "information" justifying modification or revocation and re-issuance of a permit under § 270.41 of this chapter.

**§ 266.106 Small quantity on-site burner exemption.**

(a) *Exemption quantities.* Owners and operators of facilities that burn hazardous waste in an on-site boiler or industrial furnace are exempt from the requirements of this section provided that:

(1) The quantity of hazardous waste burned in a device for a calendar month does not exceed the limits provided in the following table based on the terrain-adjusted effective stack height as

defined in § 266.106(b)(3):

**EXEMPT QUANTITIES FOR SMALL QUANTITY BURNER EXEMPTION**

| Terrain-adjusted effective stack height of device (meters) | Allowable hazardous waste burning rate (gallons/month) | Terrain-adjusted effective stack height of device (meters) | Allowable hazardous waste burning rate (Gallons/month) |
|--|--|--|--|
| 0 to 3.9.....  | 0  | 40.0 to 44.9.....  | 210  |
| 4.0 to 5.9.....  | 13   | 45.0 to 49.9.....  | 260  |
| 6.0 to 7.9.....  | 18   | 50.0 to 54.9.....  | 330  |
| 8.0 to 9.9.....  | 27   | 55.0 to 59.9.....  | 400  |
| 10.0 to 11.9.....  | 40   | 60.0 to 64.9.....  | 490  |
| 12.0 to 13.9.....  | 48   | 65.0 to 69.9.....  | 610  |
| 14.0 to 15.9.....  | 59   | 70.0 to 74.9.....  | 680  |
| 16.0 to 17.9.....  | 69   | 75.0 to 79.9.....  | 760  |
| 18.0 to 19.9.....  | 78   | 80.0 to 84.9.....  | 850  |
| 20.0 to 21.9.....  | 84   | 85.0 to 89.9.....  | 960  |
| 22.0 to 23.9.....  | 93   | 90.0 to 94.9.....  | 1,100  |
| 24.0 to 25.9.....  | 100  | 95.0 to 99.9.....  | 1,200  |
| 26.0 to 27.9.....  | 110  | 100.0 to 104.9..   | 1,300  |
| 28.0 to 29.9.....  | 130  | 105.0 to 109.9..   | 1,500  |
| 30.0 to 34.9.....  | 140  | 110.0 to 114.9..   | 1,700  |
| 35.0 to 39.9.....  | 170  | 115.0 or greater.  | 1,900  |

(2) The maximum hazardous waste firing rate does not exceed at any time 1 percent of the total fuel requirements for the device (hazardous waste plus other fuel) on a volume basis;

(3) The hazardous waste has a minimum heating value of 5,000 Btu/lb, as generated; and

(4) The hazardous waste fuel does not contain (and is not derived from) EPA Hazardous Waste Nos. F020, F021, F022, F023, F026, or F027.

(b) *Mixing with nonhazardous fuels.* If hazardous waste fuel is mixed with a nonhazardous fuel, the quantity of hazardous waste before such mixing is used to comply with paragraph (a).

(c) *Multiple stacks.* If an owner or operator burns hazardous waste in more than one on-site boiler or industrial furnace exempt under this section, the quantity limits provided by paragraph (a)(1) of this section are implemented according to the following equation:

$$\sum_{i=1}^n \frac{\text{Actual Quantity Burned}_i}{\text{Allowable Quantity Burned}_i} < 1.0$$

where:

- n means the number of stacks;
- Actual Quantity Burned means the waste quantity burned per month in device "i";
- Allowable Quantity Burned, means the maximum allowable exempt quantity for stack "i" from the table in (a)(1) above.

Note: Hazardous wastes that are subject to the special requirements for small quantity generators under § 261.5 of this chapter may be burned in an off-site device under the

exemption provided by § 266.106, but must be included in the quantity determination for the exemption.

(d) *Notification requirements.* The owner or operator of facilities qualifying for the small quantity burner exemption under this section must provide a one-time signed, written notice to EPA indicating the following:

(1) The combustion unit is operating as a small quantity burner of hazardous waste;

(2) The owner and operator are in compliance with the requirements of this section; and

(3) The maximum quantity of hazardous waste that the facility may burn per month as provided by § 266.106(a)(1).

(e) *Recordkeeping requirements.* The owner or operator must maintain at the facility for at least three years sufficient records documenting compliance with the hazardous waste quantity, firing rate, and heating value limits of this section. At a minimum, these records must indicate the quantity of hazardous waste and other fuel burned in each unit per calendar month, and the heating value of the hazardous waste.

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**§ 266.109 Low risk waste exemption.**

(a) *Waiver of DRE standard.* The DRE standard of § 266.104(a) does not apply if the boiler or industrial furnace is operated in conformance with (a)(1) of this section and the owner or operator demonstrates by procedures prescribed in (a)(2) of this section that the burning will not result in unacceptable adverse health effects.

(1) The device shall be operated as follows:

(i) A minimum of 50 percent of fuel fired to the device shall be fossil fuel, fuels derived from fossil fuel, tall oil, or, if approved by the Director of a case-by-case basis, other nonhazardous fuel with combustion characteristics comparable to fossil fuel. Such fuels are termed "primary fuel" for purposes of this section. (Tall oil is a fuel derived from vegetable and rosin fatty acids.) The 50 percent primary fuel firing rate shall be determined on a total heat or volume input basis, whichever results in the larger volume of primary fuel fired;

(ii) Primary fuels and hazardous waste fuels shall have a minimum as-fired heating value of 8,000 Btu/lb;

(iii) The hazardous waste is fired directly into the primary fuel flame zone of the combustion chamber; and

(iv) The device operates in conformance with the carbon monoxide controls provided by § 266.104(b)(1)

Devices subject to the exemption provided by this section are not eligible for the alternative carbon monoxide controls provided by § 266.104(c).

(2) Procedures to demonstrate that the hazardous waste burning will not pose unacceptable adverse public health effects are as follows:

(i) Identify and quantify those nonmetal compounds listed in appendix VIII, part 261 of this chapter that could reasonably be expected to be present in the hazardous waste. The constituents excluded from analysis must be identified and the basis for their exclusion explained;

(ii) Calculate reasonable, worst case emission rates for each constituent identified in paragraph (a)(2)(i) of this section by assuming the device achieves 99.9 percent destruction and removal efficiency. That is, assume that 0.1 percent of the mass weight of each constituent fed to the device is emitted.

(iii) For each constituent identified in paragraph (a)(2)(i) of this section, use emissions dispersion modeling to predict the maximum annual average ground level concentration of the constituent.

(A) Dispersion modeling shall be conducted using methods specified in § 266.106(h).

(B) Owners and operators of facilities with more than one on-site stack from a boiler or industrial furnace that is exempt under this section must conduct dispersion modeling of emissions from all stacks exempt under this section to predict ambient levels prescribed by this paragraph.

(iv) Ground level concentrations of constituents predicted under paragraph (a)(iii) of this section must not exceed the following levels:

(A) For the noncarcinogenic compounds listed in appendix IV of this part, the levels established in appendix IV;

(B) For the carcinogenic compounds listed in appendix V of this part, the sum for all constituents of the ratios of the actual ground level concentration to the level established in appendix V cannot exceed 1.0; and

(C) For constituents not listed in appendix IV or V, 0.1 micrograms per cubic meter.

(b) *Waiver of particular matter standard.* The particulate matter standard of § 266.105 does not apply if:

(1) The DRE standard is waived under paragraph (a) of this section; and

(2) The owner or operator complies with the Tier I metals feed rate screening limits provided by § 266.106 (b) or (e).

#### § 266.110 Waiver of DRE trial burn for boilers.

Boilers that operate under the special requirements of this section, and that do not burn hazardous waste containing (or derived from) EPA Hazardous Waste Nos. F020, F021, F022, F023, F026, or F027, are considered to be in conformance with the DRE standard of § 266.104(a), and a trial burn to demonstrate DRE is waived. When burning hazardous waste:

(a) A minimum of 50 percent of fuel fired to the boiler shall be fossil fuel, fuels derived from fossil fuel, tall oil, or, if approved by the Director on a case-by-case basis, other nonhazardous fuel with combustion characteristics comparable to fossil fuel. Such fuels are termed "primary fuel" for purposes of this section. (Tall oil is a fuel derived from vegetable and rosin fatty acids.) The 50 percent primary fuel firing rate shall be determined on a total heat or volume input basis, whichever results in the larger volume of primary fuel fired;

(b) Boiler load shall not be less than 40 percent. Boiler load is the ratio at any time of the total heat input to the maximum design heat input;

(c) Primary fuels and hazardous waste fuels shall have a minimum as-fired heating value of 8,000 Btu/lb, and each material fired in a burner where hazardous waste is fired must have a heating value of at least 8,000 Btu/lb, as-fired;

(d) The device shall operate in conformance with the carbon monoxide standard provided by § 266.104(b)(1). Boilers subject to the waiver of the DRE trial burn provided by this section are not eligible for the alternative carbon monoxide standard provided by § 266.104(c);

(e) The boiler must be a watertube type boiler that does not feed fuel using a stoker or stoker type mechanism; and

(f) The hazardous waste shall be fired directly into the primary fuel flame zone of the combustion chamber with an air or steam atomization firing system, mechanical atomization system, or a rotary cup atomization system under the following conditions:

(1) *Viscosity.* The viscosity of the hazardous waste fuel as-fired shall not exceed 300 SSU;

(2) *Particle size.* When a high pressure air or steam atomizer, low pressure atomizer, or mechanical atomizer is used, 70% of the hazardous waste fuel must pass through a 200 mesh (74 micron) screen, and when a rotary cup atomizer is used, 70% of the hazardous waste must pass through a 100 mesh (150 micron) screen;

(3) *Mechanical atomization systems.* Fuel pressure within a mechanical

atomization system and fuel flow rate shall be maintained within the design range taking into account the viscosity and volatility of fuel;

(4) *Rotary cup atomization systems.* Fuel flow rate through a rotary cup atomization system must be maintained within the design range taking into account the viscosity and volatility of the fuel.

#### § 266.111 Standards for direct transfer.

(a) *Applicability.* The regulations in this section apply to owners and operators of boilers and industrial furnaces subject to §§ 266.102 or 266.103 if hazardous waste is directly transferred from a transport vehicle to a boiler or industrial furnace without the use of a storage unit.

(b) *Definitions.* (1) When used in this section, the following terms have the meanings given below:

*Direct transfer equipment* means any device (including but not limited to, such devices as piping, fittings, flanges, valves, and pumps) that is used to distribute, meter, or control the flow of hazardous waste between a container (i.e., transport vehicle) and a boiler or industrial furnace.

*Container* means any portable device in which hazardous waste is transported, stored, treated, or otherwise handled, and includes transport vehicles that are containers themselves (e.g., tank trucks, tanker-trailers, and rail tank cars), and containers placed on or in a transport vehicle.

(2) This section references several requirements provided in subparts I and J of parts 264 and 265. For purposes of this section, the term "tank systems" in those referenced requirements means direct transfer equipment as defined in paragraph (b)(1) of this section.

(c) *General operating requirements.*

(1) No direct transfer of a pumpable hazardous waste shall be conducted from an open-top container to a boiler or industrial furnace.

(2) Direct transfer equipment used for pumpable hazardous waste shall always be closed, except when necessary to add or remove the waste, and shall not be opened, handled, or stored in a manner that may cause any rupture or leak.

(3) The direct transfer of hazardous waste to a boiler or industrial furnace shall be conducted so that it does not:

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

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

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

(iv) Damage the structural integrity of the container or direct transfer equipment containing the waste;

(v) Adversely affect the capability of the boiler or industrial furnace to meet the standards provided by §§ 266.104 through 266.107; or

(vi) Threaten human health or the environment.

(4) Hazardous waste shall not be placed in direct transfer equipment, if it could cause the equipment or its secondary containment system to rupture, leak, corrode, or otherwise fail.

(5) The owner or operator of the facility shall use appropriate controls and practices to prevent spills and overflows from the direct transfer equipment or its secondary containment systems. These include at a minimum:

(i) Spill prevention controls (e.g., check valves, dry discount couplings); and

(ii) Automatic waste feed cutoff to use if a leak or spill occurs from the direct transfer equipment.

(d) *Areas where direct transfer vehicles (containers) are located.* Applying the definition of container under this section, owners and operators must comply with the following requirements:

(1) The containment requirements of § 264.175 of this chapter;

(2) The use and management requirements of subpart I, part 265 of this chapter, except for §§ 265.170 and 265.174; and

(3) The closure requirements of § 264.178 of this chapter.

(e) *Direct transfer equipment.* Direct transfer equipment must meet the following requirements:

(1) *Secondary containment.* Owners and operators shall comply with the secondary containment requirements of § 265.193 of this chapter, except for paragraphs 265.193 (a), (d), (e), and (i) as follows:

(i) For all new direct transfer equipment, prior to their being put into service; and

(ii) For existing direct transfer equipment within 2 years after August 21, 1991.

(2) *Requirements prior to meeting secondary containment requirements.* (i) For existing direct transfer equipment that does not have secondary containment, the owner or operator shall determine whether the equipment is leaking or is unfit for use. The owner or operator shall obtain and keep on file at the facility a written assessment reviewed and certified by a qualified, registered professional engineer in

accordance with § 270.11(d) of this chapter that attests to the equipment's integrity by August 21, 1992.

(ii) This assessment shall determine whether the direct transfer equipment is adequately designed and has sufficient structural strength and compatibility with the waste(s) to be transferred to ensure that it will not collapse, rupture, or fail. At a minimum, this assessment shall consider the following:

(A) Design standard(s), if available, according to which the direct transfer equipment was constructed;

(B) Hazardous characteristics of the waste(s) that have been or will be handled;

(C) Existing corrosion protection measures;

(D) Documented age of the equipment, if available, (otherwise, an estimate of the age); and

(E) Results of a leak test or other integrity examination such that the effects of temperature variations, vapor pockets, cracks, leaks, corrosion, and erosion are accounted for.

(iii) If, as a result of the assessment specified above, the direct transfer equipment is found to be leaking or unfit for use, the owner or operator shall comply with the requirements of §§ 265.196 (a) and (b) of this chapter.

(3) *Inspections and recordkeeping.* (i) The owner or operator must inspect at least once each operating hour when hazardous waste is being transferred from the transport vehicle (container) to the boiler or industrial furnace:

(A) Overfill/spill control equipment (e.g., waste-feed cutoff systems, bypass systems, and drainage systems) to ensure that it is in good working order;

(B) The above ground portions of the direct transfer equipment to detect corrosion, erosion, or releases of waste (e.g., wet spots, dead vegetation); and

(C) Data gathered from monitoring equipment and leak-detection equipment, (e.g., pressure and temperature gauges) to ensure that the direct transfer equipment is being operated according to its design.

(ii) The owner or operator must inspect cathodic protection systems, if used, to ensure that they are functioning properly according to the schedule provided by § 265.195(b) of this chapter:

(iii) Records of inspections made under this paragraph shall be maintained in the operating record at the facility, and available for inspection for at least 3 years from the date of the inspection.

(4) *Design and installation of new ancillary equipment.* Owners and operators must comply with the requirements of § 265.192 of this chapter.

(5) *Response to leaks or spills.*

Owners and operators must comply with the requirements of § 265.196 of this chapter.

(6) *Closure.* Owners and operators must comply with the requirements of § 265.197 of this chapter, except for § 265.197 (c)(2) through (c)(4).

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#### § 266.122 Regulation of residues.

A residue derived from the burning or processing of hazardous waste in a boiler or industrial furnace is not excluded from the definition of a hazardous waste under § 261.4(b) (4), (7), or (8) unless the device and the owner or operator meet the following requirements:

(a) The device meets the following criteria:

(1) *Boilers.* Boilers must burn coal and at least 50% of the heat input to the boiler must be provided by the coal;

(2) *Ore or mineral furnaces.* Industrial furnaces subject to § 261.4(b)(7) must process at least 50% by weight normal, nonhazardous raw materials;

(3) *Cement kilns.* Cement kilns must process at least 50% by weight normal cement-production raw materials;

(b) The owner or operator demonstrates that the hazardous waste does not significantly affect the residue by demonstrating conformance with either of the following criteria:

(1) *Comparison of waste-derived residue with normal residue.* The waste-derived residue must not contain appendix VIII, part 261 constituents (toxic constituents) that could reasonably be attributable to the hazardous waste at concentrations significantly higher than in residue generated without burning or processing of hazardous waste, using the following procedure. Toxic compounds that could reasonably be attributable to burning or processing the hazardous waste (constituents of concern) include toxic constituents in the hazardous waste, and the organic compounds listed in appendix VIII of this part that may be generated as products of incomplete combustion. Sampling and analyses shall be in conformance with procedures prescribed in *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, incorporated by reference in § 260.11(a) of this chapter.

(i) *Normal residue.* Concentrations of toxic constituents of concern in normal residue shall be determined based on analyses of a minimum of 10 composite samples. The upper 95% confidence level about the mean of the concentration in the normal residue shall be considered

the statistically-derived concentration in the normal residue. If changes in raw materials or fuels reduce the statistically-derived concentrations of the toxic constituents of concern in the normal residue, the statistically-derived concentrations must be revised or statistically-derived concentrations of toxic constituents in normal residue must be established for a new mode of operation with the new raw material or fuel. To determine the upper 95% confidence level about the mean of the concentration in the normal residue, the owner or operator shall use statistical procedures prescribed in "Statistical Methodology for Beville Residue Determinations" in appendix IX of this part.

(ii) *Waste-derived residue.* Concentrations of toxic constituents of concern in waste-derived residue shall be determined based on analysis of samples composited over a period of not more than 24 hours. The concentration of a toxic constituent in the waste-derived residue is not considered to be

significantly higher than in the normal residue if the concentration in the waste-derived residue does not exceed the concentration established for the normal residue under paragraph (b)(1)(i) of this section; or

(2) *Comparison of waste-derived residue concentrations with health-based limits—(i) Nonmetal constituents.* The concentrations of nonmetal toxic constituents of concern (specified in paragraph (b)(1) of this section) in the waste-derived residue must not exceed the health-based levels specified in appendix VII of this part. If a health-based limit for a constituent of concern is not listed in appendix VII of this part, then a limit of 0.002 micrograms per kilogram or the level of detection (using analytical procedures prescribed in SW-846), whichever is higher, shall be used; and

(ii) *Metal constituents.* The concentration of metals in an extract obtained using the Toxicity Characteristic Leaching Procedure of § 261.24 of this chapter must not exceed

the levels specified in appendix VII of this part; and

(c) Records sufficient to document compliance with the provisions of this section must be retained for a period of three years. At a minimum, the following shall be recorded:

(1) Levels of constituents in appendix VIII, part 261, that are present in waste-derived residues;

(2) If the waste-derived residue is compared with normal residue under paragraph (b)(1) of this section:

(i) The levels of constituents in appendix VIII, part 261, that are present in normal residues; and

(ii) Data and information, including analyses of samples as necessary, obtained to determine if changes in raw materials or fuels would reduce the concentration of toxic constituents of concern in the normal residue.

3. Appendices I through X are added to part 266 as follows:

**Appendix I.—Tier I and Tier II Feed Rate and Emissions Screening Limits for Metals**

TABLE I-A.—TIER I AND TIER II FEED RATE AND EMISSIONS SCREENING LIMITS FOR CARCINOGENIC METALS FOR FACILITIES IN NONCOMPLEX TERRAIN

[Values for urban areas]

| Terrain adjusted eff. stack ht. (m) | Antimony (g/hr) | Barium (g/hr) | Lead (g/hr) | Mercury (g/hr) | Silver (g/hr) | Thallium (g/hr) |
|-------------------------------------|-----------------|---------------|-------------|----------------|---------------|-----------------|
| 4                                   | 6.0E+01         | 1.0E+04       | 1.8E+01     | 6.0E+01        | 6.0E+02       | 6.0E+01         |
| 6                                   | 6.8E+01         | 1.1E+04       | 2.0E+01     | 6.8E+01        | 6.8E+02       | 6.8E+01         |
| 6                                   | 7.6E+01         | 1.3E+04       | 2.3E+01     | 7.6E+01        | 7.6E+02       | 7.6E+01         |
| 10                                  | 8.6E+01         | 1.4E+04       | 2.6E+01     | 8.6E+01        | 8.6E+02       | 8.6E+01         |
| 12                                  | 9.6E+01         | 1.7E+04       | 3.0E+01     | 9.6E+01        | 9.6E+02       | 9.6E+01         |
| 14                                  | 1.1E+02         | 1.8E+04       | 3.4E+01     | 1.1E+02        | 1.1E+03       | 1.1E+02         |
| 16                                  | 1.3E+02         | 2.1E+04       | 3.6E+01     | 1.3E+02        | 1.3E+03       | 1.3E+02         |
| 18                                  | 1.4E+02         | 2.4E+04       | 4.3E+01     | 1.4E+02        | 1.4E+03       | 1.4E+02         |
| 20                                  | 1.6E+02         | 2.7E+04       | 4.6E+01     | 1.6E+02        | 1.6E+03       | 1.6E+02         |
| 22                                  | 1.8E+02         | 3.0E+04       | 5.4E+01     | 1.8E+02        | 1.8E+03       | 1.8E+02         |
| 24                                  | 2.0E+02         | 3.4E+04       | 6.0E+01     | 2.0E+02        | 2.0E+03       | 2.0E+02         |
| 26                                  | 2.3E+02         | 3.9E+04       | 6.8E+01     | 2.3E+02        | 2.3E+03       | 2.3E+02         |
| 28                                  | 2.6E+02         | 4.3E+04       | 7.8E+01     | 2.6E+02        | 2.6E+03       | 2.6E+02         |
| 30                                  | 3.0E+02         | 5.0E+04       | 9.0E+01     | 3.0E+02        | 3.0E+03       | 3.0E+02         |
| 35                                  | 4.0E+02         | 6.6E+04       | 1.1E+02     | 4.0E+02        | 4.0E+03       | 4.0E+02         |
| 40                                  | 4.6E+02         | 7.8E+04       | 1.4E+02     | 4.6E+02        | 4.6E+03       | 4.6E+02         |
| 45                                  | 6.0E+02         | 1.0E+05       | 1.8E+02     | 6.0E+02        | 6.0E+03       | 6.0E+02         |
| 50                                  | 7.8E+02         | 1.3E+05       | 2.3E+02     | 7.8E+02        | 7.8E+03       | 7.8E+02         |
| 55                                  | 9.6E+02         | 1.7E+05       | 3.0E+02     | 9.6E+02        | 9.6E+03       | 9.6E+02         |
| 60                                  | 1.2E+03         | 2.0E+05       | 3.6E+02     | 1.2E+03        | 1.2E+04       | 1.2E+03         |
| 65                                  | 1.5E+03         | 2.5E+05       | 4.3E+02     | 1.5E+03        | 1.5E+04       | 1.5E+03         |
| 70                                  | 1.7E+03         | 2.8E+05       | 5.0E+02     | 1.7E+03        | 1.7E+04       | 1.7E+03         |
| 75                                  | 1.9E+03         | 3.2E+05       | 5.8E+02     | 1.9E+03        | 1.9E+04       | 1.9E+03         |
| 80                                  | 2.2E+03         | 3.6E+05       | 6.4E+02     | 2.2E+03        | 2.2E+04       | 2.2E+03         |
| 85                                  | 2.5E+03         | 4.0E+05       | 7.6E+02     | 2.5E+03        | 2.5E+04       | 2.5E+03         |
| 90                                  | 2.8E+03         | 4.6E+05       | 8.2E+02     | 2.8E+03        | 2.8E+04       | 2.8E+03         |
| 95                                  | 3.2E+03         | 5.4E+05       | 9.6E+02     | 3.2E+03        | 3.2E+04       | 3.2E+03         |
| 100                                 | 3.6E+03         | 6.0E+05       | 1.1E+03     | 3.6E+03        | 3.6E+04       | 3.6E+03         |
| 105                                 | 4.0E+03         | 6.8E+05       | 1.2E+03     | 4.0E+03        | 4.0E+04       | 4.0E+03         |
| 110                                 | 4.6E+03         | 7.8E+05       | 1.4E+03     | 4.6E+03        | 4.6E+04       | 4.6E+03         |
| 115                                 | 5.4E+03         | 8.6E+05       | 1.6E+03     | 5.4E+03        | 5.4E+04       | 5.4E+03         |
| 120                                 | 6.0E+03         | 1.0E+06       | 1.8E+03     | 6.0E+03        | 6.0E+04       | 6.0E+03         |

TABLE I-B.—TIER I AND TIER II FEED RATE AND EMISSIONS SCREENING LIMITS FOR NONCARCINOGENIC METALS FOR FACILITIES IN NONCOMPLEX TERRAIN

[Values for rural areas]

| Terrain adjusted eff. stack ht. (m) | Antimony (g/hr) | Barium (g/hr) | Lead (g/hr) | Mercury (g/hr) | Silver (g/hr) | Thallium (g/hr) |
|-------------------------------------|-----------------|---------------|-------------|----------------|---------------|-----------------|
| 4                                   | 3.1E+01         | 5.2E+03       | 9.4E+00     | 3.1E+01        | 3.1E+02       | 3.1E+01         |
| 6                                   | 3.6E+01         | 6.0E+03       | 1.1E+01     | 3.6E+01        | 3.6E+02       | 3.6E+01         |
| 8                                   | 4.0E+01         | 6.8E+03       | 1.2E+01     | 4.0E+01        | 4.0E+02       | 4.0E+01         |
| 10                                  | 4.6E+01         | 7.8E+03       | 1.4E+01     | 4.6E+01        | 4.6E+02       | 4.6E+01         |
| 12                                  | 5.8E+01         | 9.8E+03       | 1.7E+01     | 5.8E+01        | 5.8E+02       | 5.8E+01         |
| 14                                  | 6.8E+01         | 1.1E+04       | 2.1E+01     | 6.8E+01        | 6.8E+02       | 6.8E+01         |
| 16                                  | 8.6E+01         | 1.4E+04       | 2.8E+01     | 8.6E+01        | 8.6E+02       | 8.6E+01         |
| 18                                  | 1.1E+02         | 1.8E+04       | 3.2E+01     | 1.1E+02        | 1.1E+03       | 1.1E+02         |
| 20                                  | 1.3E+02         | 2.2E+04       | 4.0E+01     | 1.3E+02        | 1.3E+03       | 1.3E+02         |
| 22                                  | 1.7E+02         | 2.8E+04       | 5.0E+01     | 1.7E+02        | 1.7E+03       | 1.7E+02         |
| 24                                  | 2.2E+02         | 3.6E+04       | 6.4E+01     | 2.2E+02        | 2.2E+03       | 2.2E+02         |
| 26                                  | 2.8E+02         | 4.6E+04       | 8.2E+01     | 2.8E+02        | 2.8E+03       | 2.8E+02         |
| 28                                  | 3.5E+02         | 5.8E+04       | 1.0E+02     | 3.5E+02        | 3.5E+03       | 3.5E+02         |
| 30                                  | 4.3E+02         | 7.6E+04       | 1.3E+02     | 4.3E+02        | 4.3E+03       | 4.3E+02         |
| 35                                  | 7.2E+02         | 1.2E+05       | 2.1E+02     | 7.2E+02        | 7.2E+03       | 7.2E+02         |
| 40                                  | 1.1E+03         | 1.8E+05       | 3.2E+02     | 1.1E+03        | 1.1E+04       | 1.1E+03         |
| 45                                  | 1.5E+03         | 2.5E+05       | 4.6E+02     | 1.5E+03        | 1.5E+04       | 1.5E+03         |
| 50                                  | 2.0E+03         | 3.3E+05       | 6.0E+02     | 2.0E+03        | 2.0E+04       | 2.0E+03         |
| 55                                  | 2.6E+03         | 4.4E+05       | 7.6E+02     | 2.6E+03        | 2.6E+04       | 2.6E+03         |
| 60                                  | 3.4E+03         | 5.8E+05       | 1.0E+03     | 3.4E+03        | 3.4E+04       | 3.4E+03         |
| 65                                  | 4.6E+03         | 7.6E+05       | 1.4E+03     | 4.6E+03        | 4.6E+04       | 4.6E+03         |
| 70                                  | 5.4E+03         | 9.0E+05       | 1.6E+03     | 5.4E+03        | 5.4E+04       | 5.4E+03         |
| 75                                  | 6.4E+03         | 1.1E+06       | 1.9E+03     | 6.4E+03        | 6.4E+04       | 6.4E+03         |
| 80                                  | 7.6E+03         | 1.3E+06       | 2.3E+03     | 7.6E+03        | 7.6E+04       | 7.6E+03         |
| 85                                  | 9.4E+03         | 1.5E+06       | 2.8E+03     | 9.4E+03        | 9.4E+04       | 9.4E+03         |
| 90                                  | 1.1E+04         | 1.8E+06       | 3.3E+03     | 1.1E+04        | 1.1E+05       | 1.1E+04         |
| 95                                  | 1.3E+04         | 2.2E+06       | 3.9E+03     | 1.3E+04        | 1.3E+05       | 1.3E+04         |
| 100                                 | 1.5E+04         | 2.6E+06       | 4.6E+03     | 1.5E+04        | 1.5E+05       | 1.5E+04         |
| 105                                 | 1.8E+04         | 3.0E+06       | 5.4E+03     | 1.8E+04        | 1.8E+05       | 1.8E+04         |
| 110                                 | 2.2E+04         | 3.6E+06       | 6.6E+03     | 2.2E+04        | 2.2E+05       | 2.2E+04         |
| 115                                 | 2.6E+04         | 4.4E+06       | 7.8E+03     | 2.6E+04        | 2.6E+05       | 2.6E+04         |
| 120                                 | 3.1E+04         | 5.0E+06       | 9.2E+03     | 3.1E+04        | 3.1E+05       | 3.1E+04         |

TABLE I-C.—TIER I AND TIER II FEED RATE AND EMISSIONS SCREENING LIMITS FOR NONCARCINOGENIC METALS FOR FACILITIES IN COMPLEX TERRAIN

Values for urban and rural areas

| Terrain adjusted eff. stack ht. (m) | Antimony (g/hr) | Barium (g/hr) | Lead (g/hr) | Mercury (g/hr) | Silver (g/hr) | Thallium (g/hr) |
|-------------------------------------|-----------------|---------------|-------------|----------------|---------------|-----------------|
| 4                                   | 1.4E+01         | 2.4E+03       | 4.3E+00     | 1.4E+01        | 1.4E+02       | 1.4E+01         |
| 6                                   | 2.1E+01         | 3.5E+03       | 6.2E+00     | 2.1E+01        | 2.1E+02       | 2.1E+01         |
| 8                                   | 3.0E+01         | 5.0E+03       | 9.2E+00     | 3.0E+01        | 3.0E+02       | 3.0E+01         |
| 10                                  | 4.3E+01         | 7.8E+03       | 1.3E+01     | 4.3E+01        | 4.3E+02       | 4.3E+01         |
| 12                                  | 5.4E+01         | 9.0E+03       | 1.7E+01     | 5.4E+01        | 5.4E+02       | 5.4E+01         |
| 14                                  | 6.8E+01         | 1.1E+04       | 2.0E+01     | 6.8E+01        | 6.8E+02       | 6.8E+01         |
| 16                                  | 7.8E+01         | 1.3E+04       | 2.4E+01     | 7.8E+01        | 7.8E+02       | 7.8E+01         |
| 18                                  | 8.8E+01         | 1.4E+04       | 2.6E+01     | 8.6E+01        | 8.6E+02       | 8.6E+01         |
| 20                                  | 9.6E+01         | 1.6E+04       | 2.9E+01     | 9.6E+01        | 9.6E+02       | 9.6E+01         |
| 22                                  | 1.0E+02         | 1.8E+04       | 3.2E+01     | 1.0E+02        | 1.0E+03       | 1.0E+02         |
| 24                                  | 1.2E+02         | 1.9E+04       | 3.5E+01     | 1.2E+02        | 1.2E+03       | 1.2E+02         |
| 26                                  | 1.3E+02         | 2.2E+04       | 3.6E+01     | 1.3E+02        | 1.3E+03       | 1.3E+02         |
| 28                                  | 1.4E+02         | 2.4E+04       | 4.3E+01     | 1.4E+02        | 1.4E+03       | 1.4E+02         |
| 30                                  | 1.6E+02         | 2.7E+04       | 4.6E+01     | 1.6E+02        | 1.6E+03       | 1.6E+02         |
| 35                                  | 2.0E+02         | 3.3E+04       | 5.8E+01     | 2.0E+02        | 2.0E+03       | 2.0E+02         |
| 40                                  | 2.4E+02         | 4.0E+04       | 7.2E+01     | 2.4E+02        | 2.4E+03       | 2.4E+02         |
| 45                                  | 3.0E+02         | 5.0E+04       | 9.0E+01     | 3.0E+02        | 3.0E+03       | 3.0E+02         |
| 50                                  | 3.6E+02         | 6.0E+04       | 1.1E+02     | 3.6E+02        | 3.6E+03       | 3.6E+02         |
| 55                                  | 4.6E+02         | 7.6E+04       | 1.4E+02     | 4.6E+02        | 4.6E+03       | 4.6E+02         |
| 60                                  | 5.8E+02         | 9.4E+04       | 1.7E+02     | 5.8E+02        | 5.8E+03       | 5.8E+02         |
| 65                                  | 6.8E+02         | 1.1E+05       | 2.1E+02     | 6.8E+02        | 6.8E+03       | 6.8E+02         |
| 70                                  | 7.8E+02         | 1.3E+05       | 2.4E+02     | 7.8E+02        | 7.8E+03       | 7.8E+02         |
| 75                                  | 8.6E+02         | 1.4E+05       | 2.6E+02     | 8.6E+02        | 8.6E+03       | 8.6E+02         |
| 80                                  | 9.6E+02         | 1.8E+05       | 2.9E+02     | 9.6E+02        | 9.6E+03       | 9.6E+02         |
| 85                                  | 1.1E+03         | 1.8E+05       | 3.3E+02     | 1.1E+03        | 1.1E+04       | 1.1E+03         |
| 90                                  | 1.2E+03         | 2.0E+05       | 3.6E+02     | 1.2E+03        | 1.2E+04       | 1.2E+03         |
| 95                                  | 1.4E+03         | 2.3E+05       | 4.0E+02     | 1.4E+03        | 1.4E+04       | 1.4E+03         |
| 100                                 | 1.5E+03         | 2.6E+05       | 4.6E+02     | 1.5E+03        | 1.5E+04       | 1.5E+03         |
| 105                                 | 1.7E+03         | 2.8E+05       | 5.0E+02     | 1.7E+03        | 1.7E+04       | 1.7E+03         |
| 110                                 | 1.9E+03         | 3.2E+05       | 5.8E+02     | 1.9E+03        | 1.9E+04       | 1.9E+03         |
| 115                                 | 2.1E+03         | 3.6E+05       | 6.4E+02     | 2.1E+03        | 2.1E+04       | 2.1E+03         |
| 120                                 | 2.4E+03         | 4.0E+05       | 7.2E+02     | 2.4E+03        | 2.4E+04       | 2.4E+03         |

TABLE I-D.—TIER I AND TIER II FEED RATE AND EMISSIONS SCREENING LIMITS FOR CARCINOGENIC METALS FOR FACILITIES IN NONCOMPLEX TERRAIN

| Terrain adjusted eff. stack ht. (m) | Values for use in urban areas |                |                 |                  | Values for use in rural areas |                |                 |                  |
|-------------------------------------|-------------------------------|----------------|-----------------|------------------|-------------------------------|----------------|-----------------|------------------|
|                                     | Arsenic (g/hr)                | Cadmium (g/hr) | Chromium (g/hr) | Beryllium (g/hr) | Arsenic (g/hr)                | Cadmium (g/hr) | Chromium (g/hr) | Beryllium (g/hr) |
| 4.....                              | 4.6E-01                       | 1.1E+00        | 1.7E-01         | 8.2E-01          | 2.4E-01                       | 5.8E-01        | 8.6E-02         | 4.3E-01          |
| 6.....                              | 5.4E-01                       | 1.3E+00        | 1.9E-01         | 9.4E-01          | 2.8E-01                       | 6.6E-01        | 1.0E-01         | 5.0E-01          |
| 8.....                              | 6.0E-01                       | 1.4E+00        | 2.2E-01         | 1.1E+00          | 3.2E-01                       | 7.6E-01        | 1.1E-01         | 5.6E-01          |
| 10.....                             | 6.8E-01                       | 1.6E+00        | 2.4E-01         | 1.2E+00          | 3.6E-01                       | 8.6E-01        | 1.3E-01         | 6.4E-01          |
| 12.....                             | 7.6E-01                       | 1.8E+00        | 2.7E-01         | 1.4E+00          | 4.3E-01                       | 1.1E+00        | 1.8E-01         | 7.8E-01          |
| 14.....                             | 8.6E-01                       | 2.1E+00        | 3.1E-01         | 1.5E+00          | 5.4E-01                       | 1.3E+00        | 2.0E-01         | 9.6E-01          |
| 16.....                             | 9.6E+01                       | 2.3E+00        | 3.5E-01         | 1.7E+00          | 6.8E-01                       | 1.6E+00        | 2.4E-01         | 1.2E+00          |
| 18.....                             | 1.1E+00                       | 2.6E+00        | 4.0E-01         | 2.0E+00          | 8.2E-01                       | 2.0E+00        | 3.0E-01         | 1.5E+00          |
| 20.....                             | 1.2E+00                       | 3.0E+00        | 4.4E-01         | 2.2E+00          | 1.0E+00                       | 2.5E+00        | 3.7E-01         | 1.9E+00          |
| 22.....                             | 1.4E+00                       | 3.4E+00        | 5.0E-01         | 2.5E+00          | 1.3E+00                       | 3.2E+00        | 4.8E-01         | 2.4E+00          |
| 24.....                             | 1.6E+00                       | 3.9E+00        | 5.8E-01         | 2.8E+00          | 1.7E+00                       | 4.0E+00        | 8.0E-01         | 3.0E+00          |
| 26.....                             | 1.8E+00                       | 4.3E+00        | 6.4E-01         | 3.2E+00          | 2.1E+00                       | 5.0E+00        | 7.6E-01         | 3.9E+00          |
| 28.....                             | 2.0E+00                       | 4.8E+00        | 7.2E-01         | 3.6E+00          | 2.7E+00                       | 6.4E+00        | 9.8E-01         | 5.0E+00          |
| 30.....                             | 2.3E+00                       | 5.4E+00        | 8.2E-01         | 4.0E+00          | 3.5E+00                       | 8.2E+00        | 1.2E+00         | 8.2E+00          |
| 35.....                             | 3.0E+00                       | 6.8E+00        | 1.0E+00         | 5.4E+00          | 5.4E+00                       | 1.3E+01        | 1.9E+00         | 9.8E+00          |
| 40.....                             | 3.8E+00                       | 9.0E+00        | 1.3E+00         | 6.8E+00          | 8.2E+00                       | 2.0E+01        | 3.0E+00         | 1.5E+01          |
| 45.....                             | 4.6E+00                       | 1.1E+01        | 1.7E+00         | 8.6E+00          | 1.1E+01                       | 2.8E+01        | 4.2E+00         | 2.1E+01          |
| 50.....                             | 6.0E+00                       | 1.4E+01        | 2.2E+00         | 1.1E+01          | 1.5E+01                       | 3.7E+01        | 5.4E+00         | 2.8E+01          |
| 55.....                             | 7.6E+00                       | 1.8E+01        | 2.7E+00         | 1.4E+01          | 2.0E+01                       | 5.0E+01        | 7.2E+00         | 3.6E+01          |
| 60.....                             | 9.4E+00                       | 2.2E+01        | 3.4E+00         | 1.7E+01          | 2.7E+01                       | 6.4E+01        | 9.6E+00         | 4.8E+01          |
| 65.....                             | 1.1E+01                       | 2.8E+01        | 4.2E+00         | 2.1E+01          | 3.6E+01                       | 8.6E+01        | 1.3E+01         | 6.4E+01          |
| 70.....                             | 1.3E+01                       | 3.1E+01        | 4.6E+00         | 2.4E+01          | 4.3E+01                       | 1.0E+02        | 1.5E+01         | 7.6E+01          |
| 75.....                             | 1.5E+01                       | 3.6E+01        | 5.4E+00         | 2.7E+01          | 5.0E+01                       | 1.2E+02        | 1.8E+01         | 9.0E+01          |
| 80.....                             | 1.7E+01                       | 4.0E+01        | 6.0E+00         | 3.0E+01          | 6.0E+01                       | 1.4E+02        | 2.2E+01         | 1.1E+02          |
| 85.....                             | 1.9E+01                       | 4.6E+01        | 6.8E+00         | 3.4E+01          | 7.2E+01                       | 1.7E+02        | 2.6E+01         | 1.3E+02          |
| 90.....                             | 2.2E+01                       | 5.0E+01        | 7.8E+00         | 3.9E+01          | 8.6E+01                       | 2.0E+02        | 3.0E+01         | 1.5E+02          |
| 95.....                             | 2.5E+01                       | 5.8E+01        | 9.0E+00         | 4.4E+01          | 1.0E+02                       | 2.4E+02        | 3.6E+01         | 1.8E+02          |
| 100.....                            | 2.8E+01                       | 6.8E+01        | 1.0E+01         | 5.0E+01          | 1.2E+02                       | 2.9E+02        | 4.3E+01         | 2.2E+02          |
| 105.....                            | 3.2E+01                       | 7.8E+01        | 1.1E+01         | 5.8E+01          | 1.4E+02                       | 3.4E+02        | 5.0E+01         | 2.6E+02          |
| 110.....                            | 3.6E+01                       | 8.6E+01        | 1.3E+01         | 6.4E+01          | 1.7E+02                       | 4.0E+02        | 6.0E+01         | 3.0E+02          |
| 115.....                            | 4.0E+01                       | 9.6E+01        | 1.5E+01         | 7.2E+01          | 2.0E+02                       | 4.8E+02        | 7.2E+01         | 3.6E+02          |
| 120.....                            | 4.6E+01                       | 1.1E+02        | 1.7E+01         | 8.2E+01          | 2.4E+02                       | 5.8E+02        | 6.6E+01         | 4.3E+02          |

TABLE I-E.—TIER I AND TIER II FEED RATE AND EMISSIONS SCREENING LIMITS FOR CARCINOGENIC METALS FOR FACILITIES IN COMPLEX TERRAIN

| Terrain adjusted eff. stack ht. (m) | Values for use in urban and rural areas |                |                 |                  |
|-------------------------------------|---|----------------|-----------------|------------------|
|                                     | Arsenic (g/hr)                          | Cadmium (g/hr) | Chromium (g/hr) | Beryllium (g/hr) |
| 4.....                              | 1.1E-01                                 | 2.8E-01        | 4.0E-02         | 2.0E-01          |
| 6.....                              | 1.6E-01                                 | 3.9E-01        | 5.8E-02         | 2.9E-01          |
| 8.....                              | 2.4E-01                                 | 5.8E-01        | 8.6E-02         | 4.3E-01          |
| 10.....                             | 3.5E-01                                 | 8.2E-01        | 1.3E-01         | 6.2E-01          |
| 12.....                             | 4.3E-01                                 | 1.0E+00        | 1.5E-01         | 7.6E-01          |
| 14.....                             | 5.0E-01                                 | 1.3E+00        | 1.9E-01         | 9.4E-01          |
| 16.....                             | 6.0E-01                                 | 1.4E+00        | 2.2E-01         | 1.1E+00          |
| 18.....                             | 6.8E-01                                 | 1.6E+00        | 2.4E-01         | 1.2E+00          |
| 20.....                             | 7.8E-01                                 | 1.8E+00        | 2.7E-01         | 1.3E+00          |
| 22.....                             | 8.2E-01                                 | 1.9E+00        | 3.0E-01         | 1.5E+00          |
| 24.....                             | 9.0E-01                                 | 2.1E+00        | 3.3E-01         | 1.6E+00          |
| 26.....                             | 1.0E+00                                 | 2.4E+00        | 3.6E-01         | 1.8E+00          |
| 28.....                             | 1.1E+00                                 | 2.7E+00        | 4.0E-01         | 2.0E+00          |
| 30.....                             | 1.2E+00                                 | 3.0E+00        | 4.4E-01         | 2.2E+00          |
| 35.....                             | 1.5E+00                                 | 3.7E+00        | 5.4E-01         | 2.7E+00          |
| 40.....                             | 1.9E+00                                 | 4.6E+00        | 6.8E-01         | 3.4E+00          |
| 45.....                             | 2.4E+00                                 | 5.4E+00        | 8.4E-01         | 4.2E+00          |
| 50.....                             | 2.9E+00                                 | 6.8E+00        | 1.0E+00         | 5.0E+00          |
| 55.....                             | 3.5E+00                                 | 8.4E+00        | 1.3E+00         | 6.4E+00          |
| 60.....                             | 4.3E+00                                 | 1.0E+01        | 1.5E+00         | 7.8E+00          |
| 65.....                             | 5.4E+00                                 | 1.3E+01        | 1.9E+00         | 9.6E+00          |
| 70.....                             | 6.0E+00                                 | 1.4E+01        | 2.2E+00         | 1.1E+01          |
| 75.....                             | 6.8E+00                                 | 1.6E+01        | 2.4E+00         | 1.2E+01          |
| 80.....                             | 7.6E+00                                 | 1.8E+01        | 2.7E+00         | 1.3E+01          |
| 85.....                             | 8.2E+00                                 | 2.0E+01        | 3.0E+00         | 1.5E+01          |
| 90.....                             | 9.4E+00                                 | 2.3E+01        | 3.4E+00         | 1.7E+01          |
| 95.....                             | 1.0E+01                                 | 2.5E+01        | 4.0E+00         | 1.9E+01          |
| 100.....                            | 1.2E+01                                 | 2.8E+01        | 4.3E+00         | 2.1E+01          |
| 105.....                            | 1.3E+01                                 | 3.2E+01        | 4.8E+00         | 2.4E+01          |
| 110.....                            | 1.5E+01                                 | 3.5E+01        | 5.4E+00         | 2.7E+01          |
| 115.....                            | 1.7E+01                                 | 4.0E+01        | 8.0E+00         | 3.0E+01          |
| 120.....                            | 1.9E+01                                 | 4.4E+01        | 8.4E+00         | 3.3E+01          |

Appendix II.—Tier I Feed Rate Screening Limits for Total Chlorine and Chloride

TIER I FEED RATE SCREENING LIMITS FOR CHLORINE FOR FACILITIES IN NONCOMPLEX AND COMPLEX TERRAIN

| Terrain-adjusted effective stack height (m) | Noncomplex    |               | Complex |
|---|---------------|---------------|---------|
|   | Urban (lb/hr) | Rural (lb/hr) | (lb/hr) |
| 4   | 1.8E-02       | 9.2E-03       | 4.1E-03 |
| 6   | 2.0E-02       | 1.0E-02       | 6.1E-03 |
| 8   | 2.2E-02       | 1.2E-02       | 9.0E-03 |
| 10  | 2.5E-02       | 1.4E-02       | 1.3E-02 |
| 12  | 2.9E-02       | 1.7E-02       | 1.6E-02 |
| 14  | 3.3E-02       | 2.0E-02       | 2.0E-02 |
| 16  | 3.7E-02       | 2.5E-02       | 2.3E-02 |
| 18  | 4.1E-02       | 3.2E-02       | 2.5E-02 |
| 20  | 4.7E-02       | 3.9E-02       | 2.9E-02 |
| 22  | 5.3E-02       | 5.0E-02       | 3.1E-02 |
| 24  | 6.0E-02       | 6.3E-02       | 3.5E-02 |
| 26  | 6.8E-02       | 8.1E-02       | 3.8E-02 |
| 28  | 7.6E-02       | 1.0E-01       | 4.2E-02 |
| 30  | 8.7E-02       | 1.3E-01       | 4.7E-02 |
| 35  | 1.2E-01       | 2.1E-01       | 5.8E-02 |
| 40  | 1.4E-01       | 3.2E-01       | 7.2E-02 |
| 45  | 1.8E-01       | 4.4E-01       | 8.8E-02 |
| 50  | 2.3E-01       | 5.8E-01       | 1.1E-01 |
| 55  | 2.9E-01       | 7.7E-01       | 1.4E-01 |
| 60  | 3.6E-01       | 1.0E+00       | 1.7E-01 |
| 65  | 4.3E-01       | 1.4E+00       | 2.0E-01 |
| 70  | 5.0E-01       | 1.6E+00       | 2.3E-01 |
| 75  | 5.6E-01       | 1.9E+00       | 2.5E-01 |
| 80  | 6.3E-01       | 2.2E+00       | 2.9E-01 |
| 85  | 7.3E-01       | 2.8E+00       | 3.2E-01 |
| 90  | 8.3E-01       | 3.2E+00       | 3.6E-01 |
| 95  | 9.3E-01       | 3.8E+00       | 4.0E-01 |
| 100   | 1.1E+00       | 4.6E+00       | 4.4E-01 |
| 105   | 1.2E+00       | 5.4E+00       | 5.0E-01 |
| 110   | 1.4E+00       | 6.5E+00       | 5.6E-01 |
| 115   | 1.6E+00       | 7.7E+00       | 6.2E-01 |
| 120   | 1.8E+00       | 9.1E+00       | 7.1E-01 |

Appendix III.—Tier II Emission Rate Screening Limits for Free Chlorine and Hydrogen Chloride

TIER II EMISSIONS SCREENING LIMITS FOR Cl<sub>2</sub> AND HCl IN NONCOMPLEX TERRAIN

| Terrain-adjusted effective stack height (m) | Values for use in urban areas |             | Values for use in rural areas |             |
|---|-------------------------------|-------------|-------------------------------|-------------|
|   | Cl <sub>2</sub> (g/sec)       | HCl (g/sec) | Cl <sub>2</sub> (g/sec)       | HCl (g/sec) |
| 4   | 2.3E-03                       | 4.0E-01     | 1.2E-03                       | 2.0E-01     |
| 6   | 2.5E-03                       | 4.4E-01     | 1.3E-03                       | 2.3E-01     |
| 8   | 2.8E-03                       | 4.9E-01     | 1.5E-03                       | 2.6E-01     |
| 10  | 3.2E-03                       | 5.6E-01     | 1.7E-03                       | 3.0E-01     |
| 12  | 3.6E-03                       | 6.3E-01     | 2.1E-03                       | 3.7E-01     |
| 14  | 4.1E-03                       | 7.2E-01     | 2.5E-03                       | 4.4E-01     |
| 16  | 4.7E-03                       | 8.2E-01     | 3.2E-03                       | 5.6E-01     |
| 18  | 5.2E-03                       | 9.1E-01     | 4.0E-03                       | 7.0E-01     |
| 20  | 5.9E-03                       | 1.0E+00     | 4.9E-03                       | 8.6E-01     |
| 22  | 6.7E-03                       | 1.2E+00     | 6.3E-03                       | 1.1E+00     |
| 24  | 7.6E-03                       | 1.3E+00     | 8.0E-03                       | 1.4E+00     |
| 26  | 8.5E-03                       | 1.5E+00     | 1.0E-02                       | 1.8E+00     |
| 28  | 9.6E-03                       | 1.7E+00     | 1.3E-02                       | 2.3E+00     |
| 30  | 1.1E-02                       | 1.9E+00     | 1.6E-02                       | 2.8E+00     |
| 35  | 1.5E-02                       | 2.6E+00     | 2.7E-02                       | 4.7E+00     |
| 40  | 1.7E-02                       | 3.0E+00     | 4.0E-02                       | 7.0E+00     |
| 45  | 2.3E-02                       | 4.0E+00     | 5.6E-02                       | 9.8E+00     |
| 50  | 2.9E-02                       | 5.1E+00     | 7.3E-02                       | 1.3E+01     |
| 55  | 3.6E-02                       | 6.3E+00     | 9.7E-02                       | 1.7E+01     |
| 60  | 4.5E-02                       | 7.9E+00     | 1.3E-01                       | 2.2E+01     |
| 65  | 5.5E-02                       | 9.6E+00     | 1.7E-01                       | 3.0E+01     |
| 70  | 6.3E-02                       | 1.1E+01     | 2.0E-01                       | 3.5E+01     |
| 75  | 7.1E-02                       | 1.2E+01     | 2.4E-01                       | 4.2E+01     |
| 80  | 8.0E-02                       | 1.4E+01     | 2.8E-01                       | 4.9E+01     |
| 85  | 9.2E-02                       | 1.6E+01     | 3.5E-01                       | 6.1E+01     |
| 90  | 1.0E-01                       | 1.8E+01     | 4.0E-01                       | 7.0E+01     |
| 95  | 1.2E-01                       | 2.1E+01     | 4.8E-01                       | 8.4E+01     |

TIER II EMISSIONS SCREENING LIMITS FOR Cl<sub>2</sub> AND HCl IN NONCOMPLEX TERRAIN—Continued

| Terrain-adjusted effective stack height (m) | Values for use in urban areas |             | Values for use in rural areas |             |
|---|-------------------------------|-------------|-------------------------------|-------------|
|   | Cl <sub>2</sub> (g/sec)       | HCl (g/sec) | Cl <sub>2</sub> (g/sec)       | HCl (g/sec) |
| 100   | 1.3E-01                       | 2.3E+01     | 5.7E-01                       | 1.0E+02     |
| 105   | 1.5E-01                       | 2.6E+01     | 6.8E-01                       | 1.2E+02     |
| 110   | 1.7E-01                       | 3.0E+01     | 8.1E-01                       | 1.4E+02     |
| 115   | 2.0E-01                       | 3.5E+01     | 9.7E-01                       | 1.7E+02     |
| 120   | 2.3E-01                       | 4.0E+01     | 1.1E+00                       | 2.0E+02     |

TIER II EMISSIONS SCREENING LIMITS FOR Cl<sub>2</sub> AND HCl IN COMPLEX TERRAIN

| Terrain-adjusted effective stack height (m) | Values for use in urban and rural areas |             |
|---|---|-------------|
|   | Cl <sub>2</sub> (g/sec)                 | HCl (g/sec) |
| 4   | 5.2E-04                                 | 9.1E-02     |
| 6   | 7.7E-04                                 | 1.4E-01     |
| 8   | 1.1E-03                                 | 2.0E-01     |
| 10  | 1.6E-03                                 | 2.8E-01     |
| 12  | 2.0E-03                                 | 3.5E-01     |
| 14  | 2.5E-03                                 | 4.4E-01     |
| 16  | 2.9E-03                                 | 5.1E-01     |
| 18  | 3.2E-03                                 | 5.6E-01     |
| 20  | 3.6E-03                                 | 6.3E-01     |
| 22  | 3.9E-03                                 | 6.8E-01     |
| 24  | 4.4E-03                                 | 7.7E-01     |
| 26  | 4.8E-03                                 | 8.4E-01     |
| 28  | 5.3E-03                                 | 9.3E-01     |
| 30  | 5.9E-03                                 | 1.0E+00     |
| 35  | 7.3E-03                                 | 1.3E+00     |
| 40  | 9.1E-03                                 | 1.6E+00     |
| 45  | 1.1E-02                                 | 1.9E+00     |
| 50  | 1.3E-02                                 | 2.3E+00     |
| 55  | 1.7E-02                                 | 3.0E+00     |
| 60  | 2.1E-02                                 | 3.7E+00     |
| 65  | 2.5E-02                                 | 4.4E+00     |
| 70  | 2.9E-02                                 | 5.1E+00     |
| 75  | 3.2E-02                                 | 5.8E+00     |
| 80  | 3.6E-02                                 | 6.3E+00     |
| 85  | 4.0E-02                                 | 7.0E+00     |
| 90  | 4.5E-02                                 | 7.9E+00     |
| 95  | 5.1E-02                                 | 8.9E+00     |
| 100   | 5.6E-02                                 | 9.8E+00     |
| 105   | 6.3E-02                                 | 1.1E+01     |
| 110   | 7.1E-02                                 | 1.2E+01     |
| 115   | 7.9E-02                                 | 1.4E+01     |
| 120   | 8.9E-02                                 | 1.6E+01     |

APPENDIX IV.—REFERENCE AIR CONCENTRATIONS\*

| Constituent            | CAS No.    | RAC (ug/m <sup>3</sup> ) |
|------------------------|------------|--------------------------|
| Acetaldehyde           | 75-07-0    | 10                       |
| Acetonitrile           | 75-05-8    | 10                       |
| Acetophenone           | 98-88-2    | 100                      |
| Acrolein               | 107-02-8   | 20                       |
| Aldicarb               | 116-06-3   | 1                        |
| Aluminum Phosphide     | 20859-73-8 | 0.3                      |
| Allyl Alcohol          | 107-18-8   | 5                        |
| Antimony               | 7440-36-0  | 0.3                      |
| Barium                 | 7440-39-3  | 50                       |
| Barium Cyanide         | 542-62-1   | 50                       |
| Bromomethane           | 74-83-9    | 0.8                      |
| Calcium Cyanide        | 592-01-8   | 30                       |
| Carbon Disulfide       | 75-15-0    | 200                      |
| Chloral                | 75-87-8    | 2                        |
| Chlorine (free)        |            | 0.4                      |
| 2-Chloro-1,3-butadiene | 128-89-8   | 3                        |
| Chromium III           | 16065-83-1 | 1000                     |
| Copper Cyanide         | 544-92-3   | 5                        |
| Cresols                | 1319-77-3  | 50                       |
| Cumene                 | 98-82-8    | 1                        |

APPENDIX IV.—REFERENCE AIR CONCENTRATIONS\*—Continued

| Constituent                | CAS No.    | RAC (ug/m <sup>3</sup> ) |
|----------------------------|------------|--------------------------|
| Cyanide (free)             | 57-12-15   | 20                       |
| Cyanogen                   | 460-18-5   | 30                       |
| Cyanogen Bromide           | 506-88-3   | 80                       |
| Di-n-butyl Phthalate       | 84-74-2    | 100                      |
| o-Dichlorobenzene          | 95-50-1    | 10                       |
| p-Dichlorobenzene          | 106-46-7   | 10                       |
| Dichlorodifluoromethane    | 75-71-8    | 200                      |
| 2,4-Dichlorophenol         | 120-83-2   | 3                        |
| Diethyl Phthalate          | 84-66-2    | 800                      |
| Dimethoate                 | 60-51-5    | 0.8                      |
| 2,4-Dinitrophenol          | 51-28-5    | 2                        |
| Dinoseb                    | 88-85-7    | 0.9                      |
| Diphenylamine              | 122-39-4   | 20                       |
| Endosulfan                 | 115-29-1   | 0.05                     |
| Endrin                     | 72-20-8    | 0.3                      |
| Fluorine                   | 7762-41-4  | 50                       |
| Formic Acid                | 64-18-6    | 2000                     |
| Glycidyaldehyde            | 785-34-4   | 0.3                      |
| Hexachlorocyclopentadiene  | 77-47-4    | 5                        |
| Hexachlorophene            | 70-30-4    | 0.3                      |
| Hydrocyanic Acid           | 74-90-8    | 20                       |
| Hydrogen Chloride          | 7647-01-1  | 7                        |
| Hydrogen Sulfide           | 7783-06-4  | 3                        |
| Isobutyl Alcohol           | 78-83-1    | 300                      |
| Lead                       | 7439-92-1  | 0.09                     |
| Maleic Anhydride           | 108-31-8   | 100                      |
| Mercury                    | 7439-97-8  | 0.3                      |
| Methacrylonitrile          | 126-98-7   | 0.1                      |
| Methomyl                   | 16752-77-5 | 20                       |
| Methoxychlor               | 72-43-5    | 50                       |
| Methyl Chlorocarbonate     | 79-22-1    | 1000                     |
| Methyl Ethyl Katone        | 78-93-3    | 80                       |
| Metyl Parathion            | 298-00-0   | 0.3                      |
| Nickel Cyanide             | 557-19-7   | 20                       |
| Nitric Oxide               | 10102-43-9 | 100                      |
| Nitrobenzene               | 98-95-3    | 0.8                      |
| Pentachlorobenzene         | 608-83-5   | 0.8                      |
| Pentachlorophenol          | 87-86-5    | 30                       |
| Phenol                     | 106-95-2   | 30                       |
| M-Phenylenediamine         | 108-45-2   | 5                        |
| Phenylmercuric Acetate     | 62-38-4    | 0.075                    |
| Phosphine                  | 7603-51-2  | 0.3                      |
| Phthalic Anhydride         | 85-44-9    | 2000                     |
| Potassium Cyanide          | 151-50-8   | 50                       |
| Potassium Silver Cyanide   | 508-81-6   | 200                      |
| Pyridine                   | 110-86-1   | 1                        |
| Selenious Acid             | 7783-60-8  | 3                        |
| Selenourea                 | 630-10-4   | 5                        |
| Silver                     | 7440-22-4  | 3                        |
| Silver Cyanide             | 508-84-9   | 100                      |
| Sodium Cyanide             | 143-33-9   | 30                       |
| Strychnine                 | 57-24-9    | 0.3                      |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3    | 0.3                      |
| 2,3,4,6-Tetrachlorophenol  | 58-90-2    | 30                       |
| Tetraethyl Lead            | 78-00-2    | 0.001                    |
| Tetrahydrofuran            | 109-99-9   | 10                       |
| Thallic Oxide              | 1314-32-5  | 0.3                      |
| Thallium                   | 7440-28-0  | 0.5                      |
| Thallium (I) Acetate       | 563-68-8   | 0.5                      |

APPENDIX IV.—REFERENCE AIR CONCENTRATIONS\*—Continued

| Constituent                | CAS No.    | RAC (ug/m <sup>3</sup> ) |
|----------------------------|------------|--------------------------|
| Thallium (I) Carbonate     | 6533-73-9  | 0.3                      |
| Thallium (I) Chloride      | 7791-12-0  | 0.3                      |
| Thallium (I) Nitrate       | 10102-45-1 | 0.5                      |
| Thallium Selenite          | 12039-52-0 | 0.5                      |
| Thallium (I) Sulfate       | 7446-18-8  | 0.075                    |
| Thiram                     | 137-26-8   | 5                        |
| Toluene                    | 108-88-3   | 300                      |
| 1,2,4-Trichlorobenzene     | 120-82-1   | 20                       |
| Trichloromonofluoromethane | 75-69-4    | 300                      |
| 2,4,5-Trichlorophenol      | 95-95-4    | 100                      |
| Vanadium Pentoxide         | 1314-62-1  | 20                       |
| Warfarin                   | 81-81-2    | 0.3                      |
| Xylenes                    | 1330-20-7  | 80                       |
| Zinc Cyanide               | 557-21-1   | 50                       |
| Zinc Phosphide             | 1314-84-7  | 0.3                      |

\*The RAC for other Appendix VIII Part 261 constituents not listed herein or in Appendix V of this Part is 0.1 ug/m<sup>3</sup>.

APPENDIX V.—RISK SPECIFIC DOSES (10<sup>-6</sup>)

| Constituent                 | CAS No.   | Unit risk (m <sup>3</sup> /ug) | RSD (ug/m <sup>3</sup> ) |
|-----------------------------|-----------|--------------------------------|--------------------------|
| Acrylamide                  | 79-06-1   | 1.3E-03                        | 7.7E-03                  |
| Acrylonitrile               | 107-13-1  | 8.8E-05                        | 1.5E-01                  |
| Aldrin                      | 309-00-2  | 4.9E-03                        | 2.0E-03                  |
| Aniline                     | 62-53-3   | 7.4E-06                        | 1.4E+00                  |
| Arsenic                     | 7440-38-2 | 4.3E-03                        | 2.3E-03                  |
| Benz(a)anthracene           | 56-55-3   | 8.9E-04                        | 1.1E-02                  |
| Benzene                     | 71-43-2   | 8.3E-06                        | 1.2E+00                  |
| Benzidine                   | 92-87-5   | 6.7E-02                        | 1.5E-04                  |
| Benzo(a)pyrene              | 50-32-8   | 3.3E-03                        | 3.0E-03                  |
| Beryllium                   | 7440-41-7 | 2.4E-03                        | 4.2E-03                  |
| Bis(2-chloroethyl)ether     | 111-44-4  | 3.3E-04                        | 3.0E-02                  |
| Bis(chloromethyl)ether      | 542-88-1  | 8.2E-02                        | 1.6E-04                  |
| Bis(2-ethylhexyl)-phthalate | 117-81-7  | 2.4E-07                        | 4.2E+01                  |
| 1,3-Butadiene               | 106-99-0  | 2.8E-04                        | 3.6E-02                  |
| Cadmium                     | 7440-43-9 | 1.8E-03                        | 5.6E-03                  |
| Carbon Tetrachloride        | 56-23-5   | 1.5E-05                        | 8.7E-01                  |

APPENDIX V.—RISK SPECIFIC DOSES  
(10<sup>-9</sup>)—Continued

| Constituent                 | CAS No.   | Unit risk (m3/ug) | RsD (ug/m3) |
|-----------------------------|-----------|-------------------|-------------|
| Chlordane                   | 57-74-9   | 3.7E-04           | 2.7E-02     |
| Chloroform                  | 67-66-3   | 2.3E-05           | 4.3E-01     |
| Chloromethane               | 74-87-3   | 3.6E-06           | 2.8E+00     |
| Chromium VI                 | 7440-47-3 | 1.2E-02           | 3.3E-04     |
| DDT                         | 50-29-3   | 9.7E-05           | 1.0E-01     |
| Dibenz(a,h)anthracene       | 53-70-3   | 1.4E-02           | 7.1E-04     |
| 1,2-Dibromo-3-chloropropane | 96-12-6   | 3.3E-03           | 1.6E-03     |
| 1,2-Dibromoethane           | 106-93-4  | 2.2E-04           | 4.5E-02     |
| 1,1-Dichloroethane          | 75-34-3   | 2.6E-05           | 3.8E-01     |
| 1,2-Dichloroethane          | 107-06-2  | 2.6E-05           | 3.8E-01     |
| 1,1-Dichloroethylene        | 75-35-4   | 5.0E-05           | 2.0E-01     |
| 1,3-Dichloropropene         | 542-75-6  | 3.5E-01           | 2.9E-05     |
| Dieldrin                    | 60-57-1   | 4.6E-03           | 2.2E-03     |
| Diethylstilbestrol          | 56-53-1   | 1.4E-01           | 7.1E-05     |
| Dimethylnitrosamine         | 62-75-9   | 1.4E-02           | 7.1E-04     |
| 2,4-Dinitrotoluene          | 121-14-2  | 3.8E-05           | 1.1E-01     |
| 1,2-Diphenylhydrazine       | 122-66-7  | 2.2E-04           | 4.5E-02     |
| 1,4-Dioxane                 | 123-91-1  | 1.4E-06           | 7.1E+00     |
| Epichlorohydrin             | 106-89-8  | 1.2E-06           | 3.3E+00     |
| Ethylene Oxide              | 75-21-8   | 1.0E-04           | 1.0E-01     |
| Ethylene Dibromide          | 106-93-4  | 2.2E-04           | 4.5E-02     |

APPENDIX V.—RISK SPECIFIC DOSES  
(10<sup>-9</sup>)—Continued

| Constituent                             | CAS No.   | Unit risk (m3/ug) | RsD (ug/m3) |
|---|-----------|-------------------|-------------|
| Formaldehyde                            | 50-00-0   | 1.3E-05           | 7.7E-01     |
| Heptachlor                              | 76-44-6   | 1.3E-03           | 7.7E-03     |
| Heptachlor Epoxide                      | 1024-57-3 | 2.6E-03           | 3.8E-03     |
| Hexachlorobenzene                       | 118-74-1  | 4.9E-04           | 2.0E-02     |
| Hexachlorobutadiene                     | 87-68-3   | 2.0E-05           | 5.0E-01     |
| Alpha-hexachloro-cyclohexane            | 319-84-8  | 1.8E-03           | 5.6E-03     |
| Beta-hexachloro-cyclohexane             | 319-85-7  | 5.3E-04           | 1.9E-02     |
| Gamma-hexachloro-cyclohexane            | 58-89-9   | 3.8E-04           | 2.6E-02     |
| Hexachlorocyclohexane, Technical        |           | 5.1E-04           | 2.0E-02     |
| Hexachlorodibenzo-p-dioxin(1,2 Mixture) |           | 1.3E+0            | 7.7E-06     |
| Hexachloroethane                        | 67-72-1   | 4.0E-06           | 2.5E+00     |
| Hydrazine                               | 302-01-2  | 2.9E-03           | 3.4E-03     |
| Hydrazine Sulfate                       | 302-01-2  | 2.9E-03           | 3.4E-03     |
| 3-Methylcholanthrene                    | 56-49-5   | 2.7E-03           | 3.7E-03     |
| Methyl Hydrazine                        | 60-34-4   | 3.1E-04           | 3.2E-02     |
| Methylene Chloride                      | 75-09-2   | 4.1E-06           | 2.4E+00     |
| 4,4'-Methylene-bis-2-chloroaniline      | 101-14-4  | 4.7E-05           | 2.1E-01     |
| Nickel                                  | 7440-02-0 | 2.4E-04           | 4.2E-02     |
| Nickel Refinery Dust                    | 7440-02-0 | 2.4E-04           | 4.2E-02     |

APPENDIX V.—RISK SPECIFIC DOSES  
(10<sup>-9</sup>)—Continued

| Constituent                         | CAS No.    | Unit risk (m3/ug) | RsD (ug/m3) |
|-------------------------------------|------------|-------------------|-------------|
| Nickel Subsulfide                   | 12035-72-2 | 4.8E-04           | 2.1E-02     |
| 2-Nitropropane                      | 79-46-9    | 2.7E-02           | 3.7E-04     |
| N-Nitroso-n-butylamine              | 924-16-3   | 1.6E-03           | 3.3E-03     |
| N-Nitroso-n-methylurea              | 684-93-6   | 8.6E-02           | 1.2E-04     |
| N-Nitrosodiethylamine               | 55-18-5    | 4.3E-02           | 2.3E-04     |
| N-Nitrosopyrrolidine                | 930-55-2   | 8.1E-04           | 1.6E-02     |
| Pentachloronitrobenzene             | 82-68-8    | 7.3E-05           | 1.4E-01     |
| PCBs                                | 1336-36-3  | 1.2E-03           | 3.3E-03     |
| Pronamide                           | 23950-58-5 | 4.6E-06           | 2.2E+00     |
| Reserpine                           | 50-55-5    | 3.0E-03           | 3.3E-03     |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin | 1748-01-8  | 4.5E+01           | 2.2E-07     |
| 1,1,2,2-Tetrachloroethane           | 79-34-5    | 5.8E-05           | 1.7E-01     |
| Tetrachloroethylene                 | 127-18-4   | 4.8E-07           | 2.1E+01     |
| Thiourea                            | 62-56-6    | 5.5E-04           | 1.8E-02     |
| 1,1,2-Trichloroethane               | 79-00-5    | 1.6E-05           | 3.3E-01     |
| Trichloroethylene                   | 79-01-8    | 1.3E-06           | 7.7E+00     |
| 2,4,6-Trichlorophenol               | 88-06-2    | 5.7E-06           | 1.8E+00     |
| Toxaphene                           | 8001-35-2  | 3.2E-04           | 3.1E-02     |
| Vinyl Chloride                      | 75-01-4    | 7.1E-06           | 1.4E+00     |

APPENDIX VI.—STACK PLUME RISE

[Estimated Plume Rise (in Meters) Based on Stack Exit Flow Rate and Gas Temperature]

| Flow rate (m3/s) | Exhaust Temperature (K°) |         |         |         |         |         |         |         |         |           |        |
|------------------|--------------------------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|--------|
|                  | <325                     | 325-349 | 350-399 | 400-449 | 450-499 | 500-599 | 600-699 | 700-799 | 800-999 | 1000-1499 | > 1499 |
| <0.5             | 0                        | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 0         | 0      |
| 0.5-0.9          | 0                        | 0       | 0       | 0       | 0       | 0       | 0       | 0       | 1       | 1         | 1      |
| 1.0-1.9          | 0                        | 0       | 0       | 0       | 1       | 1       | 2       | 3       | 3       | 3         | 4      |
| 2.0-2.9          | 0                        | 0       | 1       | 3       | 4       | 4       | 6       | 6       | 7       | 8         | 9      |
| 3.0-3.9          | 0                        | 1       | 2       | 5       | 6       | 7       | 9       | 10      | 11      | 12        | 13     |
| 4.0-4.9          | 1                        | 2       | 4       | 6       | 8       | 10      | 12      | 13      | 14      | 15        | 17     |
| 5.0-7.4          | 2                        | 3       | 5       | 8       | 10      | 12      | 14      | 16      | 17      | 19        | 21     |
| 7.5-9.9          | 3                        | 6       | 8       | 12      | 15      | 17      | 20      | 22      | 22      | 23        | 24     |
| 10.0-12.4        | 4                        | 6       | 10      | 15      | 19      | 21      | 23      | 24      | 25      | 26        | 27     |
| 12.5-14.9        | 4                        | 7       | 12      | 18      | 22      | 23      | 25      | 26      | 27      | 28        | 29     |
| 15.0-19.9        | 5                        | 8       | 13      | 20      | 23      | 24      | 26      | 27      | 28      | 29        | 31     |
| 20.0-24.9        | 6                        | 10      | 17      | 23      | 25      | 27      | 29      | 30      | 31      | 32        | 34     |
| 25.0-29.9        | 7                        | 12      | 20      | 25      | 27      | 29      | 31      | 32      | 33      | 35        | 36     |
| 30.0-34.9        | 8                        | 14      | 22      | 26      | 29      | 31      | 33      | 35      | 36      | 37        | 39     |
| 35.0-39.9        | 9                        | 16      | 23      | 28      | 30      | 32      | 35      | 36      | 37      | 39        | 41     |
| 40.0-49.9        | 10                       | 17      | 24      | 29      | 32      | 34      | 36      | 38      | 39      | 41        | 42     |
| 50.0-59.9        | 12                       | 21      | 26      | 31      | 34      | 36      | 39      | 41      | 42      | 44        | 46     |
| 60.0-69.9        | 14                       | 22      | 27      | 33      | 36      | 39      | 42      | 43      | 45      | 47        | 49     |
| 70.0-79.9        | 16                       | 23      | 29      | 35      | 38      | 41      | 44      | 46      | 47      | 49        | 51     |
| 80.0-89.9        | 17                       | 25      | 30      | 36      | 40      | 42      | 46      | 48      | 49      | 51        | 54     |
| 90.0-99.9        | 19                       | 26      | 31      | 36      | 42      | 44      | 48      | 50      | 51      | 53        | 56     |
| 100.0-119.9      | 21                       | 26      | 32      | 39      | 43      | 46      | 49      | 52      | 53      | 55        | 58     |

APPENDIX VI.—STACK PLUME RISE—Continued

(Estimated Plume Rise (in Meters) Based on Stack Exit Flow Rate and Gas Temperature)

| Flow rate (m3/s) | Exhaust Temperature (K*) |         |         |         |         |         |         |         |         |           |       |
|------------------|--------------------------|---------|---------|---------|---------|---------|---------|---------|---------|-----------|-------|
|                  | <325                     | 325-349 | 350-399 | 400-449 | 450-499 | 500-599 | 600-699 | 700-799 | 800-899 | 1000-1499 | >1499 |
| 120.0-139.9      | 22                       | 28      | 35      | 42      | 46      | 49      | 52      | 55      | 56      | 59        | 61    |
| 140.0-159.9      | 23                       | 30      | 36      | 44      | 46      | 51      | 55      | 58      | 59      | 62        | 65    |
| 160.0-179.9      | 25                       | 31      | 38      | 46      | 50      | 54      | 58      | 60      | 62      | 65        | 67    |
| 180.0-199.9      | 26                       | 32      | 40      | 48      | 52      | 56      | 60      | 63      | 65      | 67        | 70    |
| >199.9           | 26                       | 33      | 41      | 49      | 54      | 58      | 62      | 65      | 67      | 69        | 73    |

Appendix VII.—Health-Based Limits for Exclusion of Waste-Derived Residues\*

| METALS—TCLP EXTRACT CONCENTRATION LIMITS |           |                              |
|--|-----------|------------------------------|
| Constituent                              | CAS No.   | Concentration limits (mg/kg) |
| Antimony                                 | 7440-36-0 | 1xE+00                       |
| Arsenic                                  | 7440-38-2 | 5xE+00                       |
| Barium                                   | 7440-39-3 | 1xE+02                       |
| Beryllium                                | 7440-41-7 | 7xE-03                       |
| Cadmium                                  | 7440-43-9 | 1xE+00                       |
| Chromium                                 | 7440-47-3 | 5xE+00                       |
| Lead                                     | 7439-92-1 | 5xE+00                       |
| Mercury                                  | 7439-97-8 | 2xE-01                       |
| Nickel                                   | 7440-02-0 | 7xE+01                       |
| Selenium                                 | 7782-49-2 | 1xE+00                       |
| Silver                                   | 7440-22-4 | 5xE+00                       |

NONMETALS—RESIDUE CONCENTRATION LIMITS

| Constituent                 | CAS No.    | Concentration limits for residues (mg/kg) |
|-----------------------------|------------|---|
| Acetonitrile                | 75-05-8    | 2xE-01                                    |
| Acetophenone                | 98-86-2    | 4xE+00                                    |
| Acrolein                    | 107-02-8   | 5xE-01                                    |
| Acrylamide                  | 79-06-1    | 2xE-04                                    |
| Acrylonitrile               | 107-13-1   | 7xE-04                                    |
| Aldrin                      | 309-00-2   | 2xE-05                                    |
| Allyl alcohol               | 107-18-8   | 2xE-01                                    |
| Aluminum phosphide          | 20859-73-8 | 1xE-02                                    |
| Aniline                     | 62-53-3    | 8xE-02                                    |
| Barium cyanide              | 542-82-1   | 1xE+00                                    |
| Benz(a)anthracene           | 56-55-3    | 1xE-04                                    |
| Benzene                     | 71-43-2    | 5xE-03                                    |
| Benzidine                   | 92-87-5    | 1xE-06                                    |
| Bis(2-chloroethyl) ether    | 111-44-4   | 3xE-04                                    |
| Bis(chloromethyl) ether     | 542-88-1   | 2xE-06                                    |
| Bis(2-ethylhexyl) phthalate | 117-81-7   | 3xE+01                                    |
| Bromoform                   | 75-25-2    | 7xE-01                                    |
| Calcium cyanide             | 592-01-8   | 1xE-06                                    |
| Carbon disulfide            | 75-15-0    | 4xE+00                                    |
| Carbon tetrachloride        | 56-23-5    | 5xE-03                                    |
| Chlordane                   | 67-74-9    | 3xE-04                                    |
| Chlorobenzene               | 108-90-7   | 1xE+00                                    |
| Chloroform                  | 67-68-3    | 6xE-02                                    |
| Copper cyanide              | 544-92-3   | 2xE-01                                    |
| Cresols (Cresylic acid)     | 1319-77-3  | 2xE+00                                    |
| Cyanogen                    | 460-19-6   | 1xE+00                                    |
| DDT                         | 50-29-3    | 1xE-03                                    |
| Dibenz(a, h)-anthracene     | 63-70-3    | 7xE-06                                    |

NONMETALS—RESIDUE CONCENTRATION LIMITS—Continued

| Constituent                        | CAS No.    | Concentration limits for residues (mg/kg) |
|------------------------------------|------------|---|
| 1,2-Dibromo-3-chloropropane        | 96-12-8    | 2xE-05                                    |
| p-Dichlorobenzene                  | 106-46-7   | 7.5xE-02                                  |
| Dichlorodifluoromethane            | 75-71-8    | 7xE+00                                    |
| 1,1-Dichloroethylene               | 75-35-4    | 5xE-03                                    |
| 2,4-Dichlorophenol                 | 120-83-2   | 1xE-01                                    |
| 1,3-Dichloropropene                | 542-75-6   | 1xE-03                                    |
| Dieldrin                           | 60-57-1    | 2xE-05                                    |
| Diethyl phthalate                  | 84-66-2    | 3xE+01                                    |
| Diethylstilbesterol                | 58-53-1    | 7xE-07                                    |
| Dimethoate                         | 60-51-5    | 3xE-02                                    |
| 2,4-Dinitrotoluene                 | 121-14-2   | 5xE-04                                    |
| Diphenylamine                      | 122-39-4   | 9xE-01                                    |
| 1,2-Diphenylhydrazine              | 122-66-7   | 5xE-04                                    |
| Endosulfan                         | 115-29-7   | 2xE-03                                    |
| Endrin                             | 72-20-8    | 2xE-04                                    |
| Epichlorohydrin                    | 106-89-8   | 4xE-02                                    |
| Ethylene dibromide                 | 108-93-4   | 4xE-07                                    |
| Ethylene oxide                     | 75-21-8    | 3xE-04                                    |
| Fluorine                           | 7782-41-4  | 4xE+00                                    |
| Formic acid                        | 64-18-8    | 7xE+01                                    |
| Heptachlor                         | 76-44-8    | 8xE-05                                    |
| Heptachlor epoxide                 | 1024-57-3  | 4xE-05                                    |
| Hexachlorobenzene                  | 118-74-1   | 2xE-04                                    |
| Hexachlorobutadiene                | 87-68-3    | 5xE-03                                    |
| Hexachlorocyclopentadiene          | 77-47-4    | 2xE-01                                    |
| Hexachlorodibenzo-p-dioxins        | 19408-74-3 | 6xE-06                                    |
| Hexachloroethane                   | 67-72-1    | 3xE-02                                    |
| Hydrazine                          | 302-01-1   | 1xE-04                                    |
| Hydrogen cyanide                   | 74-90-8    | 7xE-05                                    |
| Hydrogen sulfide                   | 7783-06-4  | 1xE-06                                    |
| Isobutyl alcohol                   | 78-83-1    | 1xE+01                                    |
| Methomyl                           | 16752-77-5 | 1xE+00                                    |
| Methoxychlor                       | 72-43-5    | 1xE-01                                    |
| 3-Methylcholanthrene               | 56-49-5    | 4xE-05                                    |
| 4,4'-Methylenebis(2-chloroaniline) | 101-14-4   | 2xE-03                                    |
| Methylene chloride                 | 75-08-2    | 5xE-02                                    |
| Methyl ethyl ketone (MEK)          | 78-93-3    | 2xE+00                                    |
| Methyl hydrazine                   | 60-34-4    | 3xE-04                                    |
| Methyl parathion                   | 298-00-0   | 2xE-02                                    |
| Naphthalene                        | 91-20-3    | 1xE+01                                    |
| Nickel cyanide                     | 557-19-7   | 7xE-01                                    |
| Nitric oxide                       | 10102-43-9 | 4xE+00                                    |
| Nitrobenzene                       | 98-95-3    | 2xE-02                                    |
| N-Nitrosodi-n-butylamine           | 924-16-3   | 6xE-05                                    |
| N-Nitrosodiethylamine              | 55-18-5    | 2xE-06                                    |
| N-Nitroso-N-methylurea             | 684-93-5   | 1xE-07                                    |
| N-Nitrosopyrrolidine               | 830-65-2   | 2xE-04                                    |

NONMETALS—RESIDUE CONCENTRATION LIMITS—Continued

| Constituent                       | CAS No.    | Concentration limits for residues (mg/kg) |
|-----------------------------------|------------|---|
| Pentachlorobenzene                | 608-93-5   | 3xE-02                                    |
| Pentachloronitrobenzene (PCNB)    | 62-68-8    | 1xE-01                                    |
| Pentachlorophenol                 | 87-86-5    | 1xE+00                                    |
| Phenol                            | 108-95-2   | 1xE+00                                    |
| Phenylmercury acetate             | 62-38-4    | 3xE-03                                    |
| Phosphine                         | 7803-51-2  | 1xE-02                                    |
| Polychlorinated biphenyls, N.O.S. | 1336-36-3  | 5xE-05                                    |
| Potassium cyanide                 | 151-50-8   | 2xE+00                                    |
| Potassium silver cyanide          | 508-61-8   | 7xE+00                                    |
| Pronamide                         | 23950-58-5 | 3xE+00                                    |
| Pyridine                          | 110-86-1   | 4xE-02                                    |
| Risperine                         | 50-55-5    | 3xE-05                                    |
| Selenourea                        | 630-10-4   | 2xE-01                                    |
| Silver cyanide                    | 506-64-9   | 4xE+00                                    |
| Sodium cyanide                    | 143-33-8   | 1xE+00                                    |
| Strychnine                        | 57-24-9    | 1xE-02                                    |
| 1,2,4,5-Tetrachlorobenzene        | 95-94-3    | 1xE-02                                    |
| 1,1,2,2-Tetrachloroethane         | 79-34-5    | 2xE-03                                    |
| Tetrachloroethylene               | 127-18-4   | 7xE-01                                    |
| 2,3,4,6-Tetrachlorophenol         | 58-90-2    | 1xE-02                                    |
| Tetraethyl lead                   | 78-00-2    | 4xE-06                                    |
| Thallium                          | 7440-28-0  | 7xE+00                                    |
| Thallic oxide                     | 1314-32-5  | 2xE-03                                    |
| Thallium(I) acetate               | 563-68-8   | 3xE-03                                    |
| Thallium(I) carbonate             | 6533-73-9  | 3xE-03                                    |
| Thallium(I) chloride              | 7791-12-0  | 3xE-03                                    |
| Thallium(I) nitrate               | 10102-45-1 | 3xE-03                                    |
| Thallium selenite                 | 12039-52-0 | 3xE-03                                    |
| Thallium(I) sulfate               | 7448-18-8  | 3xE-03                                    |
| Thiourea                          | 62-56-6    | 2xE-04                                    |
| Toluene                           | 108-88-3   | 1xE+01                                    |
| Toxaphene                         | 8001-35-2  | 5xE-03                                    |
| 1,1,2-Trichloroethane             | 79-00-5    | 6xE-03                                    |
| Trichloroethylene                 | 79-01-8    | 5xE-03                                    |
| Trichloromonofluoromethane        | 75-69-4    | 1xE+01                                    |
| 2,4,5-Trichlorophenol             | 95-95-4    | 4xE+00                                    |
| 2,4,6-Trichlorophenol             | 86-06-2    | 4xE+00                                    |
| Vanadium pentoxide                | 1314-62-1  | 7xE-01                                    |
| Vinyl chloride                    | 75-01-4    | 2xE-03                                    |

\* Note: The health-based concentration limits for Appendix VIII Part 261 constituents for which a health-based concentration is not provided below is 2xE-06 mg/kg.

**Appendix VIII.—Potential PICs for Determination of Exclusion of Waste-Derived Residues**

**PICs FOUND IN STACK EFFLUENTS**

| Volatiles                      | Semivolatiles              |
|--------------------------------|----------------------------|
| Benzene.....                   | Bis(2-ethylhexyl)phthalate |
| Toluene.....                   | Naphthalene                |
| Carbon tetrachloride.....      | Phenol                     |
| roform.....                    | Diethyl phthalate          |
| Methylene chloride.....        | Butyl benzyl phthalate     |
| Trichloroethylene.....         | 2,4-Dimethylphenol         |
| Tetrachloroethylene.....       | o-Dichlorobenzene          |
| 1,1,1-Trichloroethane.....     | m-Dichlorobenzene          |
| robenzene.....                 | p-Dichlorobenzene          |
| cis-1,4-Dichloro-2-butene..... | Hexachlorobenzene          |
| Bromochloromethane.....        | 2,4,6-Trichlorophenol      |
| Bromodichloromethane.....      | Fluoranthene               |
| Bromoform.....                 | o-Nitrophenol              |
| Bromomethane.....              | 1,2,4-Trichlorobenzene     |
| Methylene bromide.....         | o-Chlorophenol             |
| Methyl ethyl ketone.....       | Pentachlorophenol          |
|                                | Pyrene                     |
|                                | Dimethyl phthalate         |
|                                | Mononitrobenzene           |
|                                | 2,6-Toluene diisocyanate   |

Appendices IX and X will be published in the *Federal Register* in the near future. Appendix IX is *Methods Manual for Compliance with BIF Regulations*, U.S. EPA, December 1990, available from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4600, document number PB91-120-006. Appendix X is *Guideline on Air Quality Models (Revised) (1986)*, U.S. EPA, including Supplement A (1987), available from NTIS, 5285 Port Royal Road, Springfield, VA 22161, document numbers PB86-245-248 (Guideline) and PB88-150-958 (Supplement A).

**PART 270—EPA ADMINISTERED PERMIT PROGRAMS: THE HAZARDOUS WASTE PERMIT PROGRAM.**

**VI. In part 270:**

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. Part 270 is amended by adding § 270.22 to read as follows:

**§ 270.22 Specific Part B information requirements for boilers and industrial furnaces burning hazardous waste.**

(a) *Trial burns*—(1) *General*. Except as provided below, owners and operators that are subject to the standards to control organic emissions provided by § 266.104 of this chapter, standards to control particulate matter provided by § 266.105 of this chapter, standards to control metals emissions provided by § 266.106 of this chapter, or standards to control hydrogen chloride

or chlorine gas emissions provided by § 266.107 of this chapter must conduct a trial burn to demonstrate conformance with those standards and must submit a trial burn plan or the results of a trial burn, including all required determinations, in accordance with § 270.66.

(i) A trial burn to demonstrate conformance with a particular emission standard may be waived under provisions of §§ 266.104 through 266.107 of this chapter and paragraphs (a)(2) through (a)(5) of this section; and

(ii) The owner or operator may submit data in lieu of a trial burn, as prescribed in paragraph (a)(6) of this section.

(2) *Waiver of trial burn for DRE*—(i) *Boilers operated under special operating requirements*. When seeking to be permitted under §§ 266.104(a)(4) and 266.110 of this chapter that automatically waive the DRE trial burn, the owner or operator of a boiler must submit documentation that the boiler operates under the special operating requirements provided by § 266.110 of this chapter.

(ii) *Boilers and industrial furnaces burning low risk waste*. When seeking to be permitted under the provisions for low risk waste provided by §§ 266.104(a)(5) and 266.109(a) of this chapter that waive the DRE trial burn, the owner or operator must submit:

(A) Documentation that the device is operated in conformance with the requirements of § 266.109(a)(1) of this chapter.

(B) Results of analyses of each waste to be burned, documenting the concentrations of nonmetal compounds listed in appendix VIII of part 261 of this chapter, except for those constituents that would reasonably not be expected to be in the waste. The constituents excluded from analysis must be identified and the basis for their exclusion explained. The analysis must rely on analytical techniques specified in Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods (incorporated by reference, see § 260.11).

(C) Documentation of hazardous waste firing rates and calculations of reasonable, worst-case emission rates of each constituent identified in paragraph (a)(1)(ii)(B) of this section using procedures provided by § 266.109(a)(2)(ii) of this chapter.

(D) Results of emissions dispersion modeling for emissions identified in paragraphs (a)(2)(ii)(C) of this section using modeling procedures prescribed by § 266.106(h) of this chapter. The Director will review the emission modeling conducted by the applicant to determine conformance with these

procedures. The Director will either approve the modeling or determine that alternate or supplementary modeling is appropriate.

(E) Documentation that the maximum annual average ground level concentration of each constituent identified in paragraph (a)(2)(ii)(B) of this section quantified in conformance with paragraph (a)(2)(ii)(D) of this section does not exceed the allowable ambient level established in appendices IV or V of part 266. The acceptable ambient concentration for emitted constituents for which a specific Reference Air Concentration has not been established in appendix IV or Risk-Specific Dose has not been established in appendix V is 0.1 micrograms per cubic meter, as noted in the footnote to appendix IV.

(3) *Waiver of trial burn for metals*. When seeking to be permitted under the Tier I (or adjusted Tier I) metals feed rate screening limits provided by § 266.106 (b) and (e) of this chapter that control metals emissions without requiring a trial burn, the owner or operator must submit:

(i) Documentation of the feed rate of hazardous waste, other fuels, and industrial furnace feed stocks;

(ii) Documentation of the concentration of each metal controlled by § 266.106 (b) or (e) of this chapter in the hazardous waste, other fuels, and industrial furnace feedstocks, and calculations of the total feed rate of each metal;

(iii) Documentation of how the applicant will ensure that the Tier I feed rate screening limits provided by § 266.106 (b) or (e) of this chapter will not be exceeded during the averaging period provided by that paragraph;

(iv) Documentation to support the determination of the terrain-adjusted effective stack height, good engineering practice stack height, terrain type, and land use as provided by § 266.106 (b)(3) through (b)(5) of this chapter;

(v) Documentation of compliance with the provisions of § 266.106(b)(6), if applicable, for facilities with multiple stacks;

(vi) Documentation that the facility does not fail the criteria provided by § 266.106(b)(7) for eligibility to comply with the screening limits; and

(vii) Proposed sampling and metals analysis plan for the hazardous waste, other fuels, and industrial furnace feed stocks.

(4) *Waiver of trial burn for particulate matter*. When seeking to be permitted under the low risk waste provisions of § 266.109(b) which waives the particulate standard (and trial burn to

demonstrate conformance with the particulate standard), applicants must submit documentation supporting conformance with paragraphs (a)(2)(ii) and (a)(3) of this section.

(5) *Waiver of trial burn for HCl and Cl<sub>2</sub>*. When seeking to be permitted under the Tier I (or adjusted Tier I) feed rate screening limits for total chloride and chlorine provided by § 266.107 (b)(1) and (e) of this chapter that control emissions of hydrogen chloride (HCl) and chlorine gas (Cl<sub>2</sub>) without requiring a trial burn, the owner or operator must submit:

(i) Documentation of the feed rate of hazardous waste, other fuels, and industrial furnace feed stocks;

(ii) Documentation of the levels of total chloride and chlorine in the hazardous waste, other fuels, and industrial furnace feedstocks, and calculations of the total feed rate of total chloride and chlorine;

(iii) Documentation of how the applicant will ensure that the Tier I (or adjusted Tier I) feed rate screening limits provided by § 266.107 (b)(1) or (e) of this chapter will not be exceeded during the averaging period provided by that paragraph;

(iv) Documentation to support the determination of the terrain-adjusted effective stack height, good engineering practice stack height, terrain type, and land use as provided by § 266.107(b)(3) of this chapter;

(v) Documentation of compliance with the provisions of § 266.107(b)(4), if applicable, for facilities with multiple stacks;

(vi) Documentation that the facility does not fail the criteria provided by § 266.107(b)(3) for eligibility to comply with the screening limits; and

(vii) Proposed sampling and analysis plan for total chloride and chlorine for the hazardous waste, other fuels, and industrial furnace feedstocks.

(6) *Data in lieu of trial burn*. The owner or operator may seek an exemption from the trial burn requirements to demonstrate conformance with §§ 266.104 through 266.107 of this chapter and § 270.66 by providing the information required by § 270.66 from previous compliance testing of the device in conformance with § 266.103 of this chapter, or from compliance testing or trial or operational burns of similar boilers or industrial furnaces burning similar hazardous wastes under similar conditions. If data from a similar device is used to support a trial burn waiver, the design and operating information required by § 270.66 must be provided for both the similar device and the device to which the data is to be applied, and a comparison of the design

and operating information must be provided. The Director shall approve a permit application without a trial burn if he finds that the hazardous wastes are sufficiently similar, the devices are sufficiently similar, the operating conditions are sufficiently similar, and the data from from other compliance tests, trial burns, or operational burns are adequate to specify (under § 266.102 of this chapter) operating conditions that will ensure conformance with § 266.102(c) of this chapter. In addition, the following information shall be submitted:

(i) For a waiver from any trial burn:

(A) A description and analysis of the hazardous waste to be burned compared with the hazardous waste for which data from compliance testing, or operational or trial burns are provided to support the contention that a trial burn is not needed;

(B) The design and operating conditions of the boiler or industrial furnace to be used, compared with that for which comparative burn data are available; and

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

(ii) For a waiver of the DRE trial burn, the basis for selection of POHCs used in the other trial or operational burns which demonstrate compliance with the DRE performance standard in § 266.104(a) of this chapter. This analysis should specify the constituents in appendix VIII, part 261 of this chapter, that the applicant has identified in the hazardous waste for which a permit is sought, and any differences from the POHCs in the hazardous waste for which burn data are provided.

(b) *Alternative HC limit for industrial furnaces with organic matter in raw materials*. Owners and operators of industrial furnaces requesting an alternative HC limit under § 266.104(f) of this chapter shall submit the following information at a minimum:

(1) Documentation that the furnace is designed and operated to minimize HC emissions from fuels and raw materials;

(2) Documentation of the proposed baseline flue gas HC (and CO) concentration, including data on HC (and CO) levels during tests when the facility produced normal products under normal operating conditions from normal raw materials while burning normal fuels and when not burning hazardous waste;

(3) Test burn protocol to confirm the baseline HC (and CO) level including information on the type and flow rate of all feedstreams, point of introduction of all feedstreams, total organic carbon content (or other appropriate measure of

organic content) of all nonfuel feedstreams, and operating conditions that affect combustion of fuel(s) and destruction of hydrocarbon emissions from nonfuel sources;

(4) Trial burn plan to:

(i) Demonstrate that flue gas HC (and CO) concentrations when burning hazardous waste do not exceed the baseline HC (and CO) level; and

(ii) Identify the types and concentrations of organic compounds listed in appendix VIII, part 261 of this chapter, that are emitted when burning hazardous waste in conformance with procedures prescribed by the Director;

(5) Implementation plan to monitor over time changes in the operation of the facility that could reduce the baseline HC level and procedures to periodically confirm the baseline HC level; and

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

(c) *Alternative metals implementation approach*. When seeking to be permitted under an alternative metals implementation approach under § 266.106(f) of this chapter, the owner or operator must submit documentation specifying how the approach ensures compliance with the metals emissions standards of § 266.106(c) or (d) and how the approach can be effectively implemented and monitored. Further, the owner or operator shall provide such other information that the Director finds necessary to achieve the purposes of this paragraph.

(d) *Automatic waste feed cutoff system*. Owners and operators shall submit information describing the automatic waste feed cutoff system, including any pre-alarm systems that may be used.

(e) *Direct transfer*. Owners and operators that use direct transfer operations to feed hazardous waste from transport vehicles (containers, as defined in § 266.111 of this chapter) directly to the boiler or industrial furnace shall submit information supporting conformance with the standards for direct transfer provided by § 266.111 of this chapter.

(f) *Residues*. Owners and operators that claim that their residues are excluded from regulation under the provisions of § 266.112 of this chapter must submit information adequate to demonstrate conformance with those provisions.

(Approved by the Office of Management and Budget under control number 2050-0073)

3. In § 270.42, paragraph (g) is revised to read as follows:

**§ 270.42 Permit modification at the request of the permittee.**

**(g) Newly regulated wastes and units.**

(1) The permittee is authorized to continue to manage wastes listed or identified as hazardous under part 261 of this chapter, or to continue to manage hazardous waste in units newly regulated as hazardous waste management units, if:

(i) The unit was in existence as a hazardous waste facility with respect to the newly listed or characterized waste or newly regulated waste management unit on the effective date of the final rule listing or identifying the waste, or regulating the unit;

(ii) The permittee submits a Class 1 modification request on or before the

date on which the waste or unit becomes subject to the new requirements;

(iii) The permittee is in compliance with the applicable standards of 40 CFR parts 265 and 266 of this chapter;

(iv) In the case of Classes 2 and 3 modifications, the permittee also submits a complete modification request within 180 days of the effective date of the rule listing or identifying the waste, or subjecting the unit to RCRA Subtitle C management standards;

(v) In the case of land disposal units, the permittee certifies that each such unit is in compliance with all applicable requirements of part 265 of this chapter for groundwater monitoring and financial responsibility on the date 12 months after the effective date of the

rule identifying or listing the waste as hazardous, or regulating the unit as a hazardous waste management unit. If the owner or operator fails to certify compliance with all these requirements, he or she will lose authority to operate under this section.

(2) New wastes or units added to a facility's permit under this subsection do not constitute expansions for the purpose of the 25 percent capacity expansion limit for Class 2 modifications.

4. In § 270.42, Appendix I is amended by revising the heading of L and items 1, 4, 5a, 6, 7b, and 8 to read as follows:

**Appendix I to Section 270.42—  
Classification of Permit Modifications**

| Modifications  | Class          |
|--|----------------|
| <b>L. Incinerators, Boilers, and Industrial Furnaces:</b>  |                |
| 1. Changes to increase by more than 25% any of the following limits authorized in the permit: A thermal feed rate limit, a feedstream feed rate limit, a chlorine/chloride feed rate limit, a metal feed rate limit, or an ash feed rate limit. The Director will require a new trial burn to substantiate compliance with the regulatory performance standards unless this demonstration can be made through other means.....   | 3              |
| 2. Changes to increase by up to 25% any of the following limits authorized in the permit: A thermal feed rate limit, a feedstream feed rate limit, a chlorine/chloride feed rate limit, a metal feed rate limit, or an ash feed rate limit. The Director will require a new trial burn to substantiate compliance with the regulatory performance standards unless this demonstration can be made through other means.....   | 2              |
| 3. Modification of an incinerator, boiler, or industrial furnace unit by changing the internal size or geometry of the primary or secondary combustion units, by adding a primary or secondary combustion unit, by substantially changing the design of any component used to remove HCl/Cl <sub>2</sub> , metals, or particulate from the combustion gases, or by changing other features of the incinerator, boiler, or industrial furnace that could affect its capability to meet the regulatory performance standards. The Director will require a new trial burn to substantiate compliance with the regulatory performance standards unless this demonstration can be made through other means..... | 3              |
| 4. Modification of an incinerator, boiler, or industrial furnace unit in a manner that would not likely affect the capability of the unit to meet the regulatory performance standards but which would change the operating conditions or monitoring requirements specified in the permit. The Director may require a new trial burn to demonstrate compliance with the regulatory performance standards.....  | 2              |
| 5. Operating requirements.   |                |
| a. Modification of the limits specified in the permit for minimum or maximum combustion gas temperature, minimum combustion gas residence time, oxygen concentration in the secondary combustion chamber, flue gas carbon monoxide and hydrocarbon concentration, maximum temperature at the inlet to the particulate matter emission control system, or operating parameters for the air pollution control system. The Director will require a new trial burn to substantiate compliance with the regulatory performance standards unless this demonstration can be made through other means.....   | 3              |
| 6. Burning different wastes:   |                |
| a. If the waste contains a POHC that is more difficult to burn than authorized by the permit or if burning of the waste requires compliance with different regulatory performance standards than specified in the permit. The Director will require a new trial burn to substantiate compliance with the regulatory performance standards unless this demonstration can be made through other means.....   | 3              |
| b. If the waste does not contain a POHC that is more difficult to burn than authorized by the permit and if burning of the waste does not require compliance with different regulatory performance standards than specified in the permit.....   | 2              |
| NOTE: See § 270.42(g) for modification procedures to be used for the management of newly listed or identified wastes   |                |
| 7. Shakedown and trial burn:   |                |
| b. Authorization of up to an additional 720 hours of waste burning during the shakedown period for determining operational readiness after construction, with the prior approval of the Director.....  | 1 <sup>1</sup> |
| 8. Substitution of an alternative type of nonhazardous waste fuel that is not specified in the permit.....   | 1              |

<sup>1</sup> Class 1 modifications requiring prior Agency approval.

5. Part 270 is amended by adding § 270.66 to read as follows:

**§ 270.66 Permits for boilers and industrial furnaces burning hazardous waste.**

(a) *General.* Owners and operators of new boilers and industrial furnaces (those not operating under the interim status standards of § 266.103 of this chapter) are subject to paragraphs (b) through (f) of this section. Boilers and industrial furnaces operating under the interim status standards of § 266.103 of

this chapter are subject to paragraph (g) of this section.

(b) *Permit operating periods for new boilers and industrial furnaces.* A permit for a new boiler or industrial furnace shall specify appropriate conditions for the following operating periods:

(1) *Pretrial burn period.* For the period beginning with initial introduction of hazardous waste and ending with initiation of the trial burn, and only for the minimum time required to bring the

boiler or industrial furnace to a point of operation readiness to conduct a trial burn, not to exceed 720 hours operating time when burning hazardous waste, the Director must establish in the Pretrial Burn Period of the permit conditions, including but not limited to, allowable hazardous waste feed rates and operating conditions. The Director may extend the duration of this operational period once, for up to 720 additional hours, at the request of the applicant when good cause is shown. The permit

may be modified to reflect the extension according to § 270.42.

(i) Applicants must submit a statement, with part B of the permit application, that suggests the conditions necessary to operate in compliance with the standards of §§ 266.104 through 266.107 of this chapter during this period. This statement should include, at a minimum, restrictions on the applicable operating requirements identified in § 266.102(e) of this chapter.

(ii) The Director will review this statement and any other relevant information submitted with part B of the permit application and specify requirements for this period sufficient to meet the performance standards of §§ 266.104 through 266.107 of this chapter based on his/her engineering judgment.

(2) *Trial burn period.* For the duration of the trial burn, the Director must establish conditions in the permit for the purposes of determining feasibility of compliance with the performance standards of §§ 266.104 through 266.107 of this chapter and determining adequate operating conditions under § 266.102(e) of this chapter. Applicants must propose a trial burn plan, prepared under paragraph (c) of this section, to be submitted with part B of the permit application.

(3) *Post-trial burn period.* (i) For the period immediately following completion of the trial burn, and only for the minimum period sufficient to allow sample analysis, data computation, and submission of the trial burn results by the applicant, and review of the trial burn results and modification of the facility permit by the Director to reflect the trial burn results, the Director will establish the operating requirements most likely to ensure compliance with the performance standards of §§ 266.104 through 266.107 of this chapter based on his engineering judgment.

(ii) Applicants must submit a statement, with part B of the application, that identifies the conditions necessary to operate during this period in compliance with the performance standards of §§ 266.104 through 266.107 of this chapter. This statement should include, at a minimum, restrictions on the operating requirements provided by § 266.102(e) of this chapter.

(iii) The Director will review this statement and any other relevant information submitted with part B of the permit application and specify requirements for this period sufficient to meet the performance standards of §§ 266.104 through 266.107 of this chapter based on his/her engineering judgment.

(4) *Final permit period.* For the final period of operation, the Director will develop operating requirements in conformance with § 266.102(e) of this chapter that reflect conditions in the trial burn plan and are likely to ensure compliance with the performance standards of §§ 266.104 through 107 of this chapter. Based on the trial burn results, the Director shall make any necessary modifications to the operating requirements to ensure compliance with the performance standards. The permit modification shall proceed according to § 270.42.

(c) *Requirements for trial burn plans.* The trial burn plan must include the following information. The Director, in reviewing the trial burn plan, shall evaluate the sufficiency of the information provided and may require the applicant to supplement this information, if necessary, to achieve the purposes of this paragraph:

(1) An analysis of each feed stream, including hazardous waste, other fuels, and industrial furnace feed stocks, as fired, that includes:

(i) Heating value, levels of antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, silver, thallium, total chlorine/chloride, and ash;

(ii) Viscosity or description of the physical form of the feed stream;

(2) An analysis of each hazardous waste, as fired, including:

(i) An identification of any hazardous organic constituents listed in appendix VIII, part 261, of this chapter that are present in the feed stream, except that the applicant need not analyze for constituents listed in appendix VIII that would reasonably not be expected to be found in the hazardous waste. The constituents excluded from analysis must be identified and the basis for this exclusion explained. The analysis must be conducted in accordance with analytical techniques specified in Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods (incorporated by reference, see § 270.6), or their equivalent.

(ii) An approximate quantification of the hazardous constituents identified in the hazardous waste, within the precision produced by the analytical methods specified in Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods (incorporated by reference, see § 270.6), or other equivalent.

(iii) A description of blending procedures, if applicable, prior to firing the hazardous waste, including a detailed analysis of the hazardous waste prior to blending, an analysis of

the material with which the hazardous waste is blended, and blending ratios.

(3) A detailed engineering description of the boiler or industrial furnace, including:

(i) Manufacturer's name and model number of the boiler or industrial furnace;

(ii) Type of boiler or industrial furnace;

(iii) Maximum design capacity in appropriate units;

(iv) Description of the feed system for the hazardous waste, and, as appropriate, other fuels and industrial furnace feedstocks;

(v) Capacity of hazardous waste feed system;

(vi) Description of automatic hazardous waste feed cutoff system(s); and

(vii) Description of any pollution control system; and

(viii) Description of stack gas monitoring and any pollution control monitoring systems.

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

(5) A detailed test schedule for each hazardous waste for which the trial burn is planned, including date(s), duration, quantity of hazardous waste to be burned, and other factors relevant to the Director's decision under paragraph (b)(2) of this section.

(6) A detailed test protocol, including, for each hazardous waste identified, the ranges of hazardous waste feed rate, and, as appropriate, the feed rates of other fuels and industrial furnace feedstocks, and any other relevant parameters that may affect the ability of the boiler or industrial furnace to meet the performance standards in §§ 266.104 through 266.107 of this chapter.

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

(8) Procedures for rapidly stopping the hazardous waste feed and controlling emissions in the event of an equipment malfunction.

(9) Such other information as the Director reasonably finds necessary to determine whether to approve the trial burn plan in light of the purposes of this paragraph and the criteria in paragraph (b)(2) of this section.

(d) *Trial burn procedures.* (1) A trial burn must be conducted to demonstrate conformance with the standards of §§ 266.104 through 266.107 of this

chapter under an approved trial burn plan.

(2) The Director shall approve a trial burn plan if he/she finds that:

(i) The trial burn is likely to determine whether the boiler or industrial furnace can meet the performance standards of §§ 266.104 through 266.107 of this chapter;

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

(iii) The trial burn will help the Director to determine operating requirements to be specified under § 266.102(e) of this chapter; and

(iv) The information sought in the trial burn cannot reasonably be developed through other means.

(3) The applicant must submit to the Director a certification that the trial burn has been carried out in accordance with the approved trial burn plan, and must submit the results of all the determinations required in paragraph (c) of this section. This submission shall be made within 90 days of completion of the trial burn, or later if approved by the Director.

(4) All data collected during any trial burn must be submitted to the Director following completion of the trial burn.

(5) All submissions required by this paragraph must be certified on behalf of the applicant by the signature of a person authorized to sign a permit application or a report under § 270.11.

(e) *Special procedures for DRE trial burns.* When a DRE trial burn is required under § 266.104(a) of this chapter, the Director will specify (based on the hazardous waste analysis data and other information in the trial burn plan) as trial Principal Organic Hazardous Constituents (POHCs) those compounds for which destruction and removal efficiencies must be calculated during the trial burn. These trial POHCs will be specified by the Director based on information including his/her estimate of the difficulty of destroying the constituents identified in the hazardous waste analysis, their concentrations or mass in the hazardous waste feed, and, for hazardous waste containing or derived from wastes listed in part 261, subpart D of this chapter, the hazardous waste organic constituent(s) identified in Appendix VII of that part as the basis for listing.

(f) *Determinations based on trial burn.* During each approved trial burn (or as soon after the burn as is practicable), the applicant must make the following determinations:

(1) A quantitative analysis of the levels of antimony, arsenic, barium, beryllium, cadmium, chromium, lead, mercury, thallium, silver, and chlorine/

chloride, in the feed streams (hazardous waste, other fuels, and industrial furnace feedstocks);

(2) When a DRE trial burn is required under § 266.104(a) of this chapter:

(i) A quantitative analysis of the trial POHCs in the hazardous waste feed;

(ii) A quantitative analysis of the stack gas for the concentration and mass emissions of the trial POHCs; and

(iii) A computation of destruction and removal efficiency (DRE), in accordance with the DRE formula specified in § 266.104(a) of this chapter;

(3) When a trial burn for chlorinated dioxins and furans is required under § 266.104(e) of this chapter, a quantitative analysis of the stack gas for the concentration and mass emission rate of the 2,3,7,8-chlorinated tetra-octa congeners of chlorinated dibenzo-p-dioxins and furans, and a computation showing conformance with the emission standard.

(4) When a trial burn for particulate matter, metals, or HCl/Cl<sub>2</sub> is required under §§ 266.105, 266.106 (c) or (d), or 266.107 (b)(2) or (c) of this chapter, a quantitative analysis of the stack gas for the concentrations and mass emissions of particulate matter, metals, or hydrogen chloride (HCl) and chlorine (Cl<sub>2</sub>), and computations showing conformance with the applicable emission performance standards;

(5) When a trial burn for DRE, metals, or HCl/Cl<sub>2</sub> is required under §§ 266.104(a), 266.106 (c) or (d), or 266.107 (b)(2) or (c) of this chapter, a quantitative analysis of the scrubber water (if any), ash residues, other residues, and products for the purpose of estimating the fate of the trial POHCs, metals, and chlorine/chloride;

(6) An identification of sources of fugitive emissions and their means of control;

(7) A continuous measurement of carbon monoxide (CO), oxygen, and where required, hydrocarbons (HC), in the stack gas; and

(8) Such other information as the Director may specify as necessary to ensure that the trial burn will determine compliance with the performance standards is §§ 266.104 through 266.107 of this chapter and to establish the operating conditions required by § 266.102(e) of this chapter as necessary to meet those performance standards.

(g) *Interim status boilers and industrial furnaces.* For the purpose of determining feasibility of compliance with the performance standards of §§ 266.104 through 266.107 of this chapter and of determining adequate operating conditions under § 266.103 of this chapter, applicants owning or operating existing boilers or industrial

furnaces operated under the interim status standards of § 266.103 must either prepare and submit a trial burn plan and perform a trial burn in accordance with the requirements of this section or submit other information as specified in § 270.22(a)(6). Applicants who submit a trial burn plan and receive approval before submission of the part B permit application must complete the trial burn and submit the results specified in paragraph (f) of this section with the part B permit application. If completion of this process conflicts with the date set for submission of the part B application, the applicant must contact the Director to establish a later date for submission of the part B application or the trial burn results. If the applicant submits a trial burn plan with part B of the permit application, the trial burn must be conducted and the results submitted within a time period prior to permit issuance to be specified by the Director.

(Approved by the Office of Management and Budget under control number 2050-0073)

6. § 270.72 is amended by adding paragraphs (a)(6) and (b)(7) to read as follows:

**§ 270.72 Changes during interim status.**

(a) \* \* \*

(6) Addition of newly regulated units for the treatment, storage, or disposal of hazardous waste if the owner or operator submits a revised part A permit application on or before the date on which the unit becomes subject to the new requirements.

(b) \* \* \*

(7) Addition of newly regulated units under paragraph (a)(6) of this section.

7. § 270.73 is amended by revising paragraphs (f) and (g) to read as follows:

**§ 270.73 Termination of interim status.**

\* \* \* \* \*

(f) For owners and operators of each incinerator facility which as achieved interim status prior to November 8, 1984, interim status terminates on November 8, 1989, unless the owner or operator of the facility submits a part B application for a RCRA permit for an incinerator facility by November 8, 1986.

(g) For owners or operators of any facility (other than a land disposal or an incinerator facility) which as achieved interim status prior to November 8, 1984, interim status terminates on November 8, 1992, unless the owner or operator of the facility submits a part B application for a RCRA permit for the facility by November 8, 1988.

**PART 271—REQUIREMENTS FOR AUTHORIZATION OF STATE HAZARDOUS WASTE PROGRAMS**

VII. In part 271:

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 entry to Table 1 in

chronological order by date of promulgation in the Federal Register:  
**§ 271.1 Purpose and scope.**  
 \* \* \* \* \*  
 (j) \* \* \*

**TABLE 1.—REGULATIONS IMPLEMENTING THE HAZARDOUS AND SOLID WASTE AMENDMENTS OF 1984**

| Promulgation date      | Title of regulation  | Federal Register reference | Effective date   |
|------------------------|--|----------------------------|------------------|
| December 31, 1990..... | Burning of Hazardous Waste in Boilers and Industrial Furnaces..... | [insert FR page numbers].  | August 21, 1991. |

[FR Doc. 91-2667 Filed 2-20-91; 8:45 am]  
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