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ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 261, 265 and 266

[EPA/OWS-FR-91- ; SWH-FRL-3987-6]

Burning of Hazardous Waste in Boilers and Industrial Furnaces

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule; technical amendments.

SUMMARY: This notice makes several technical amendments to the final rule for boilers and industrial furnaces burning hazardous waste. See 56 FR 7134–7240 (February 21, 1991). These revisions provide clarification and correct unintended consequences of the rule.

EFFECTIVE DATE: August 21, 1991.

FOR FURTHER INFORMATION CONTACT: For general information, contact the RCRA Hotline at: (800) 424–9346 (toll free) or (703) 920–9810. For more specific aspects of the final rule, contact Shiva Garg, Office of Solid Waste (OS–322W), U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460, (703) 308–8460.

SUPPLEMENTARY INFORMATION:

Preamble Outline

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3. Demonstration of Burning as an Ingredient or for Metals Recovery is Based on Evaluation of As-Fired, not As-Generated, Waste.
4. A BIF Correspondence File, Not the Operating Record, Must Be Made Available to the Public at the Facility Site.
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A. Technical Amendments

On February 21, 1991, the Agency published a final rule which expanded controls on hazardous waste combustion by regulating air emissions from the burning of hazardous waste in boilers and industrial furnaces (i.e., the BIF rule). See 56 FR 7134. In particular, these rules control emissions of toxic organic compounds, toxic metals, hydrogen chloride, chlorine gas, and particulate matter from those boilers and industrial furnaces burning hazardous waste. In addition, the rules subject owners and operators of these devices to the general facility standards applicable to hazardous waste treatment, storage, and disposal facilities.

Since publication of the rule, the Agency has received many questions requesting clarification on certain provisions in both the rule and preamble. In addition, in a number of cases, the Agency was questioned as to whether the rule as promulgated truly reflected the Agency's intent. As a result of these questions and as a result of the Agency's own review, we believe it necessary to publish a technical amendment to the boiler and industrial furnace rule so as to clarify the operation of the regulation and to correct certain unintended consequences. (Note that EPA has previously published several technical corrections and amendments to the February 21 final rule (56 FR 32688 (July 17, 1991)). Today's amendments also correct several errors published in the July 17, 1991 notice.)

Finally, we note that all of the petitioners on the BIF rule were given the opportunity to comment on the Agency's proposed approach to address several of the issues that are the subject of today's amendments. Although most of the commenters' concerns are addressed in the discussion below, we have responded to other comments in a memorandum to the docket (i.e., Docket Numbers F–87–BBFP–FFFFF and F–89–BBSP–FFFFF), located in the EPA RCRA docket, room 2427, 401 M Street SW., Washington, DC 20460.

1. *BIFs Operating in Interim Status Prior to August 21, 1991 May Continue Burning Low Heating Value Waste Prior to Certification of Compliance.* The final rule supersedes the sham recycling policy when an owner or operator submits a certification of compliance. See 56 FR 7183–84 (February 21, 1991) and § 266.103(a)(6). With two explicit exceptions [1] hazardous waste with a heating value less than 5,000 Btu/lb may not be burned prior to certification of compliance. After promulgation of the rule, EPA realized that the rule inadvertently precludes those BIFs that, in order to burn hazardous waste for destruction, elected to comply with the interim status standards for incinerators (subpart O, part 265) or thermal treatment units (subpart P, part 265) prior to August 21, 1991 [2] from continuing to burn waste for destruction prior to certification of compliance. Given that the Agency did not intend to penalize BIFs that elected to comply with RCRA standards before the effective date of the BIF rule, EPA is making a technical amendment to § 266.103(a)(6). (Indeed, it would be quite unfair to penalize facilities operating within the letter of existing rules—i.e., those that had entered the subtitle C system as incinerators or thermal treatment units.) In today's final rule, § 266.103(a)(6)(iii) is added to allow such facilities to continue their normal practices of burning low heating value wastes. We note that, because the BIF interim status standards supersede the incinerator or thermal treatment interim status standards for such facilities (see 56 FR 7188), the facilities are subject to

[1] That is, burning for purposes of testing for a total time not to exceed 720 hours, and burning waste solely as an ingredient.

[2] We considered restricting this provision to facilities operating under interim status prior to February 21, 1991, the publication date of the rule, to preclude owners and operators from beginning to operate under interim status after that date solely to avoid the restriction on burning low heating value waste prior to certification of compliance. However, as explained later in the text, a facility is eligible for interim status only when a unit is newly regulated or when a unit manages newly regulated waste.

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the BIF regulations on August 21, 1991, including certification of precompliance.

We note that some BIFs that elected to comply with the interim status incinerator or thermal treatment standards prior to August 21, 1991 may have done so for reasons other than to enable them to burn low heating value hazardous waste. Given that today's amendment allows facilities to continue their *normal* practices of burning low heating value hazardous waste, facilities that do not normally burn such waste may not begin to do so prior to certification of compliance.

We also note that, to achieve interim status as an incinerator, a BIF must generally have met the interim status eligibility requirements on July 23, 1981, the effective date of the incinerator standards in subpart O part 265. To achieve interim status as a thermal treatment unit, a BIF must generally have met the interim status eligibility requirements on July 5, 1985, the effective date of subpart P. BIFs could also be eligible for interim status as an incinerator or thermal treatment unit at later dates; however, to do so, the facility had to be burning waste newly regulated as hazardous waste and had to have met the "in existence" definition and other interim status eligibility requirements by the effective date for the newly regulated waste.

2. *HAFs Burning Low Heating Value Wastes as an Ingredient Prior to February 21, 1991 May Continue to Do So Prior to Certification of Compliance.* Halogen acid furnaces (HAFs) burn low heating value (i.e., less than 5,000 Btu/lb) halogen-bearing hazardous waste as an ingredient to produce halogen acid product. Heretofore, these wastes have been eligible for an exclusion from the definition of solid waste under § 261.2(e). In the BIF rule, however, EPA determined that these materials are inherently waste-like when fed to a HAF and listed these materials as solid waste. Thus, on the effective date of the BIF rule (i.e., August 21, 1991), these low heating value materials will become fully regulated hazardous waste rather than excluded secondary materials and, as the rule is currently drafted, HAFs could not burn such waste prior to certification of compliance. (See discussion above regarding requirements under the BIF rule for burning low heating value hazardous waste.)

In listing these materials as inherently waste-like, EPA did not intend to disrupt an on-going legitimate recycling operation. Rather, EPA wanted to ensure that HAFs burning these materials were subject to the emissions controls and permit requirements of the BIF rule. Consequently, EPA is correcting this unintended consequence of the rule by revising § 266.103(a)(6) to allow HAFs that were burning low heating value wastes as an ingredient prior to February 21, 1991 to continue to do so (after the effective date of the rule) prior to certification of compliance.

3. *Demonstration of Burning as an Ingredient or for Metals Recovery is Based on Evaluation of As-Fired, Not As-Generated, Waste.* The final rule establishes criteria for determining whether a waste is burned solely as an ingredient [3] or solely for metals recovery for purposes of eligibility for certain exemptions. In particular, the criteria apply limits on the heating value of the waste and the concentration of toxic compounds in the waste. EPA inadvertently wrote the final rule to apply these limits (in some cases) to the "as-generated" waste, rather than the "as-fired waste", thus effectively precluding pretreatment to destroy or remove toxic compounds. We believe such a limitation is unnecessary and may inhibit *bona fide* recycling activities. Therefore, today's amendments revise §§ 266.100(c) and 266.103(a)(5)(ii) to apply the limits to the as-fired waste provided that the waste is not treated by simply blending or other dilution to meet the limits.[4] (See, e.g., § 268.3 (general prohibition on dilution as a means of permissible treatment). We also are making a conforming change to the recordkeeping requirements to require the person claiming the exemption to document that the waste has not been impermissibly diluted to meet the as-fired limits, but rather, that if the waste has been pretreated, that toxics have been destroyed or removed.

4. *A BIF Correspondence File, Not the Operating Record, Must Be Made Available to the Public at the Facility Site.* By August 21, 1991, the final rule requires the owner or operator to make facility records available to the public. EPA inadvertently referred to the "operating" record as the record that must be made available at the facility site for public inspection. See § 266.103(b)(6)(viii). The rule also incorrectly referred to the record on the facility kept at the Agency Regional Office as the operating record rather than the administrative record.[5] (The Agency keeps an administrative record for each RCRA treatment, storage, and disposal facility that contains information similar to that required in the BIF correspondence file.)

The Agency did not intend for either the facility nor the EPA Regional Office to maintain for public inspection the operating record that would document minute by minute operations of the facility (e.g., minute by minute levels for CO, combustion chamber temperature, and air pollution control operating conditions).[6] Rather, EPA intended to require the owner/operator to provide public access to a record that includes all correspondence between the facility and EPA, State, and local regulatory agencies. This record is termed in today's amendments as the "BIF correspondence file." The BIF correspondence file must contain copies of all certifications and notifications, including, but not limited to, the precompliance certification, precompliance public notice, notice of compliance testing, compliance test report, compliance certification, time extension requests and approvals or denials, enforcement notifications of violations, and copies of EPA and State site visit reports submitted to the owner or operater.

5. *EPA May Approve on a Case-By-Case Basis the Use of Compliance Test Data from One Unit in Lieu of Testing a Similar On-Site Unit.* EPA is revising the interim status compliance testing requirements of § 266.103(c)(3) to clarify that compliance test data for one unit may be used in lieu of conducting a compliance test on a similar on-site unit upon written approval of the Director. To request approval to use compliance test data for one unit in lieu of testing a similar unit, the owner or operator must provide a comparison of the design, operation,[7] and maintenance of both the

[3] We use the phrase "burning solely as an ingredient" in the BIF rule to determine when certain regulatory restrictions on BIFs do not apply. The determination of when a waste is burned as an ingredient for purposes of the applicability of certain provisions of the BIF rule is much different from the determination that a material is not a solid waste under § 261.2(e) because it is used as an ingredient in an industrial process. Persons claiming that a material is not a solid waste under § 261.2(e) must make the demonstration required by § 261.2(f). See 56 FR 7185 (Feb. 21, 1991), 50 FR 638 (Jan. 4, 1985), and 53 FR 522 (Jan. 8, 1988). Note further that, even if a solid waste is used as a *bona fide* ingredient to produce a product that is "used in a manner constituting disposal" (e.g., placed on the ground), the waste is not eligible for the exclusion. See § 261.2(c)(1)(i)(B).

[4] Note that any treatment or pretreatment of a hazardous waste is subject to the appropriate RCRA regulation.

[5] We note that the Agency administrative record will be made available subject to Agency regulations on freedom of information and access to confidential business information.

[6] Owners and operators must nonetheless comply with the operating record requirements of § 264.73 for permitted facilities, and § 265.73 for interim status facilities.

[7] In particular, CO data from both units should be provided when they are operated under "identical"

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tested unit and the similar unit as well as a description of the hazardous waste to be burned in both units. The Director will provide a written approval if he finds that the hazardous wastes, the devices, and the operating conditions are sufficiently similar, and the data from the compliance test is adequate to document compliance with the applicable emissions standards of §§ 266.104(b) through (f), and 266.105 through 266.107 and to establish the operating conditions specified by § 266.103(c)(1).

If the owner or operator would normally test both units during the same testing program absent a waiver of the compliance test for a similar unit, he/she should request tentative approval [8] to waive compliance testing for the similar unit well in advance of the planned test to allow sufficient time for EPA review and approval (or disapproval). Ordinarily, EPA will not be able to make such determinations unless a request, including complete supporting documentation and the notification of compliance test information required by § 266.103(c)(2), is submitted at least 60 to 90 days prior to the planned date of the compliance test.

We are limiting eligibility for the compliance test waiver to similar on-site units because of the burden on EPA and the States during the interim status phase of operations to review documentation (and, most likely, visit the facilities) on units at different sites (in, perhaps, different States or EPA Regions). The interim status standards have been designed to be generally self-implementing. Although certain provisions such as the one discussed here require significant EPA and State involvement, we want to keep that interaction to a minimum during the interim status phase of a facility's operation. Under the permit proceeding, however, where EPA and the States conduct a comprehensive and intensive review of the facility's operations, owners and operators may propose to use emissions data from any similar unit (i.e., not just on-site units) in lieu of the trial burn.

6. *A BIF Has Received the Known Final Volume of Hazardous Waste under Interim Status when It Misses a Certification Deadline.* EPA is revising the requirements under § 266.103(e) in the event of noncompliance with the interim status certification schedule to make it clear that, if a certification deadline is missed, the facility has received "the known final volume of hazardous waste" on the date the deadline is missed because the facility may no longer burn hazardous waste under interim status. In addition, the Agency is revising the closure requirements of §§ 265.112(d)(2) and 265.113(a) and (b) to correct and simplify them to require that a BIF: (1) Begin closure within 30 days of missing a certification deadline or otherwise receiving the known final volume of hazardous waste; (2) treat, remove from the unit or facility or dispose of on-site, all hazardous wastes in accordance with the approved closure plan within 90 days after missing a certification deadline or otherwise receiving the known final volume of hazardous waste; and (3) complete partial or final closure activities in accordance with the approved closure plan within 180 days of missing a certification deadline or otherwise receiving the known final volume of hazardous waste, or 180 days after approval of the closure plan, if that is later.

Section 265.112(d)(2) and 265.113(a) and (b) as published at 56 FR 7207–8 incorrectly implied that hazardous waste can no longer be burned (and, thus, closure must begin within 30 days) only when the certification of compliance was not submitted under deadlines established by the time extension provisions provided by § 266.103(c)(7)(i)(B) or (C). However, § 266.103(e) as published at 56 FR 7219 clearly requires that hazardous waste burning cease when any interim status certification deadline is missed. This includes certification of precompliance, certification of compliance (whether complying by August 21, 1992 or under a time extension), and periodic recertification. Therefore, we are correcting this inconsistency in today's technical amendment.

Finally, when we revised the existing closure regulations on February 21, 1991 to address BIFs, we inadvertently deleted existing § 265.112(d)(2)(ii) and language in §§ 265.113(a) and (b) that addressed facilities handling nonhazardous waste. Consequently, we are today reinstating that regulatory language.

7. *Feedstreams May Be Analyzed Using Methods That Meet or Exceed the Method Performance Capabilities of SW–846 Methods.* EPA is revising §§ 266.100(c)(1)(ii) and 266.102(b)(1) to allow the use of methods to characterize the physical or chemical properties of feedstreams other than those prescribed by *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,* SW–846, provided that the alternative methods meet or exceed the SW–846 method performance capabilities. The Agency has received several comments that the SW–846 method detection limits cannot be achieved when analyzing certain feedstream matrices using SW–846 procedures. Owners and operators must clearly note the use of alternative methods in the certification of precompliance, the notification of compliance testing and test protocol, the certification of compliance, and recertification of compliance. The Director may reject the use of an alternative method because, at his/her sole discretion, it may not meet or exceed the SW–846 performance capabilities.

8. *Methods Are Recommended for Determining Chlorine Levels in Feedstreams and the Heating Value of Solid Feedstreams.* EPA realized after publication of the final rule that *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,* SW–846, third edition, does not include methods for determining total chlorine levels in feedstreams or heating values of solid feedstreams. Until methods for chlorine and the heating value of solids are finalized and included in SW–846, EPA recommends the following methods. EPA currently recommends that owners and operators of hazardous waste incinerators use these methods to comply with the requirements of subpart O of parts 264 and 265.[9]

Total chlorine may be determined by first combusting the sample according to proposed SW–846, Method 5050 or the combustion step in ASTM D808,[10] followed by analyzing for chloride according to existing SW–846 methods 9250, 9251, 9252, or proposed SW–846 method 9253. The final gravimetric step described in ASTM D808 is not recommended because of poor sensitivity. An option for determining total chlorine in aqueous feedstreams is to analyze for both total organic halogens according to SW–846 methods 9020 or 9022, and inorganic chloride according to the methods listed above.

For heating value of solid feedstreams, EPA recommends use of the American Society of Testing and Materials methods D–2015–77, D–3286–

conditions. (CO data from the "similar unit" may be obtained with a portable monitor.)

[8] The approval would be tentative pending a finding that the compliance test data were, in fact, sufficient to document compliance with the applicable emissions standards of §§ 266.104(b) through (f), and 266.105 through 266.107 and to establish the operating conditions specified by § 266.103(c)(1).

[9] See U.S. EPA, *Hazardous Waste Incineration Measurement Guidance Manual* EPA/625/6–89/021. June 1989.

[10] See "Annual Book of ASTM Standards", Philadelphia, Pennsylvania.

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77, or D-808-81 prescribed in the "Annual Book of ASTM Standards", Philadelphia, Pennsylvania, or method A006 prescribed in "Sampling and Analysis Methods for Hazardous Waste Combustion", EPA 600/8-84-002, PB84-155845, February 1984.

To implement the use of these methods, EPA is revising §§ 266.100(c)(1)(ii) and 266.102(b) to require the owner or operator to use the best available method if SW-846 does not prescribe a method for a particular determination. EPA would expect that owners or operators would use the methods recommended above, or methods that meet or exceed the performance capabilities of the recommended methods. The Director may reject the use of an alternative method because, at his/her sole discretion, it may not meet or exceed the performance capabilities of the recommended methods.

9. *Certain Metal-Bearing Wastes Are Conditionally Exempt from the Demonstration of Burning Solely for Metal Recovery when Burned in a Metal Recovery Furnace.* The final rule conditionally defers regulation of smelting, melting, and refining furnaces that burn hazardous waste solely for legitimate metal recovery. See § 266.100(c) at 56 FR 7208. The rule provides three tests for the determination of burning solely for legitimate metal recovery. The heating value of the waste cannot exceed 5,000 Btu/lb (if so, the waste is considered to be burned partially for energy recovery), the concentration of appendix VIII organic constituents in the waste cannot exceed 500 ppm (if so, the waste is considered to be burned partially for destruction), and the waste must have recoverable levels of metal.

As we explained at 56 FR 7143, the Agency placed most of its efforts on issuing the mandated portion of the regulations (i.e., burning of hazardous waste fuels) as soon as possible, and has not resolved the questions of whether and how to regulate smelting furnaces under RCRA given the new air toxics provisions in the Clean Air Act Amendments of 1990. At the same time, however, EPA was concerned that the deferral not become a license or sham recycling activities or for operations motivated by conventional treatment objectives rather than recovery purposes. Consequently, the final rule established limits on the heating value and concentration of toxic organic constituents in a waste that is burned for metal recovery.

The secondary lead smelting industry and the secondary nickel-chromium smelting industry however, have informed EPA that the heating value and organic constituent test would inappropriately classify many waste (i.e., spent materials that are listed or that exhibit a characteristic, and byproducts and sludges that are listed in §§ 261.31 and 261.32—see § 261.2(c)(3)) as being burned partially for energy recovery or destruction when such lead, nickel, or chromium-bearing materials are typically processed in metal recovery furnaces (absent any impetus from RCRA).[11] Examples are spent lead acid battery parts that can contain pieces of plastic or rubber that raise the heating value above 5,000 Btu/lb, and baghouse bags used to capture metallic dusts (including recoverable levels of nickel and chromium) emitted by steel manufacturing that have a heating value above 5,000 Btu/lb. As discussed at proposal in the context of lead-bearing materials, we do not believe that such materials are burned either for sham recycling or for conventional treatment. See 54 FR at 43732 (Oct. 26, 1989).

Accordingly, EPA is revising the BIF rule to conditionally exclude certain hazardous wastes from the provisions of § 266.100(c)(2) published at 56 FR 7208. Those provisions are intended to identify when a waste is not processed solely for metal recovery (i.e, the 5,000 Btu/lb limit on heating value, and the 500 ppm limit on concentration of appendix VIII, part 261, toxic organic consitutuents). As discussed above, EPA believes that those criteria may not be appropriate to determine when certain wastes (i.e., a spent material that is listed or that exhibits a characteristic, or a listed sludge or by-product, see § 261.2(c)(3)) are burned in a furnace for metal recovery. Those wastes that are deemed to be burned for recovery of lead are listed in appendix XI to part 266 in today's amendments, which largely parallels the list proposed at 54 FR 43732. Those wastes that are deemed to be burned for recovery of nickel or chromium are listed in appendix XII to part 266. In addition, baghouse bags used to capture metallic dusts emitted by steel manufacturing are exempt when burned for metal recovery in any metal recovery furnace. Although baghouse bags may have a heating value exceeding 5,000 Btu/lb, they may have recoverable levels of metals and have historically been burned for metal recovery in a steelmaking or other furnace.

To ensure that the wastes listed in appendices XI and XII are, in fact, burned for metal recovery even though they may have a heating value exceeding 5,000 Btu/lb and may contain more than 500 ppm of toxic organic constituents, the exemption is conditioned on two requirements. First, the lead-bearing wastes must be generated or initially produced by the "lead industry" (except as discussed below) to help ensure that these wastes are normally burned in a lead smelter, and the nickel or chromium-bearing wastes must be generated by manufacturers or users of nickel, chromium, or iron (except as discussed below) to help ensure that these wastes are normally burned in a nickel-chromium recovery furnace. Today's amendment defines the lead industry as lead smelting operations (both primary and secondary), lead-acid battery manufacturing, and lead chemical manufacturing (i.e., producers of lead compounds). Second, if the waste contains more than 500 ppm of toxic organic constituents, it must not exhibit the Toxicity Characteristic (TC) of § 261.24 for an organic constituent and it must not be listed as a hazardous waste in subpart D of part 261 because it contains an organic constituent as identified in appendix VII of part 261.[12] This will help ensure that the waste is not burned partially for destruction of toxic organics. EPA believes that a waste on the exempt lists provided by appendices XI and XII, part 266, of the BIF rule that contains recoverable levels of lead or nickel-chromium is burned solely for metal recovery in a furnace even if it contains more than 500 ppm of

[11] See comments of RSR Corp., Dec. 26, 1989, pp. 8-14; comments of SLSA, Dec. 26, 1989; comments of Exide Corp., Dec. 22, 1989, pp. 1-5; correspondence from Robert N. Steinwurtzel, Esq., et. al., Andrews & Kurth, counsel for Association of Battery Recyclers, Inc., to Steven Silverman, Esq., EPA, May 21, 1991; correspondence from Robert N. Steinwurtzel, Esq., et. al., Andrews & Kurth, counsel for Association of Battery Recyclers, Inc. to Steven Silverman, Esq., EPA, July 1, 1991; correspondence from Robert N. Steinwurtzel, Esq., et. al., Andrews & Kurth, counsel for Association of Battery Recyclers, Inc. to Honorable William K. Reilly, EPA, July 1, 1991; correspondence from Neil Jay King, Esq., Wilmer, Cutler & Pickering, counsel for The International Metals Reclamation Company, Inc., to Richard Kinch, EPA, July 26, 1991; correspondence from William A. Sonntag, Jr. Esq., National Association of Metal Finishers, to Richard Kinch, EPA, July 27, 1991; correspondence from John L. Wittenborn, Esq., and William M. Guerry, Jr., Esq., Collier, Shannon & Scott, counsel for the Specialty Steel Industry of the United States, to Docket Clerk, EPA, July 29, 1991; and correspondence from John L. Wittenborn, Esq., and William M. Guerry, Jr., Esq., Collier, Shannon & Scott, counsel for the Steel Manufacturing Association, to Docket Clerk, EPA, July 29, 1991.

[12] We note that the restrictions that the waste cannot exhibit the TC for an organic constituent and cannot be listed for an organic constituent apply only to materials on appendices XI and XII that are exempt from the <5,000 Btu/lb and <500 ppm toxic organics tests. Those restrictions do not apply to other wastes burned by (exempt) smelters because those wastes are subject to the 500 ppm limit on toxic organic constituents.

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toxic organics provided that the waste does not exhibit TC for an organic constituent and is not listed as hazardous for an organic constituent. The presence of toxic organics in a waste listed on appendices XI or XII is incidental to the decision to burn the waste for metal recovery.

Persons claiming that materials listed in appendices XI or XII meet the requirements of § 266.100(a)(3)(i–iii) and so are exempt from the 5,000 Btu/lb and 500 ppm toxic organics tests must retain for three years documentation supporting the claim, including data from sampling and analysis or other information. In addition, such persons must include in the one-time notice (see § 266.100(c)(3)) claiming that the metal recovery furnance is exempt from the requirements of §§ 266.102–266.111, a certification that sampling and analysis will be conducted or other information will be obtained as necessary to ensure continued compliance with the requirements of § 266.100(a)(3)(i–iii).

Most of the materials in appendix XI were proposed in the October, 1989 supplemental proposal, and consist of materials generated by, or initially produced by, lead-associated industries, i.e., lead smelters, lead-acid battery manufacturing, or lead chemical manufacturing. Examples are batteries and their component parts (i.e., plates and groups, grids, posts and separators, and casings), and process wastes from these industries. However, there are also certain lead-bearing materials that are legitimately recycled for metal value by secondary smelters that are not from lead related industries—lead-based paints, fluff from lead wire and cable casings, platen abrasive (from lead print linotyping), and spent jumper cables—which the agency is also including. (EPA notes, however, that all of these materials must actually contain recoverable amounts of lead to be deemed burned for metal recovery. See new § 266.100(c)(3).) Similarly, we have included in appendix XII a list of nickel or chromium-bearing materials that are legitimately recycled for metal value by nickel-chromium recovery furnaces that are not generated by manufacturers or users of nickel, chromium, or iron (e.g., electroplating wastewater treatment sludges, and nickel-cadmium and nickle-iron batteries).

In addition, we note that several lead-bearing materials that have been historically processed in lead recovery furnaces have not been included on the appendix XI list: By-product drosses, slurry and slurry screenings, slags, and scrap lead. We did not include these materials because they are either not solid wastes when recycled or are exempt from regulation when recycled. See §§ 261.2(c)(3) and 261.6(a)(3)(iv).

Finally, we note that the Agency may determine that a material on appendices XI or XII burned at a particular metal recovery furnace may have levels of toxic organic constituents substantially higher than a total of 500 ppm. (The Agency could make this determination because owners and operators claiming the exemption must notify the Agency. The Agency may then obtain waste analysis data or other information from the facility record or from EPA sampling that indicates the presence of high levels of toxic organic constituents.) The amended rule enables the Agency to determine on a case-by-case basis that the material may pose a hazard to human health and the environment when burned in a metal recovery furnace due to presence of toxic organic constituents at levels exceeding a total of 500 ppm, and to order that the burning either cease or be conducted in compliance with the BIF rule. The Agency is adopting this extra safeguard even though the rule already provides that, to be exempt from the <5,000 Btu/lb and <500 ppm toxic organic tests, the material cannot be listed for a toxic organic constituent or fail the Toxicity Characteristic (TC) for a toxic organic constituent. The waste might still contain high levels of toxic organic constituents that are not included in the TC or the material's matrix may not readily leach toxic organic constituents during the TC extraction procedure but would be liberated during burning in the furnace. In making the determination, EPA would consider the concentration and toxicity of toxic organic constituents in the material, the level of destruction of toxic organic constituents provided by the furnace, and whether the acceptable ambient levels established in appendices IV and V of part 266 maybe exceeded for any toxic organic compound that may be emitted (i.e., including products of incomplete combustion) based on dispersion modeling to predict the maximum annual average off-site (unless a person resides on-site) ground level concentration.

Should the Director determine that burning particular wastes with organic contaminants in a metal recovery furnace poses a hazard to human health and the environment, as explained above, the Agency would issue a notice to the company burning the waste indicating the basis for this tentative determination. The company would have an opportunity to respond to the determination but could not burn the waste in the interim. The Director would then make a final determination and document the basis for his conclusion. If the conclusion is that the waste would pose a hazard, then further burning would be illegal unless performed in compliance with the BIF rules. (It also may be possible to pretreat the waste to remove or destroy organics, and then burn it safely.) The determination would only apply to subsequent burning, however. There would be no enforcement penalties for burning occurring before the Director's tentative determination.

10. *Precious Metal Recovery Furnaces Engaged in Legitimate Metal Recovery Are Not Regulated by the BIF Rule.* EPA has been asked about the regulatory status of precious metal recovery operations under the BIF rules. Such operations are generally exempt from subtitle C regulation (with the exception of certain tracking and recordkeeping requirements). See 40 CFR part 266, subpart F and 50 FR at 648 (Jan. 4, 1985). This is because the value of precious metal in the wastes provides a strong incentive for proper handling. *Id.* (In addition, land disposal of the wastes is prohibited under part 268.)

EPA interprets this exemption as continuing to apply so that industrial furnaces [13] engaged in legitimate precious metal recovery operations are not subject to regulation under the BIF rule. Not only does the text of § 266.70 support this result, but the rationale for the exemption still holds. The value of the precious metals ensures proper handling not only before recycling, but during the recycling process. Recovery of particulate matter from air emissions is in fact typically maximized in the metal recovery process due to the value of these metals. EPA also notes that the technical provisions of the BIF rule may not be applicable to the precious metal recovery process. Initial thermal oxidation of materials normally must be done slowly at relatively low temperatures in order not to drive the precious metals off in flue gas. Combustion at the 1800 °F temperature specified in the rule for interim status facilities (see § 266.103(a)(5) for furnaces that feed hazardous waste at locations other than the "hot end") would be self-defeating. (Precious metal furnaces are, however, typically equipped with afterburners and secondary combustion chambers to destroy any pyrolyzed organics and to assist in further recovering precious metals.)

[13] That is, smelting, melting, and refining furnaces including pyrometallurgical devices such as cupolas, sintering machines, roasters, and foundry furnaces.

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In order to clarify that the exemption in part 266, subpart F, continues to apply, EPA is adding a conforming amendment to § 266.100(f) (applicability of BIF rule) to indicate that legitimate precious metal recovery operations are not subject to the rule. The Agency indicated in the January 4, 1985 solid waste definition regulations some of the indicia of legitimate precious metal recovery operations. See 50 FR at 648–49. These include presence of economically significant amounts of precious metals, efficient recovery operations, no land disposal of wastes destined for recovery, and payment by the reclaimer to the waste's generator. Industry members indicate further that materials destined for precious metal reclamation are normally batch segregated into distinct and identified batches of like material, that generators and recovery facilities normally enter into written contracts before materials are transferred specifying compensation to the generator and when transfer is to occur, and that true precious metal recovery is characterized by net financial return to the generator (i.e., a price sufficient to cover all charges for transport, storage, and processing).[14] Presence of air pollution control equipment to recover any precious metals contained in emissions would be a further indication of a legitimate operation. Conversely, the absence of one or more of these features could serve as potential indications of a sham recycling operation, which would, of course, be subject not only to the BIF rules but to all other subtitle C provisions as well. See 50 FR at 649. Furthermore, under § 261.2(f), persons ostensibly engaged in precious metal reclamation of hazardous wastes have the burden of proving (normally through recordkeeping plus presence of appropriate recovery equipment) that they are engaged in legitimate recovery activities. We have added a recordkeeping requirement to § 266.100(f)(3) to ensure existence of proper documentation.

11. *Records Must Be Kept Until Closure.* In the final rule published on February 21, 1991, EPA inadvertently provided conflicting requirements for the length of time that monitoring, testing, and other information that must be included in the operating record must be retained. As intended, the final rule required BIFs to comply with the recordkeeping requirements of §§ 264.73(b) for permitted facilities and 265.73(b) for interim status facilities that are applicable to other hazardous waste treatment, storage, and disposal facilities: records must be kept until closure of the facility. See §§ 266.102(a)(2)(v) and 266.103(a)(4)(v) at 56 FR 7209 and 7213. However, the final rule also provided conflicting provisions that required facilities to retain records for only three years. See §§ 266.102(e)(10) (permitted facilities), 266.103(k) (interim status facilities), and 266.112(c) (Bevill-excluded residues) at 56 FR 7212, 7220, and 7228, respectively. Those paragraphs are revised by today's amendments to require that records be kept until closure of the facility.[15]

12. *BIFs Must Comply with Operating Conditions and Emissions Standards upon Certification of Compliance.* The final rule requires owners and operators to establish in a certification of compliance limits on specific operating parameters based on the compliance test and to operate under those limits during the remainder of interim status (unless a revised certification of compliance is submitted to the Director). See § 266.103(c) at 56 FR 7216. Although the rule specifies that the owner or operator must conduct a compliance test to document compliance with the emissions standards of §§ 266.104 (b) through (e), 266.105, 266.106, 266.107, and 266.103(a)(5)(i)(D) [16], EPA inadvertently did not specify that, upon certification of compliance, the facility must remain in compliance with those emissions standards while hazardous waste remains in the unit. EPA intended that the facility must be operated in compliance with both the operating limits established upon certification of compliance and those emissions standards. (No other result makes any sense.) Today's amendments revise § 266.103(c)(1) accordingly.

13. *Sample Compositing Procedures Are Clarified and the Statistical Test Is Revised for Bevill Residues.* The final rule establishes a test to determine whether hazardous waste has significantly affected the character of certain residues, which would make them ineligible for exclusion from regulation. See § 266.112. EPA realized after promulgation of the final rule that the required sampling procedures for both normal residues and waste-derived residues were not clear, and that the statistical test established for comparing waste-derived residues to normal residues was inappropriate for the intended purpose. Therefore, today's amendments clarify the sampling procedures and establish a more appropriate statistical test for comparing waste-derived residues to normal residues.

First, § 266.112(b)(1)(i) is revised to make it clear that normal residues—that is, residues generated when not burning hazardous waste—are to be characterized by analysis of a minimum of 10 samples representing a minimum of 10 days of operation.[17] Composite samples may be used to develop a sample for analysis; however, the compositing period may not exceed 24 hours. In addition, §§ 266.112(b)(1)(ii) and 266.112(b)(2)(iii) are revised to clarify that the waste-derived residue must be sampled and analyzed as often as necessary to determine whether the residue during each 24-hour period has concentrations of toxic constituents that are higher than in the normal residue.[18] The waste-derived residue must be characterized by analyzing one or more samples obtained over a 24-hour period. Multiple samples may be analyzed, and multiple samples may be taken to form a composite sample for analysis provided that the sampling period does not exceed 24 hours.[19] If more than one

[14] See correspondence from John C. Bullock, Handy & Harman, to J. Robert Holloway, EPA, July 16, 1991; and correspondence from John C. Bullock, Esq. to Steven Silverman, July 19, 1991 and attachments.

[15] We note that the final rule continues to require that exempt facilities (e.g., smelters, small quantity burners) retain records for only three years. See §§ 266.100(c)(1)(i) and 266.108(e) at 56 FR 7208 and 7225. EPA believes that three years of records is adequate to implement and enforce the rules for exempt facilities given the low level of hazard they pose to public health and the environment. In addition, we note that §§ 264.73(b)(5) and 265.73(b)(5) require that records and results of inspections need be kept only three years.

[16] See § 266.103(c), introductory paragraph.

[17] We note that the normal residue need not be sampled over 10 consecutive days. In addition, sampling and analysis data characterizing normal residue from one unit may be used to characterize residue from a similar unit provided that the owner or operator retains adequate supporting documentation that the residues are similar (e.g., including documentation of concentrations of toxic constituents in feedstocks, feed rate of feedstocks, and combustion conditions and operating parameters of air pollution control systems that can affect levels of toxic constituents in residue). See 54 FR 43735 (October 26, 1989). Finally, the normal residue must be recharacterized whenever changes in feedstocks or operating conditions could significantly lower the concentration of toxic constituents in the normal residue. See 56 FR 7198 (February 21, 1991).

[18] Note that the sampling frequency is not specified. Waste-derived residue must be sampled and analyzed as often as necessary for the owner or operator to determine whether the residue is excluded or fully regulated hazardous waste. If the waste-derived residue is sampled and analyzed less often than on a daily basis, however, and subsequent analysis determines that the residue fails the test and is fully regulated hazardous waste, the Agency considers all residue generated since the previous successful analysis to be fully regulated hazardous waste absent documentation otherwise.

[19] The Agency considered whether the averaging period for waste-derived residue should be longer

Continued

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sample is analyzed to characterize the waste-derived residue generated over a 24-hour period, the concentration for each constituent is the arithmetic mean of the values. (Today's amendments also make conforming revisions to section 7.0 of appendix IX, part 266, *Methods Manual for Compliance with the BIF Regulations.*)

Second, the Agency is revising the statistical test for normal residue established in the final rule which called for the determination of a 95% confidence interval about the mean for each constituent of concern based on a minimum of 10 samples. The value at the upper 95% confidence interval was to be compared to the levels in waste-derived residue. If the concentration of a toxic constituent of concern (see § 266.112(b)(1)) is higher in the waste-derived residue than the normal residue, the residue has failed part one of the Bevill test.[20]

Upon further consideration, EPA realizes that establishing a confidence interval about the mean is a useful statistical test when the mean of a data set of values is compared to the mean of a second data set of n values. In other words, this test would be appropriate if the mean of the concentrations in normal residue were to be compared to the mean of the concentrations in the waste-derived residue. However, the waste-derived residue must be characterized over a period of time not to exceed 24 hours, and the concentration of constituents of concern in each 24-hour "batch" of residue that is characterized must not exceed the levels in the normal residue. Thus, a single value (i.e., a 24-hours worth) for waste-derived residue is being compared to a range of values (i.e., a minimum of 10 days worth) for normal residues. The confidence interval about the mean addresses the expected variation in the mean, and not the variation in individual measurements.

EPA believes that a more appropriate statistical test for comparison of a single values (characterizing waste-derived residue) to a normal distribution of values (characterizing normal residue) is to establish an upper tolerance limit at 95% confidence with a 95% proportion for the concentrations of constituents of concern in normal residue. This means that, based on the (minimum of 10) samples of normal residue that are analyzed, we are 95% confident that 95% of the values for the normal residue will fall below the upper tolerance limit. Today's amendments revise § 266.112(b)(1)(i) to require this test and make conforming revisions to Section 7.0 of appendix IX, Part 266, *Methods Manual for Compliance with the BIF Regulations.* Establishing an upper tolerance limit accommodates the expected variation in individual measurements and, therefore, results in a higher threshold value than using the confidence interval approach. Thus, the upper tolerance limit approach will better accommodate normal sample variation and will reduce the incidence of false positives (i.e., outlying test results above the threshold which indicate an unaffected residue is affected by the hazardous waste). If a facility believes that this test has resulted in a false positive (i.e., has incorrectly indicated that an unaffected residue is affected by the hazardous waste), it has the option of analyzing additional samples obtained during the 24-hours of operations in question and averaging the values to support its claim.[21]

14. *Restrictions on Hazardous Waste Firing Rate Are on a Mass or Heating Value Basis, whichever Results in a Lower Mass of Waste Fired.* The final rule resticts the hazardous waste firing rate as a requisite for several exemptions. Small quantity burners cannot feed hazardous waste at any time at a rate the exceeds 1% of the burners fuel requirements. See § 266.108. Facilities complying with the low risk waste exemption and boilers complying with the waiver of the DRE trial burn must burn a minimum of 50% "primary fuel" that is fossil fuel or the equivalent. See §§ 266.109(a)(1)(i) and 266.110(a). In addition, coal-fired boilers must burn at least 50% coal in order for their residues to be eligible for the Bevill exclusion. See § 266.112(a)(1).

EPA inadvertently established these firing rate limits on different, and, in some cases, inappropriate bases. For small quantity burners, the final rule limited the hazardous waste firing rate to 1% of the total fuel requirements on a volume basis. For the low risk waste exemption and the waiver of the DRE trial burn, the final rule required that the primary fuel must be fired at a 50% firing rate on a total heat or volume input basis, whichever results in the larger volume of primary fuel fired. To be eligible for the exclusion of residues, the final rule required that at least 50% of the heat input to the boiler must be provided by the coal.

To apply the firing rates consistently and to ensure that the maximum amount of primary fuel is fired on a mass basis (which, in turn, ensures that the minimum amount of hazardous waste is fired on a mass basis), today's amendments revise those provisions of the regulation to base the firing rate on the total heat input or mass input, whichever results in the lower mass feed rate of hazardous waste. This will ensure, for example, that large quantities of low heating value hazardous waste cannot be burned under the restrictions.

15. *Direct Transfer Operations May Comply with the Setback Requirements for Tanks in the NFPA code rather than the 50 Foot Setback Requirement for Containers.* Section 266.111(d)(2) of the final rule requires direct transfer "containers" (i.e., transport vehicles) to meet most of the interim status container storage requirements. Among the applicable part 265 requirements is § 265.176 which requires that "containers" holding ignitable wastes be located at least 50 feet from the property boundary. The comparable requirement for storage (interim status) of ignitable waste in tanks, however, specifies only that the tank's location must meet the National Fire Protection Association's (NFPA) "Flammable and Combustible Liquids Code." See § 265.198. Since the only purpose for the setback requirement is fire safety, EPA believes that it would be reasonable to apply the more flexible NFPA code. A certification by the local Fire Marshall that the installation meets the applicable codes should be sufficient to verify that the location is reasonably safe. Consequently, today's amendments revise § 266.111(d)(2) to allow a facility

than 24 hours given the variability of metals in raw material feedstocks. However, we believe that allowing the facility to characterize a 24-hour generation of waste-derived residue without limiting the number of samples that can be used to form a composite for analysis (and without limiting the number of analyses) provides a reasonable and fair characterization of that residue. Moreover, enforcement of the regulations would be difficult if a longer averaging period was used because enforcement officials would have to sample the residue over the entire averaging period.

[20] To lose the Bevill exclusion because hazardous waste has significantly affected the character of the residue, the waste-derived residue must have a toxic constituent of concern at a higher concentration than the normal residue *and* the constituent must be present at a level of potential health significance. See § 266.112(b)(2), which is part two of the test.

[21] To reduce the number of false positives, the Agency considered establishing the test at a 99% proportion of the sample distribution—i.e., the upper tolerance limit would be set at a level where we are 95% confident that 99% of future values are lower than that level. However, we did not select a higher proportion value because it would result in a higher rate of false negatives—i.e., waste-derived residue that has, in fact, been affected by the hazardous waste would be considered to be unaffected. In addition, as discussed in the text, the owner or operator may analyze additional samples of the waste-derived residue characterizing a day's generation to minimize the incidence of false positives.

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to comply with § 265.198 in lieu of § 265.176.

16. *Furnaces May Feed Hazardous Wastes at Locations where Fuels Are Normally Fired without Complying with the Special Requirements of § 266.103(a)(5).* EPA was concerned that the interim status standards to control organic emissions (i.e., the carbon monoxide (CO) limits and, where applicable, controls on hydrocarbons (HC) and dioxins and furans) may not be protective when hazardous waste is fed at locations in an industrial furnace other than the hot zone. See 56 FR 7158. In particular, we were concerned about feeding hazardous waste in cement kilns at locations other than the hot end (i.e., the lower, clinker discharge end where atomized liquid or pulverized solid fuels are fired). Accordingly, the final rule provided special requirements on industrial furnaces that feed hazardous waste at any location other than the "hot end where products are normally discharged and where fuels are normally fired". See § 266.103(a)(5).

This wording of the applicability of the special requirements has the unintended consequence of applying the special restrictions to halogen acid furnaces (HAFs) (and perhaps other furnaces) that feed hazardous waste where fuels are normally fired but that discharge products at another location. HAFs are essentially designed like a boiler or incinerator where hazardous waste is burned in a combustion zone and halogen-rich combustion gases are processed to produce halogen acid product. EPA believes that the interim status standards (e.g., CO limits) will effectively control organic emissions from these devices without the need for the special restrictions. Consequently, EPA is today revising the applicability of the special restrictions to apply when hazardous waste is fed at any location other than the "hot end where products are normally discharged *or* where fuels are normally fired."

17. *F032 May Be Burned During Interim Status Even though It Is Listed for Containing Dioxin.* Because of the high toxicity of certain dioxin compounds, the final BIF rule requires that facilities demonstrate 99.9999% destruction and removal efficiency during the trial burn for enumerated dioxin-listed wastes in order to obtain an operating permit and prohibits the burning during interim status of "waste listed for dioxin or derived from any of the" enumerated wastes listed for dioxin. See §§ 266.104(a)(3) and 266.103(a)(3). The enumerated wastes are F020, F021, F022, F023, F026, and F027.

On December 6, 1990 prior to promulgation of the BIF rule on December 31, 1990, EPA listed F032, wood preserving waste as a "toxic" hazardous waste containing dioxin. Given new health effects data on hexachlorinated dioxins, however, the Agency considered F032 to be "toxic", but not "acutely toxic" like the other wastes previously listed for containing dioxins. See 55 FR 50466–67. However, the final BIF interim status requirements inadvertently prohibit the burning of F032 during interim status because the interim status restriction applies to "waste listed for dioxin" and not just to the enumerated dioxin-listed wastes.

Koppers Industries notified the Agency of this inconsistency and requested that the BIF rule be amended so that burning of F032 would not be prohibited during interim status.[22] EPA agrees with Koppers and, accordingly, is revising § 266.103(a)(3) to prohibit the burning during interim status of only those enumerated dioxin-listed waste (i.e., excluding F032).

18. *Certain Brominated Residuals Fed to a HAF Are Not Inherently Waste-Like.* The final rule classified as inherently waste-like (i.e., a solid waste) any secondary material that is identified or listed as a hazardous waste and that is fed to a halogen acid furnace (HAF). See § 261.2(d)(2), 56 FR 7206. The Agency's intent was to make sure that HAFs burning heavily chlorinated, low-energy still bottoms, most of which are covered by the F024 listing or by the related listings of wastes from manufacture of chlorinated aliphatic production, remain regulated when burned in HAFs. 55 FR at 17892 (April 27, 1990). These materials meet the inherently waste-like criteria because they contain high concentrations of chlorinated toxic organic constituents that are not normally found in raw materials used to produce chlorine. *Id.* These toxic constituents thus do not contribute to hydrochloric acid production, and one purpose of burning them in HAFs is to destroy these toxic organics. *Id.* (The Agency also intended that HAFs burning secondary materials containing high concentrations of other halogenated toxic organic constituents (e.g., brominated compounds) that are not normally found in raw materials to produce other halogen acids (e.g., HBr) to also be regulated under the BIF rule.)

It has come to the Agency's attention that at least some brominated process residuals exhibiting hazardous waste characteristics are processed on-site in HAFs as a source of bromine to produce HBr, and subsequently, brominated products. These process residuals contain high concentrations (more than 45%) of bromine, low concentrations (less than 1% total) of appendix VIII organic constituents, and are processed on-site as part of a continuous process (i.e., brominated residues are piped directly to a HAF without leaving the manufacturing process).

EPA is issuing a technical correction to indicate that such materials are not included as inherently waste-like. They do not readily meet the inherently waste-like criteria because they do not contain high concentrations of toxic constituents not ordinarily found in the raw materials for which they are substituting. Nor does the bromine recovery process appear to be motivated by waste treatment objectives because bromine concentrations are so high (minimum concentration of 45%), and toxic organic concentrations are low (less than 1% total). It is clear that the Agency did not have such materials in mind in promulgating the inherently waste-like classification for materials fed to HAFs.

Accordingly, the Agency is amending § 261.2(d) to indicate that the inherently waste-like designation does not apply to certain brominated residuals fed to HAFs. To prevent possible abuse, the materials would have to contain at least 45% bromine, less than 1% total appendix VIII toxic organic constituents, and be processed continually on-site in a HAF via direct conveyance (i.e., hard piping). Persons claiming that their brominated residuals meet the terms of this provision would have the burden of proving that the inherently waste-like designation for hazardous residuals fed to HAFs does not apply to them. See § 261.2(f).

B. Technical Corrections

On July 17, 1991, EPA published several technical corrections and amendments to the February 21 final rule. See 56 FR 32688. Today's notice corrects several errors published in that notice as well as several additional errors in the February 21 notice.

I. In rule document number 91–15398, beginning on page 32688 in the **Federal Register** published on Wednesday, July 17, 1991, make the following corrections:

PART 261—[AMENDED]

1. On page 32688, third columns, in the technical correction to part 261, remove the first correction. The amendatory

[22] Correspondence from John C. Chambers, Jr., Esq., McKenna & Cueno, Attorney for Koppers Industries, Inc., to Robert Holloway, EPA, August 8, 1991.

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language will read as follows (as published at 56 FR 7206):

"2. Section 261.2 is amended by redesignating paragraph (d)(2) as (d)(3) and adding new paragraph (d)(2) to read as follows:"

2. On page 32689, third column, in line 2 of correction number 48, insert "(" between the words "a" and "before".

3. On page 32692, second column, in amendment 2 to part 261, change "§ 261.3(c)(2)(ii)(8)" to § 261.3(c)(2)(ii)(B)".

PART 266—[AMENDED]

§ 266.40 [Corrected]

4. On page 32692, third column, prior to amendment 2 to part 266, change "§ 266.4 [Amended]" to "§ 266.40[Amended]".

PART 270—[AMENDED]

§ 270.73 [Corrected]

5. On page 32692, first column, prior to the 103rd technical correction, change "§ 270.33 [Corrected]" to "§ 270.73 [Corrected]".

6. On page 32786, third column, in section 9.2, first bullet under paragraph "2", change ">0.95" to "<0.95".

7. On page 32786, third column, last sentence, change the sentence to read: "Then, for HCl, convert the chlorine emission rate to HCl by multiplying it by the ratio of the molecular weight of HCl to the molecular weight of Cl (i.e., 36.5/35.5)".

II. In rule document number 91-2667, beginning on page 7134 in the **Federal Register** published on February 21, 1991, make the following corrections:

1. On page 7210, third column, the numbers 1, 2, and 3 occurring in the last 4 lines should be italicized to denote subsections § 266.102(e)(4)(ii)(C)(*1*), (*2*) and (*3*) respectively.

2. On page 7211, first column, the numbers 1 and 2 of subsections § 266.102(e)(4)(iii)(c) (*1*) and (*2*) should be italicized.

3. On page 7213, second column, in § 266.103(a)(5)(i)(D), second line, change "(c)(7)(ii)" to "(c)(5)".

4. On page 7215, first column, in § 266.103(b)(5)(i)(A), add "and recorded" between "monitored" and "on".

List of Subjects in 40 CFR Parts 261, 265, and 266

Air pollution control, Hazardous waste, Insurance, Packaging and containers, Recycling, Reporting and recordkeeping requirements, and Security measures.

Dated: August 16, 1991.

Don R. Clay,

Assistant Administrator for Solid Waste and Emergency Response.

For the reasons set out in the preamble, 40 CFR parts 261, 265, and 266 are amended as follows:

PART 261—IDENTIFICATION AND LISTING OF HAZARDOUS WASTE

I. In part 261:

1. The authority citation for part 261 continues to read as follows:

Authority: 42 U.S.C. 6905, 6912(a), 6921, 6922, and 6938.

2. Section 261.2 is amended by revising paragraph (d)(2) to read as follows:

§ 261.2 Definition of solid waste.

* * * * *

(d) * * *

(2) Secondary materials fed to a halogen acid furnace that exhibit a characteristic of a hazardous waste or are listed as a hazardous waste as defined in subparts C or D of this part, except for brominated material that meets the following criteria:

(i) The material must contain a bromine concentration of at least 45%; and

(ii) The material must contain less than a total of 1% of toxic organic compounds listed in appendix VIII; and

(iii) The material is processed continually on-site in the halogen acid furnace via direct conveyance (hard piping).

* * * * *

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

II. In part 265:

1. The authority citation for part 265 continues to read as follows:

Authority: 42 U.S.C. 6905, 6912(a), 6924, 6925, and 6935.

2. Section 265.112 is amended by revising paragraph (d)(2) to read as follows:

§ 265.112 Closure plan; amendment of plan.

* * * * *

(d) * * *

(2) The date when he "expects to begin closure" must be either:

(i) Within 30 days after the date on which any hazardous waste management unit receives the known final volume of hazardous wastes, or, if there is a reasonable possibility that the hazardous waste management unit will receive additional hazardous wastes, no later than one year after the date on which the unit received the most recent volume of hazardous waste. If the owner or operator of a hazardous waste management unit can demonstrate to the Regional Administrator that the hazardous waste management unit or facility has the capacity to receive additional hazardous wastes and he has taken, and will continue to take, all steps to prevent threats to human health and the environment, including compliance with all interim status requirements, the Regional Administrator may approve an extension to this one-year limit; or

(ii) For units meeting the requirements of § 265.113(d), no later than 30 days after the date on which the hazardous waste management unit receives the known final volume of nonhazardous wastes, or if there is a reasonable possibility that the hazardous waste management unit will receive additional nonhazardous wastes, no later than one year after the date on which the unit received the most recent volume of nonhazardous wastes. If the owner or operator can demonstrate to the Regional Administrator that the hazardous waste management unit has the capacity to receive additional nonhazardous wastes and he has taken, and will continue to take, all steps to prevent threats to human health and the environment, including compliance with all applicable interim status requirements, the Regional Administrator may approve an extension to this one-year limit.

* * * * *

3. Section 265.113 is amended by revising the first sentence of the introductory text of paragraphs (a) and (b) to read as follows:

§ 265.113 Closure; time allowed for closure.

(a) Within 90 days after receiving the final volume of hazardous wastes, or the final volume of nonhazardous wastes if the owner or operator complies with all applicable requirements in paragraphs (d) and (e) of this section, at a hazardous waste management unit or facility, or within 90 days after approval of the closure plan, whichever is later, the owner or operator must treat, remove from the unit or facility, or dispose of on-site, all hazardous wastes in accordance with the approved closure plan. * * *

(b) The owner or operator must complete partial and final closure activities in accordance with the approved closure plan and within 180 days after receiving the final volume of hazardous wastes, or the final volume of

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nonhazardous wastes if the owner or operator complies with all applicable requirements in paragraphs (d) and (e) of this section, at the hazardous waste management unit or facility, or 180 days after approval of the closure plan, if that is later. * * *

* * * * *

PART 266—STANDARDS FOR THE MANAGEMENT OF SPECIFIC HAZARDOUS WASTES AND SPECIFIC TYPES OF HAZARDOUS WASTE MANAGEMENT FACILITIES

III. In part 266:

1. The authority citation for part 266 continues to read as follows:

Authority: Secs. 1006, 2002(a), 3004, and 3014 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. 6905, 6912(a), 6924, and 6934).

2. Section 266.100 is amended by revising the first sentence of paragraph (a), the introductory text of paragraph (c)(1), paragraphs (c)(1)(ii), (c)(2) (i) and (ii), and by adding paragraphs (c)(3) and (f) to read as follows:

§ 266.100 Applicability.

(a) The regulations of this subpart apply to hazardous waste burned or processed in a boiler or industrial furnace (as defined in § 260.10 of this chapter) irrespective of the purpose of burning or processing, except as provided by paragraphs (b), (c), (d), and (f) of this section. * * *

(c) * * *

(1) To be exempt from §§ 266.102 through 266.111, an owner or operator of a metal recovery furnace must comply with the following requirements, except that an owner or operator of a lead or a nickel-chromium recovery furnace, or a metal recovery furnace that burns baghouse bags used to capture metallic dusts emitted by steel manufacturing, must comply with the requirements of paragraph (c)(3) of this section:

(i) * * *

(ii) Sample and analyze the hazardous waste and other feedstocks as necessary to comply with the requirements of this paragraph under procedures specified by Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, incorporated by reference in § 260.11 of this chapter or alternative methods that meet or exceed the SW-846 method performance capabilities. If SW-846 does not prescribe a method for a particular determination, the owner or operator shall use the best available method; and

* * * * *

(2) * * *

(i) The hazardous waste has a total concentration of organic compounds listed in part 261, appendix VIII, of this chapter exceeding 500 ppm by weight, as-fired, and so is considered to be burned for destruction. The concentration of organic compounds in a waste as-generated may be reduced to the 500 ppm limit by *bona fide* treatment that removes or destroys organic constituents. Blending for dilution to meet the 500 ppm limit is prohibited and documentation that the waste has not been impermissibly diluted must be retained in the records required by paragraph (c)(1)(iii) of this section; or

(ii) The hazardous waste has a heating value of 5,000 Btu/lb or more, as-fired, and so is considered to be burned as fuel. The heating value of a waste as-generated may be reduced to below the 5,000 Btu/lb limit by *bona fide* treatment that removes or destroys organic constituents. Blending for dilution to meet the 5,000 Btu/lb limit is prohibited and documentation that the waste has not been impermissibly diluted must be retained in the records required by paragraph (c)(1)(iii) of this section.

(3) To be exempt from §§ 266.102 through 266.111, an owner or operator of a lead or nickel-chromium recovery furnace, or a metal recovery furnace that burns baghouse bags used to capture metallic dusts emitted by steel manufacturing, must provide a one-time written notice to the Director identifying each hazardous waste burned and specifying whether the owner or operator claims an exemption for each waste under this paragraph or paragraph (c)(1) of this section. The owner or operator must comply with the requirements of paragraph (c)(1) of this section for those wastes claimed to be exempt under that paragraph and must comply with the requirements below for those wastes claimed to be exempt under this paragraph.

(i) The hazardous wastes listed in appendices XI and XII, part 266, and baghouse bags used to capture metallic dusts emitted by steel manufacturing are exempt from the requirements of paragraph (c)(1) of this section, provided that:

(A) A waste listed in appendix XI must contain recoverable levels of lead, a waste listed in appendix XII must contain recoverable levels of nickel or chromium, and baghouse bags used to capture metallic dusts emitted by steel manufacturing must contain recoverable levels of metal; and

(B) The waste does not exhibit the Toxicity Characteristic of § 261.24 of this chapter for an organic constituent; and

(C) The waste is not a hazardous waste listed in subpart D of part 261 of this chapter because it is listed for an organic constituent as identified in appendix VII of part 261 of this chapter; and

(D) The owner or operator certifies in the one-time notice that hazardous waste is burned under the provisions of paragraph (c)(3) of this section and that sampling and analysis will be conducted or other information will be obtained as necessary to ensure continued compliance with these requirements. Sampling and analysis shall be conducted according to paragraph (c)(1)(ii) of this section and records to document compliance with paragraph (c)(3) of this section shall be kept for at least three years.

(ii) The Director may decide on a case-by-case basis that the toxic organic constituents in a material listed in appendix XI or XII of this part that contains a total concentration of more than 500 ppm toxic organic compounds listed in appendix VIII, part 261 of this chapter, may pose a hazard to human health and the environment when burned in a metal recovery furnace exempt from the requirements of this subpart. In that situation, after adequate notice and opportunity for comment, the metal recovery furnace will become subject to the requirements of this subpart when burning that material. In making the hazard determination, the Director will consider the following factors:

(A) The concentration and toxicity of organic constituents in the material; and

(B) The level of destruction of toxic organic constituents provided by the furnace; and

(C) Whether the acceptable ambient levels established in appendices IV or V of this part may be exceeded for any toxic organic compound that may be emitted based on dispersion modeling to predict the maximum annual average off-site ground level concentration.

* * * * *

(f) Owners and operators of smelting, melting, and refining furnaces (including pyrometallurgical devices such as cupolas, sintering machines, roasters, and foundry furnaces) that process hazardous waste for recovery of economically significant amounts of the precious metals gold, silver, platinum, paladium, irridium, osmium, rhodium, or ruthenium, or any combination of these are conditionally exempt from regulation under this subpart, except for § 266.112. To be exempt from §§ 266.101 through 261.111, an owner or operator must:

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(1) Provide a one-time written notice to the Director indicating the following:

(i) The owner or operator claims exemption under this paragraph;

(ii) The hazardous waste is burned for legitimate recovery of precious metal; and

(iii) The owner or operator will comply with the sampling and analysis and recordkeeping requirements of this paragraph; and

(2) Sample and analyze the hazardous waste as necessary to document that the waste is burned for recovery of economically significant amounts of precious metal using procedures specified by Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, incorporated by reference in § 260.11 of this chapter or alternative methods that meet or exceed the SW-846 method performance capabilities. If SW-846 does not prescribe a method for a particular determination, the owner or operator shall use the best available method; and

(3) Maintain at the facility for at least three years records to document that all hazardous wastes burned are burned for recovery of economically significant amounts of precious metal.

3. Section 266.102 is amended by revising the first two sentences of paragraph (b)(1) and revising paragraph (e)(10) to read as follows:

§ 266.102 Permit standards for burners.

* * * * *

(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 Evaluating Solid Waste, Physical/Chemical Methods (incorporated by reference, see § 260.11 of this chapter). Alternative methods that meet or exceed the method performance capabilities of SW-846 methods may be used. If SW-846 does not prescribe a method for a particular determination, the owner or operator shall use the best available method. * * *

* * * * *

(e) * * *

(10) *Recordkeeping.* The owner or operator must keep in the operating record of the facility all information and data required by this section until closure of the facility.

* * * * *

4. Section 266.103 is amended by revising paragraphs (a)(3), (a)(5) introductory text, (a)(5)(ii)(A), (a)(5)(ii)(B), (a)(6), (b)(6)(viii), (c)(1), (c)(3), (e), and (k) to read as follows:

§ 266.103 Interim status standards for burners.

(a) * * *

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

(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 or where fuels are normally fired:

* * * * *

(ii) * * *

(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-fired, and so is considered to be burned for destruction. The concentration of nonmetal compounds in a waste as-generated may be reduced to the 500 ppm limit by *bona fide* treatment that removes or destroys nonmetal constituents. Blending for dilution to meet the 500 ppm limit is prohibited and documentation that the waste has not been impermissibly diluted must be retained in the facility record; or

(B) The hazardous waste has a heating value of 5,000 Btu/lb or more, as-fired, and so is considered to be burned as fuel. The heating value of a waste as-generated may be reduced to below the 5,000 Btu/lb limit by *bona fide* treatement that removes or destroys organic constituents. Blending to augment the heating value to meet the 5,000 Btu/lb limit is prohibited and documentation that the waste has not been impermissibly blended must be retained in the facility record.

(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 that has a heating value less than 5,000 Btu/lb, as-generated, (except that the heating value of a waste as-generated may be increased to above the 5,000 Btu/lb limit by *bona fide* treatment; however, blending to augment the heating value to meet the 5,000 Btu/lb limit is prohibited and records must be kept to document that impermissible blending has not occurred) in a boiler or industrial furnace, except that:

(i) Hazardous waste may be burned solely as an ingredient; or

(ii) Hazardous waste may be burned for purposes of compliance testing (or testing prior to compliance testing) for a total period of time not to exceed 720 hours; or

(iii) Such waste may be burned if the Director has documentation to show that, prior to August 21, 1991:

(A) The boiler or industrial furnace is operating under the interim status standards for incinerators provided by subpart O of part 265 of this chapter, or the interim status standards for thermal treatment units provided by subpart P of part 265 of this chapter; and

(B) The boiler or industrial furnace met the interim status eligibility requirements under § 270.70 of this chapter for subpart O or subpart P of part 265 of this chapter; and

(C) Hazardous waste with a heating value less than 5,000 Btu/lb was burned prior to that date; or

(iv) Such waste may be burned in a halogen acid furnace if the waste was burned as an excluded ingredient under § 261.2(e) of this chapter prior to February 21, 1991 and documentation is kept on file supporting this claim.

* * * * *

(b) * * *

(6) * * *

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

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

(B) The BIF correspondence file kept at the facility site where the device is located. The correspondence file must include all correspondence between the facility and the Director, state and local regulatory officials, including copies of all certifications and notifications, such as the precompliance certification, precompliance public notice, notice of compliance testing, compliance test report, compliance certification, time extension requests and approvals or denials, enforcement notifications of violations, and copies of EPA and State site visit reports submitted to the owner or operator.

* * * * *

(c) * * *

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(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 and the applicable emissions standards of §§ 266.104 (b) through (e), 266.105, 266.106, 266.107, and 266.103(a)(5)(i)(D) at all times when there is hazardous waste in the unit.

* * * * *

(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. The owner or operator may seek approval on a case-by-case basis to use compliance test data from one unit in lieu of testing a similar on-site unit. To support the request, the owner or operator must provide a comparison of the hazardous waste burned and other feedstreams, and the design, operation, and maintenance of both the tested unit and the similar unit. The Director shall provide a written approval to use compliance test data in lieu of testing a similar unit if he finds that the hazardous wastes, the devices, and the operating conditions are sufficiently similar, and the data from the other compliance test is adequate to meet the requirements of § 266.103(c).

* * * * *

(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. For purposes of compliance with the closure provisions of paragraph (l) of this section and §§ 265.112(d)(2) and 265.113 of this chapter the boiler or industrial furnace has received "the known final volume of hazardous waste" on the date that the deadline is missed.

* * * * *

(k) *Recordkeeping.* The owner or operator must keep in the operating record of the facility all information and data required by this section until closure of the boiler or industrial furnace unit.

* * * * *

5. Section 266.108 is amended by revising paragraph (a)(2) to read as follows:

§ 266.108 Small quantity on-site burner exemption.

(a) * * *

(1) * * *

(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 total heat input or mass input basis, whichever results in the lower mass feed rate of hazardous waste.

* * * * *

6. Section 266.109 is amended by revising paragraph (a)(1)(i) to read as follows:

§ 266.109 Low risk waste exemption.

(a) * * *

(1) * * *

(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 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 mass input basis, whichever results in the greater mass feed rate of primary fuel fired;

* * * * *

7. Section 266.110 is amended by revising paragraph (a) to read as follows:

§ 266.110 Waiver of DRE trial burn for boilers.

* * * * *

(a) 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 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 mass input basis, whichever results in the greater mass feed rate of primary fuel fired;

* * * * *

8. Section 266.111 is amended by revising paragraph (d)(2) to read as follows:

§ 266.111 Standards for direct transfer.

* * * * *

(d) * * *

(2) The use and management requirements of subpart I, part 265 of this chapter, except for §§ 265.170 and 265.174, and except that in lieu of the special requirements of § 265.176 for ignitable or reactive waste, the owner or operator may comply with the requirements for the maintenance of protective distances between the waste management area and any public ways, streets, alleys, or an adjacent property line that can be built upon as required in Tables 2–1 through 2–6 of the National Fire Protection Association's (NFPA) "Flammable and Combustible Liquids Code," (1977 or 1981), (incorporated by reference, see § 260.11). The owner or operator must obtain and keep on file at the facility a written certification by the local Fire Marshall that the installation meets the subject NFPA codes; and

* * * * *

9. Section 266.112 is amended by revising paragraphs (a)(1), (b)(1)(i), (b)(1)(ii), and (c) introductory text, and adding paragraph (b)(2)(iii) to read as follows:

§ 266.112 Regulation of residues.

* * * * *

(a) * * *

(1) *Boilers.* Boilers must burn at least 50% coal on a total heat input or mass input basis, whichever results in the greater mass feed rate of coal;

* * * * *

(b) * * *

(1) * * *

(i) *Normal residue.* Concentrations of toxic constituents of concern in normal residue shall be determined based on analyses of a minimum of 10 samples representing a minimum of 10 days of operation. Composite samples may be used to develop a sample for analysis provided that the compositing period does not exceed 24 hours. The upper tolerance limit (at 95% confidence with a 95% proportion of the sample distribution) 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

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operation with the new raw material or fuel. To determine the upper tolerance limit in the normal residue, the owner or operator shall use statistical procedures prescribed in "Statistical Methodology for Bevill Residue Determinations" in appendix IX of this part.

(ii) *Waste-derived residue.* Waste-derived residue shall be sampled and analyzed as often as necessary to determine whether the residue generated during each 24-hour period has concentrations of toxic constituents that are higher than the concentrations established for the normal residue under paragraph (b)(1)(i) of this section. If so, hazardous waste burning has significantly affected the residue and the residue shall not be excluded from the definition of a hazardous waste. Concentrations of toxic constituents of concern in the waste-derived residue shall be determined based on analysis of one or more samples obtained over a 24-hour period. Multiple samples may be analyzed, and multiple samples may be taken to form a composite sample for analysis provided that the sampling period does not exceed 24 hours. If more than one sample is analyzed to characterize waste-derived residues generated over a 24-hour period, the concentration of each toxic constituent shall be the arithmetic mean of the concentrations in the samples. No results may be disregarded; or

(2) * * *

(iii) *Sampling and analysis.* Waste-derived residue shall be sampled and analyzed as often as necessary to determine whether the residue generated during each 24-hour period has concentrations of toxic constituents that are higher than the health-based levels. Concentrations of toxic constituents of concern in the waste-derived residue shall be determined based on analysis of one or more samples obtained over a 24-hour period. Multiple samples may be analyzed, and multiple samples may be taken to form a composite sample for analysis provided that the sampling period does not exceed 24 hours. If more than one sample is analyzed to characterize waste-derived residues generated over a 24-hour period, the concentration of each toxic constituent shall be the arithmetic mean of the concentrations in the samples. No results may be disregarded; and

(c) Records sufficient to document compliance with the provisions of this section shall be retained until closure of the boiler or industrial furnace unit. At a minimum, the following shall be recorded.

* * * * *

10. Appendix IX to Part 266—Methods Manual for Compliance with the BIF Regulations is amended by revising Section 7.0 to read as follows:

Section 7.0

Statistical Methodology for Bevill Residue Determinations

This section describes the statistical comparison of waste-derived residue to normal residue for use in determining eligibility for the Bevill exemption under 40 CFR 266.112.

7.1 Comparison of Waste-Derived Residue to Normal Residue

To be eligible for the Bevill exclusion from the definition of hazardous waste under 40 CFR 266.112(b)(1), waste-derived residue must not contain Appendix VIII, Part 261, constituents that could reasonably be attributable to the hazardous waste (toxic constituents) at concentrations significantly higher than in residue generated without burning or processing hazardous waste (normal residue). Concentrations of toxic constituents in normal residue are determined based on analysis of a minimum of 10 samples representing a minimum of 10 days of operation. The statistically-derived concentrations in normal residue are determined as the upper tolerance limit (95% confidence with a 95% proportion of the sample distribution) of the normal residue concentrations. The upper tolerance limit is to be determined as described in Section 7.2 below. If changes in raw materials or fuels could lower the statistically-derived concentrations of toxic constituents of concern, the statistically-derived baseline must be re-established for any such mode of operation with the new raw material or fuel.

Concentrations of toxic constituents in waste-derived residue are determined based on the analysis of one or more samples collected over a compositing period of not more than 24 hours. Mulitple samples of the waste-derived residue may be analyzed or subsamples may be composited for analysis, provided that the sampling period does not exceed 24 hours. If more than one sample is analyzed to characterize the waste-derived residue generated over a 24-hour period, the arithmetic mean of the concentrations must be used as the waste-derived concentration for each constituent.

The concentration of a toxic constituent in the waste-derived residue is not considered to be significantly higher than in the normal residue (i.e., the residue passes the Bevill test for that constituent) if the concentration in the waste-derived residue does not exceed the statistically-derived concentration.

7.2 Calculation of the Upper Tolerance Limit

The 95% confidence with 95% proportion of the sample distribution (upper tolerance limit) is calculated for a set of values assuming that the values are normally distributed. The upper tolerance limit is a one-sided calculation and is an appropriate statistical test for cases in which a single value (the waste-derived residue concentration) is compared to the distribution of a range of values (the minimum of 10 measurements of normal residue concentrations). The upper tolerance limit value is determined as follows:

$$UTL = X + (K)(S)$$

where X = mean of the normal residue concentrations, $X = X_i/n$,

K = coefficient for sample size n, 95% confidence and 95% proportion,

S = standard deviation of the normal residue concentrations,

$S=(\Sigma (X_i - X)^2/(n-1))^{0.5}$, and

n = sample size.

The values of K at the 95% confidence and 95% proportion, and sample size n are given in Table 7.0-1.

For example, a normal residue test results in 10 samples with the following analytical results for toxic constituent A:

Sample No.	Concentration of constituent A (ppm)
1	10
2	10
3	15
4	10
5	7
6	12
7	10
8	16
9	15
10	10

The mean and the standard deviation of these measurements, calculated using the above equations, are 11.5 and 2.9, respectively. Assuming that the values are normally distributed, the upper tolerance limit (UTL) is given by:

$$UTL=11.5+(2.911)(2.9)=19.9 \text{ ppm}$$

This, if the concentration of constituent A in the waste-derived residue is below 19.9 ppm, then the waste-derived residue is eligible for the Bevill exclusion for constituent A.

7.3 Normal Distribution Assumption

As noted in Section 7.2 above, this statistical approach (use of the upper tolerance limit) for calculation of the concentration in normal residue is based on the assumption that the concentration data are distributed normally. The Agency is aware that concentration data of this type may not always be distributed normally, particularly when concentrations are near the detection limits. There are a number of procedures that can be used to test the distribution of a data set. For example, the Shapiro-Wilk test, examination of a histogram or plot of the data on normal probability paper, and examination of the coefficient of skewness are methods that may be applicable, depending on the nature of the data (References 1 and 2).

If the concentration data are not adequately represented by a normal distribution, the data may be transformed to attain a near normal distribution. The Agency has found that concentration data, especially when near detection levels, often exhibit a lognormal distribution. The assumption of a lognormal distribution has been used in

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various programs at EPA, such as in the Office of Solid Waste Land Disposal Restrictions program for determination of BDAT treatment standards. The transformed data may be tested for normality using the procedures identified above. If the transformed data are better represented by a normal distribution than the untransformed data, the transformed data should be used in determining the upper tolerance limit using the procedures in Section 7.2 above.

In all cases where the owner or operator wishes to use other than an assumption of normally distributed data or believes that use of an alternate statistical approach is appropriate to the specific data set, he/she must provide supporting rationale in the operating record that demonstrates that the data treatment is based upon sound statistical practice.

7.4 Nondetect Values

The Agency is developing guidance regarding the treatment of nondetect values (data where the concentration of the constituent being measured is below the lowest concentration for which the analytical method is valid) in carrying out the statistical determination described above. Until the guidance information is available, facilities may present their own approach to the handling of nondetect data points, but must provide supporting rationale in the operating record for consideration by the Director.

TABLE 7.0-1.—K VALUES FOR 95% CONFIDENCE AND 95% PROPORTION

Sample size (n)	K
10	2.911
11	2.815
12	2.736
13	2.670
14	2.614
15	2.566
16	2.523
17	2.486
18	2.458
19	2.423
20	2.396
21	2.371
22	2.350
23	2.329
24	2.303
25	2.292

7.5 References

1. Shapiro, S.S. and Wilk, M.B. (1965), "An Analysis of Variance Test for Normality (complete samples)," Biometrika, 52,591–611.

2. Bhattacharyya, G.K. and R.A. Johnson (1977), Statistical Concepts and Methods, John Wiley and Sons, New York.

* * * * *

11. Appendix XI to Part 266 is added to read as follows:

Appendix XI.—Lead-Bearing Materials That May be Processed in Exempt Lead Smelters

A. Exempt Lead-Bearing Materials When Generated or Originally Produced By Lead-Associated Industries [1]

Acid dump/fill solids
Sump mud
Materials from laboratory analyses
Acid filters
Baghouse bags
Clothing (e.g., coveralls, aprons, shoes, hats, gloves)
Sweepings
Air filter bags and cartridges
Respiratory cartridge filters
Shop abrasives
Stacking boards
Waste shipping containers (e.g., cartons, bags, drums, cardboard)
Paper hand towels
Wiping rags and sponges
Contaminated pallets
Water treatment sludges, filter cakes, residues, and solids
Emission control dusts, sludges, filter cakes, residues, and solids from lead-associated industries (e.g., K069 and D008 wastes)
Spent grids, posts, and separators
Spent batteries
Lead oxide and lead oxide residues
Lead plates and groups
Spent battery cases, covers, and vents
Pasting belts
Water filter media
Cheesecloth from pasting rollers
Pasting additive bags
Asphalt paving materials

[1] Lead-associated industries are lead smelters, lead-acid battery manufacturing, and lead chemical manufacturing (e.g., manufacturing of lead oxide or other lead compounds).

B. Exempt Lead-Bearing Materials When Generated or Originally Produced By Any Industry

Charging jumpers and clips
Platen abrasive
Fluff from lead wire and cable casings
Lead-based pigments and compounding pigment dust

12. Appendix XII to Part 266 is added to read as follows:

Appendix XII.—Nickel or Chromium-Bearing Materials that may be Processed in Exempt Nickel-Chromium Recovery Furnaces

A. Exempt Nickel or Chromium-Bearing Materials when Generated by Manufacturers or Users of Nickel, Chromium, or Iron

Baghouse bags
Raney nickel catalyst
Floor sweepings
Air filters
Electroplating bath filters
Wastewater filter media
Wood pallets
Disposable clothing (coveralls, aprons, hats, and gloves)
Laboratory samples and spent chemicals
Shipping containers and plastic liners from containers or vehicles used to transport nickel or chromium-containing wastes
Respirator cartridge filters
Paper hand towels

B. Exempt Nickel or Chromium-Bearing Materials when Generated by Any Industry

Electroplating wastewater treatment sludges (F006)
Nickel and/or chromium-containing solutions
Nickel, chromium, and iron catalysts
Nickel-cadmium and nickel-iron batteries
Filter cake from wet scrubber system water treatment plants in the specialty steel industry [1]
Filter cake from nickel-chromium alloy pickling operations [1]

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[1] If a hazardous waste under an authorized State program.

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