scheduling of meeting items. For further information and to ascertain what, if any, matters have been added, deleted or postponed, please contact: Holly Smith at (202) 272–2100.

Jonathan G. Katz,

Secretary.

January 6, 1992.

[FR Doc. 92–722 Filed 1–7–92; 3:58 pm]

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Corrections

Federal Register
Vol. 57, No. 6
Thursday, January 9, 1992

This section of the FEDERAL REGISTER contains editorial corrections of previously published Presidential, Rule, Proposed Rule, and Notice documents. These corrections are prepared by the Office of the Federal Register. Agency prepared corrections are issued as signed documents and appear in the appropriate document categories elsewhere in the issue.

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Social Security Administration

20 CFR Part 401

RIN 0960-AC79

Blood Donor Locator Service

Correction

In rule document 91-30610, beginning on page 66561, in the issue of Tuesday, December 24, 1991, make the following corrections:

1. On page 66562, in the 1st column, in the 2nd full paragraph, in the 13th line, after the word "Secretary", insert "requests for address information, and to accept from the Secretary".

§ 401.600 [Corrected]

2. On page 66565, in the second column, under *Related blood donor records*, in § 401.600 (b)(2)(iii), in the sixth line, "individual" was misspelled.

BILLING CODE 1505-01-D

INTERSTATE COMMERCE COMMISSION

[Finance Docket No. 31957]

Norfolk and Western Railway Company—Corporate Family Transaction Exemption—Wabash Railroad Company

Correction

In notice document 91-26529 appearing on page 56663 in the issue of Wednesday, November 6, 1991, in the second column, in the file line at the end of the document, "FR Doc. 91-06529" should read "FR Doc. 91-26529".

BILLING CODE 1505-01-D

federal register

Thursday
January 9, 1992

Part II

Environmental Protection Agency

40 CFR Parts 148, 260, 261, et al.
Land Disposal Restrictions for Newly Listed Wastes and Contaminated Debris; Proposed Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 148, 260, 261, 262, 264, 265, 268, 270 and 271

[FRL-4014-1]

Land Disposal Restrictions for Newly Listed Wastes and Contaminated Debris

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: The Environmental Protection Agency (EPA) today is proposing treatment standards under the land disposal restrictions (LDR) program for certain wastes listed after November 8, 1984, and is also proposing to revise treatment standards for debris contaminated with certain listed hazardous waste or debris that exhibits certain hazardous waste characteristics (hereinafter referred to as contaminated debris). EPA is also proposing several revisions to previously promulgated standards and requirements. Due to critical deadlines for this rulemaking, today's proposal does not reflect the decision in *Shell Oil Co.* v. *EPA*, No. 80-1532 (D.C. Cir. December 6, 1991), where the court found procedural defects in promulgation of the mixture and derived-from rules. EPA recognizes that the court's remand of these rules may affect this proposal and the final rule. EPA requests comment on the impact of that ruling on this proposal.

DATES: Comments on this proposed rule must be submitted on or before February 24, 1992. (Since the Agency has entered into a settlement agreement to promulgate this rule by May 1992, and the capacity variance for much contaminated debris ends on May 8, 1992, no extensions to the comment period will be granted.)

ADDRESSES: The public must send an original and two copies of their comments to EPA RCRA Docket Number F-91-CD2P-FFFFF, room 2427 (OS-305), 401 M Street SW., Washington, DC 20460. The docket is open from 9 a.m. to 4 p.m., Monday through Friday, except on Federal holidays. The public must make an appointment to review docket materials by calling (202) 475-9327. A maximum of 100 pages from the docket may be copied at no cost. Additional copies cost $0.20 per page.

EPA is asking prospective commenters to voluntarily submit one additional copy of their comments on labeled personal computer diskettes in ASCII (TEXT) format or a word processing format that can be converted to ASCII (TEXT). It is essential to specify on the disk label the word processing software and version/edition as well as the commenter's name. This will allow EPA to convert the comments into one of the word processing formats utilized by the Agency. Please use mailing envelopes designed to physically protect the submitted diskettes. EPA emphasizes that submission of comments on diskette is not mandatory, nor will it result in any advantage or disadvantage to any commenter. Rather, EPA is experimenting with this procedure solely as an attempt to expedite our internal review and response to comments. For further information on the submission of diskettes, contact the Waste Treatment Branch at the phone number listed below.

FOR FURTHER INFORMATION CONTACT: For general information, contact the RCRA Hotline at (800) 424-9346 (toll free) or (703) 920-9810 locally. For information on treatment standards for newly listed wastes or contaminated debris, contact the Waste Treatment Branch, Office of Solid Waste (OS-322W), U.S. Environmental Protection Agency, 401 M St., SW., Washington, DC 20460, (703) 308-8434. For information on capacity determinations or national capacity variances, contact the Capacity Programs Branch, Office of Solid Waste (OS-322W), U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460, (703) 308-8440.

SUPPLEMENTARY INFORMATION:

Outline

I. Background
- A. Summary of the Hazardous and Solid Waste Amendments of 1984.
- B. Pollution Prevention (Waste Minimization) Benefits.

II. Summary of Proposed Rule
- A. Newly Listed Wastes.
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III. Detailed Discussion of Today's Proposed Rule: Newly Listed Wastes
- A. Recent Petroleum Refining Wastes (F037 and F038).
- B. Wastes from the Production of Unsymmetrical Dimethylhydrazine (K107-K110).
- C. Wastes from the Production and Dinitrotoluene and Toluenediamine (K111 and K112).
- D. Wastes from the Production of Ethylene Dibromide (K117, K118 and K136).
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- G. Additional Organic U Wastes (U328, U353, and U359).

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- B. Conversion of Wastewater Standards Based on Scrubber Water.
- C. Proposed Revisions to Treatment Standards for K061, F006, and K062.
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- E. Notification and Certification for Characteristic Wastes.
- F. Applicability of Part 268 for Certain Waste Mixtures No Longer Exhibiting a Characteristic.
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V. Detailed Discussion of Today's Proposed Rule: Contaminated Debris
- A. Overview.
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VII. State Authority
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- A. Discharges Regulated Under the Clean Water Act.
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- G. Applicability of Treatment Standards to Wastes from Pesticides Regulated Under the Federal Insecticide, Fungicide, and Rodenticide Act.
- H. Regulatory Overlap of Polychlorinated Biphenyls (PCBs), Under the Toxic Substances Control Act (TSCA) and RCRA.
- I. Disposal of Asbestos Regulated Under TSCA.

IX. Regulatory Requirements
- A. Economic Impact Screening Analysis Pursuant to Executive Order 12291.

B. Paperwork Reduction Act.
List of Subjects in 40 CFR parts 148, 260, 261, 262, 264, 265, 268, 270 and 271.
Appendix I to the Preamble: Overview of Debris Treatment Technologies
Appendix II to the Preamble: Asbestos Treatment Standards

I. Background

A. Summary of Hazardous and Solid Waste Amendments of 1984

The Hazardous and Solid Waste Amendments (HSWA) to the Resource Conservation and Recovery Act (RCRA), enacted on November 8, 1984, prohibit the land disposal of untreated hazardous wastes. HSWA requires EPA to set "* * * levels or methods of treatment, if any, which substantially diminish the toxicity of the waste or substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized." RCRA section 3004(m)(1). Wastes that meet the treatment standards established by EPA may be land disposed. For purposes of the restrictions, land disposal includes any placement of hazardous waste in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, salt bed formation, or underground mine or cave. RCRA section 3004(k).

EPA was required to promulgate land disposal prohibitions and treatment standards by May 8, 1990 for all wastes that were either listed or identified as hazardous at the time of the 1984 amendments, a task EPA completed within the statutory timeframes. RCRA section 3004(d), (e) and (g). EPA is to promulgate prohibitions and treatment standards for wastes identified or listed after the date of the 1984 amendments (wastes referred to in this notice as "newly listed and identified wastes") within six months after the listing or identification takes effect. RCRA section 3004(g)(4). EPA has filed with the District Court a proposed consent decree that would put the Agency on a schedule for adopting prohibitions and treatment standards for newly identified and listed wastes. The promulgation date for the newly identified and listed wastes dealt with in this proposal would be May 1992. (*EDF* v. *Reilly*, Civ. No. 89–0598, D.D.C.)

The land disposal restrictions are effective upon promulgation. RCRA section 3004(h)(1). However, the Administrator may grant a national capacity variance from the immediate effective date and establish a later effective date (not to exceed two years) based on "* * * the earliest date on which adequate alternative treatment, recovery, or disposal capacity which protects human health and environment will be available." RCRA section 3004(h)(2). The Administrator may also grant a case-by-case extension of the effective date for up to one year, renewable once for up to one additional year, when an applicant successfully makes certain demonstrations. RCRA section 3004(h)(3). See 55 FR 22526 (June 1, 1990) for a more detailed discussion on national capacity variances and case-by-case extensions.

In addition to prohibition land disposal of hazardous wastes, Congress prohibited storage of any waste which is prohibited from land disposal unless "* * * such storage is solely for the purpose of the accumulation of such quantities of hazardous waste as are necessary to facilitate proper recovery, treatment or disposal." RCRA section 3004(j). For storage up to one year, EPA bears the burden of proving that such storage was not solely for the purpose of accumulation of quantities necessary to facilitate proper recovery, treatment or disposal. 40 CFR 268.50(b). For storage beyond one year, the burden of proof shifts to the owner/operator of a treatment, storage or disposal facility to demonstrate that such storage was solely for the purpose of accumulation of quantities necessary to facilitate proper recovery, treatment or disposal. 40 CFR 268.50(c). The provision applies, of course, only to storage which is not also defined as land disposal in section 3004(k).

B. Pollution Prevention (Waste Minimization) Benefits

EPA's progress over the years in improving environmental quality through its media-specific pollution control programs has been substantial. Over the past two decades, standard industrial practice for pollution control concentrated to a large extent on: "end of pipe" treatment or land disposal of hazardous and non-hazardous wastes. However, EPA realizes that there are limits to how much environmental improvement can be achieved under these programs which emphasize management after pollutants have been generated. EPA believes that reducing or eliminating discharges and/or emissions to the environment through the implementation of cost-effective and environmentally sound recycling and source reduction practices can provide additional environmental improvements.

In this section, RCRA requirements and state legislative activities regarding pollution prevention/waste minimization are briefly described. Also described are activities undertaken by the regulated community to incorporate pollution prevention/waste minimization into their waste management plans. Finally, this section outlines how pollution prevention/waste minimization is incorporated into today's proposed rule.

1. General Discussion of Pollution Prevention/Waste Minimization

Under RCRA sections 3002(b) and 3005(h), hazardous waste generators and owners/operators of treatment, storage and disposal facilities (TSDFs) are required to certify that they have a program in place to reduce the volume or quantity and toxicity of hazardous waste to the degree determined to be economically practicable. EPA encourages hazardous waste generators and owners/operators of TSDFs to pursue source reduction and environmentally sound recycling wherever cost effective to reduce the need for and costs of subsequent treatment, storage, and disposal. In many cases, there may be economic as well as environmental benefits for companies that pursue pollution prevention options. Waste minimization planning programs have been mandated by some state governments. For example, several state governments have already enacted waste minimization legislation (e.g., Massachusetts Toxics Use Reduction Act of 1989; Oregon Toxics Use Reduction and Hazardous Waste Reduction Act, July 2, 1989). About six other states have legislation pending that will mandate some type of waste minimization program and/or facility planning. An additional 25 states offer some type of technical assistance to companies that seek alternatives to treatment, storage, and disposal of waste. In addition, several EPA documents on waste minimization are available to the public (see, e.g., Draft Guidance to Hazardous Waste Generators on the Elements of a Waste Minimization Program: Notice and Request for Comment, **Federal Register** Vol. 54, No. 111, June 12, 1989 (56 FR 25056); and The EPA Manual for Waste Minimization Opportunity Assessments, EPA 600/2–88/025, April 1988).

Program success generally requires that each individual within an organization, regardless of status or rank, be encouraged to make a contribution to minimize waste. Collective and individual pay incentives can be provided for productivity improvements. Waste minimization circles can be established using self-managing teams chosen from a broad spectrum of production and

management personnel. These management teams can be provided with all information necessary to adequately assess waste minimization opportunities. Additionally, it is very beneficial for production personnel to be trained and retrained in the optimum use of plant equipment and raw materials.

Some companies set explicitly defined objectives for the reduction of waste volume and toxicity that are achievable within reasonable time frames. Typically, the objectives should not exceed the ability of the operations personnel to support and maintain them.

In all cases, it is necessary to determine the causes of waste generation. This can be done for individual processes or for several combined processes if the plant process waste streams are particularly complex. Many corporations have implemented this type of "waste minimization assessment" as part of an overall waste minimization program.

For a waste minimization assessment, it is generally necessary to accurately characterize the type of waste generated by volume, toxicity, and source(s). Most companies track their waste generation by a variety of means and then normalize the results to account for variations in production rate(s). One state (Massachusetts) requires each generator of a toxic or hazardous substance to track the rate of waste generation and release/transfer per unit of product. The EPA Manual for Waste Minimization Opportunity Assessments aids generators in identifying waste sources (which can be quite difficult to analyze in complex plant operations) where many processes discharge into one waste stream.

Next, individual processes can be examined to search for cost effective opportunities for waste reduction such as substituting less hazardous raw materials, modifying existing equipment, using novel technologies, making capital improvements, increasing process efficiency, and recycling. EPA and state funded technical assistance programs (e.g., Minnesota Technical Assistance Program—MnTAP, California Waste Minimization Clearing House, U.S. EPA Pollution Prevention Information Clearinghouse) are becoming increasingly available to identify cost effective waste reduction opportunities. Information is also available through industry trade associations, professional consultants specializing in waste minimization, technical literature, and chemical and equipment vendors.

It is important to realize that waste minimization, especially when incorporated into company policy, is a continuous process. Ideally, a cost effective waste minimization program becomes an integral part of the company strategic plan to increase manufacturing productivity.

2. Incorporation of Pollution Prevention/ Waste Minimization in Today's Proposal

The Agency has identified a number of waste streams where environmentally sound recycling has been identified as BDAT. For example, we are proposing today in section IV.C to set alternate treatment standards for electroplating sludges (F006) and spent pickle liquor (K026), based on high temperature metals recovery (HTMR). The Agency has determined that these wastes have sufficient concentrations of metals (nickel and chromium), with low concentrations of interfacing chemicals, to be amenable for recovery in HTMR units. Moreover, the Agency is proposing to grant a generic exclusion for F006 and K062 HTMR nonwastewater residuals, provided that these residuals meet designated concentration levels, are disposed of in Subtitle D units, and exhibit no characteristics of hazardous waste. (This exclusion is similar to the one that was promulgated on August 8, 1991 for K061. See 56 FR 41164, August 19, 1991.) The Agency expects that these provisions will encourage more generators to recycle their wastes, if this alternative is more cost effective than conventional treatment and disposal. In addition, treatment standards for the newly listed petroleum refining wastes (F037 and F038) are based on the recovery technologies critical fluid extraction and thermal desorption, as well as incineration.

II. Summary of Proposed Rule

On May 30, 1991, EPA published an advance notice of proposed rulemaking to solicit comment on most of what is included in today's proposed rule. EPA also solicited comment at that time on several ideas to streamline the LDR program, such as universal standards for organic wastes. EPA is still evaluating the comments received on streamlining the LDR program and expects to publish a proposal regarding these ideas in the summer of 1992.

A. Newly Listed Wastes

EPA has promulgated a number of hazardous waste listings since enactment of HSWA in 1984. Section III of today's notice describes the treatment and/or recycling technologies that have been identified as BDAT for 20 of these listings and proposes LDR treatment standards based on BDAT. Wastes included in today's proposal include petroleum refining wastes (F037 and F038), wastes from the production of unsymmetrical dimethylhydrazine (K107–K110), wastes from the production of dinitrotoluene and toluenediamine (K111 and K112), wastes from the production of ethylene dibromide (K117, K118, and K136), wastes from the production of ethylenebisdithiocarbamic acid (K123–K126), wastes from the production of methyl bromide (K131 and K132), and several organic U wastes (U328, U353, and U359). Future proposals will include newly listed wastes not covered in today's proposal. Soil contaminated with the newly listed wastes for which standards are proposed today will be addressed in a future proposal.

B. Changes to Current Regulations

The Agency is proposing revisions to the existing treatment standards for organic constituents in F001–F005 wastes, including conversion from the existing TCLP standards to standards based on total concentrations. The existing numerical treatment standards include concentrations for 25 solvent constituents. In addition, the Agency is proposing the conversion of wastewater standards for 24 F and K waste codes based on actual wastewater treatment data for the constituents of concern. Several of the proposed revisions to existing standards and the proposed standards for newly listed wastes in today's notice are based on transfer of data used to develop standards for F039 (multisource leachate); in these cases, the Agency particularly requests comment on whether data submitted by commenters should be considered in regard to F039 as well as the proposed revision or standard.

EPA is proposing today alternate treatment standards for F006 and F062, and EPA is also proposing to extend the K061 generic exclusion published on August 19, 1991 (56 FR 41164) to certain F006 and K062 wastes. Also, revisions are proposed regarding notification and certification for characteristic wastes, and regarding the status under part 268 of wastes listed for a characteristic.

Finally, EPA is proposing to establish a new waste management unit known as a containment building. (The two types of wastes presently intended for storage in containment buildings (of which EPA is aware) are spent potliners from primary aluminum production and lead plates and groups from processing spent lead acid batteries. There is no question that the land disposal prohibitions apply to these materials because they are both solid wastes and hazardous wastes. With regard to lead plates and groups,

the materials are solid wastes under the federal regulations because they are spent materials being reclaimed. 40 CFR 261.2(c)(3). (The plates and groups are "spent material" because they are part of the spent lead acid battery, which battery is a spent material because it has been used, become contaminated, and cannot be used further without processing. See § 261.1(c)(1).) There is also no jurisdictional bar to these materials being classified as solid wastes. The plates and groups are discarded material within the meaning of RCRA section 1004(27) because they are part of the spent battery, which is discarded by its user. *American Petroleum Institute* v. *EPA*, 906 F.2d 729, 741 (D.C. Cir. 1990) ("*API*"); *American Mining Congress* v. *EPA*, 824 F.2d 1177, 1187 n.14 (D.C. Cir. 1987). The spent plates and groups are also "part of the waste disposal problem" and therefore solid wastes. *API*, 906 F.2d at 741; *American Mining Congress* v. *EPA*, 907 F.2d 1179, 1186 (D.C. Cir. 1990).[1] EPA also has interpreted the regulations as defining battery plates and groups to be solid wastes.[2] Since battery plates and groups typically exhibit the TCLP for lead, 55 FR 22637 (June 1, 1990), they are also hazardous wastes and thus covered by the land disposal prohibitions if land disposed. *Id.*)

C. Contaminated Debris

Debris contaminated with listed prohibited wastes is already subject to the treatment standards for those wastes, as is debris exhibiting a hazardous waste characteristic for which EPA has promulgated treatment standards. Today, the Agency is proposing to revise the treatment standards for debris. The Agency is also proposing treatment standards for debris that is contaminated with those newly listed wastes for which standards are proposed in this notice. The Agency is proposing to require contaminated debris to be treated prior to land disposal, using specific technologies from one or more of the following families of debris treatment technologies: extraction, destruction, or immobilization. In the alternative, contaminated debris may continue to be handled in accordance with the Agency's contained-in policy.

The LDR standards for contaminated debris specify the use of a particular technology, or one of several alternative technologies, for a particular debris type/contaminant combination. Six different categories of debris have been specified as well as ten different categories of contaminants.

To ensure effective treatment (i.e., treatment sufficient to constitute BDAT), the treatment must be performed in accordance with the proposed performance standards (see Appendix IX). The consequence of performing this treatment would be two-fold. Not only would the debris no longer be prohibited from land disposal, but EPA would consider the treated debris to no longer be or require management as a hazardous waste provided that a destruction or extraction technology is used for all debris types/contaminant combinations and provided that the treated debris does not exhibit any characteristic of hazardous waste. Such treated debris could, therefore, be reused, returned to the natural environment, or disposed of in a Subtitle D facility. See section V.E.1 where EPA requests comment and data to support the design of performance standards for immobilization technologies that would be sufficient to allow contaminated debris treated by such technologies to be excluded from Subtitle C management.

However, if the treatment unit was not operated in accordance with the specified performance standards, the treated debris ordinarily would remain prohibited from land disposal because it had not been treated by the specified methods and would likewise be subject to the rest of the Subtitle C regulations.

The debris could be determined to meet levels protective of human health and the environment in accordance with the contained-in policy.

Residuals generated from the treatment of debris contaminated with listed wastes would still be hazardous wastes by virtue of the derived-from rule and would be subject to the hazardous waste management system. The Agency is today proposing that residuals generated from the treatment of contaminated debris be subject to the F039 nonwastewater and wastewater numerical treatment standards. A detailed discussion is provided in section V.E.

The Agency considered and rejected proposing numerical standards for contaminated debris because of the difficulty of sampling contaminated debris. Nevertheless, the Agency requests comment on the feasibility of setting such numerical standards; in addition, the Agency requests comment on whether such standards should apply to all contaminated debris or just certain types of debris that can be sampled without difficulty. Further, the Agency requests comment on how such samples should be collected. As an alternative method of compliance, the Agency requests comment on continued application of the existing LDR standards.

Today's proposal also deals with the issue of inherently hazardous contaminated debris. Inherently hazardous contaminated debris is debris that is fabricated from metals identified as D004–D011 and that exhibits as fabricated the toxicity characteristic under both the Toxicity Characteristic Leaching Procedure and the Extraction Procedure. The Agency is proposing today to require treatment of inherently contaminated debris for: other contaminants subject to treatment that are present. If the debris continues to exhibit the toxicity characteristic due to its inherent content after treatment, it must be either immobilized prior to land disposal under Subtitle C or recycled as provided in § 261.6(a)(3)(iv). Inherently hazardous debris that is not contaminated with other contaminants subject to treatment may be recycled without treatment or immobilized and disposed in a Subtitle C facility, under today's proposal.

Finally, the Agency is proposing that debris contaminated with both radioactive and hazardous waste (mixed waste) comply with the treatment standards for contaminated debris in addition to any regulation of that material under the Atomic Energy Act (AEA). The Agency is also proposing that debris contaminated with mixed waste for which special treatability groups have been established be subject to the debris standards rather than to

[1] Spent plates and groups can clearly be viewed as part of the waste disposal problem not only because they are discarded by their initial users, *API*, 906 F.2d at 741, but also because they are presently stored in the open in piles (hence the need to develop containment building standards to accommodate management that is not within the clear scope of the land disposal definition in section 3004(k)), and because of the history of environmental damage incidents resulting from improper management of these wastes. 50 FR 650, 658–60 (January 4, 1985).

[2] See Memorandum from Sylvia Lowrance, Director, Office of Solid Waste to Regional Waste Management Division Directors, August 26, 1988 (battery plates and groups are potentially eligible for a variance from being a solid waste pursuant to § 260.31(c) as a material that has been partially but not fully reclaimed provided the variance criteria are satisfied; however, the battery plates and groups are obviously solid wastes while application for a variance is pending, since the variance only applies to materials classified as solid wastes); Letter from Stephen Cochran, Acting Chief, Review Section to Lee Norman, Industrial Safety and Health Consultants, Inc., November 28, 1988 (battery plates and groups are spent materials, and therefore solid wastes when reclaimed, because they are part of the spent battery); 55 FR at 22637 (June 1, 1990) (storage of battery plates and groups (referred to as "battery parts" in this FR notice) is a form of prohibited land disposal and is prohibited under the prohibition for D008 wastes, but a two-year national capacity variance is warranted).

the specified treatability group standards. The exception to this is standards promulgated for the D008 radioactive lead treatability group; in this case, the contaminated debris will be subject to both the debris standards and the D008 radioactive lead standards. Treatment of the contaminated debris must occur before treatability group treatment.

It should be noted that the Agency is currently evaluating issues related to contaminated media. In order to improve the overall quality of its regulatory decision-making, the Agency has begun to look at groups or clusters of regulations in a specific area to develop a more integrated approach. One of these regulatory clusters, the "contaminated media cluster," is designed to develop a more integrated Agency approach for its policies and regulations dealing with waste remediation programs. The contaminated media cluster project is gathering information to develop a comprehensive view of the quantities and types of waste needing remediation, the types of risks they represent, the current regulatory and statutory framework for these wastes, elements of an effective clean up process, and the costs and benefits of such clean up. The culmination of that work will be a strategy that will include a set of objectives and operating principles for the Agency's remediation programs.

This proposed LDR rule for contaminated debris has been closely coordinated with the regulatory cluster on contaminated media. In an ongoing effort of this cluster, the Agency is considering a strategic approach that focuses on waste management standards specific to the problems of remediating already contaminated soil and debris. This proposal supports that approach by considering contaminated debris a unique entity and providing flexibility in treating and disposing of contaminated debris.

III. Detailed Discussion of Today's Proposed Rule: Newly Listed Wastes

Since the enactment of HSWA in 1984, EPA has promulgated a number of hazardous waste listings under 40 CFR part 261 subpart D and has expanded the number of wastes covered under 40 CFR part 261 subpart C. This section of today's notice describes the treatment and/or recycling technologies that have been identified as BDAT for 20 of these "newly listed" wastes. The Agency is proposing treatment standards under 40 CFR 268.41, .42, and .43 for these wastes based on the transfer of performance data from treating other hazardous wastes that have been determined to be similar or more difficult to treat than these wastes.

This section does not, however, propose treatment standards for the following newly listed hazardous wastes: those recently identified under the TC rule (D018–D043); characteristic wastes generated by mineral processing activities; spent potliners from aluminum manufacturing (K088); and listed wastes from wood preserving (F032, F034, and F035). These wastes, as well as wastes from coking operations and chlorotoluene production, will be addressed in subsequent **Federal Register** notices. EPA anticipates proposing land disposal restrictions for many of the aforementioned wastes in the spring of 1992, with the remainder addressed in the spring of 1993.

A. Recent Petroleum Refining Wastes (F037 and F038)

F037—Any sludge generated from the gravitational separation of oil/water/solids during the storage or treatment of process wastewaters and oily cooling wastewaters from petroleum refineries. Such sludges include, but are not limited to, those generated in: Oil/water/solids separators; tanks and impoundments; ditches and other conveyances; sumps; and stormwater units receiving dry weather flow. Sludge generated in storm water units that do not receive dry weather flow, sludges generated from non-contact once-through cooling waters segregated for treatment from other process or oily cooling waters, sludges generated in aggressive biological treatment units as defined in 40 CFR 261.31(b)(2) (including sludges generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and K051 wastes are not included in this listing.

F038—Any sludge and/or float generated from the physical and/or chemical separation of oil/water/solids in process wastewaters and oily cooling wastewaters from wastewaters from petroleum refineries. Such wastes include, but are not limited to, all sludges and floats generated in: induced air flotation (IAF) units, tanks and impoundments, and all sludges generated in DAF units. Sludges generated in storm water units that do not receive dry weather flow, sludges generated from once-through non-contact cooling waters segregated for treatment from other process or oil cooling wastes, sludges and floats generated in aggressive biological treatment units as defined in § 261.31(b)(2) (including sludges and floats generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and F037, K048, and K051 are not included in this listing.

On November 2, 1990 (55 FR 46354), EPA listed two additional wastes generated by the petroleum refining industry as hazardous wastes F037 and F038. These two newly listed hazardous wastes are generated in the primary and secondary separation of oil/water/solids from petroleum refinery process wastewaters and oily cooling wastewaters. These sludges have waste properties similar to other petroleum refining wastes listed as K048 and K051. (For a more detailed description of all of these petroleum refining wastes, see 45 FR 74884, May 19, 1980; 55 FR 46354, November 2, 1990; 56 FR 21955, May 13, 1991; and the associated listing background documents.) These listings became effective on April 2, 1991.

1. Characterization Data

The Agency has two sets of waste characterization data for untreated F037 and F038 wastes. One is a compilation of data gathered by EPA from 1981 to 1984, including data submitted by the regulated community. These data, which characterize wastes from petroleum refining wastewater treatment systems, were published in a Notice of Data Availability on February 11, 1985, (50 FR 5637). A second set of data, consisting of waste characterization data collected by EPA after 1984, was presented as part of a Notice of Data Availability published on April 13, 1988 (53 FR 12182). All of these data are summarized in the proposed BDAT Development Background Document for F037 and F038 which is available in today's docket.

Based on somewhat limited characterization data, EPA has identified 18 hazardous constituents that are known to be present in wastewater or nonwastewater forms of F037 and/or F038. These 18 constituents have also been demonstrated to be present in other related petroleum refining wastes (K051 and K048) at approximately the same levels (i.e., many constituents are present in concentrations with the same order of magnitude). This appears to be directly related to the similarities in generation of these wastes: F037 and F038 are generated in similar waste management units as those generating K051 and K048; all four of these wastes result from the processing and refining of similar raw materials (i.e., petroleum products); and all four of these wastes are generated from the treatment of similar oily wastewaters.

EPA believes, however, that additional hazardous constituents are likely to be present in F037 and F038 wastes because they are known to be present in K048 and K051 wastes. Up to six additional organics that are present in K048 wastes could: also be found in wastewater or nonwastewater forms of

F038 (i.e., ethyl benzene, xylenes, bis(2-ethylhexyl) phthalate, di-n-butyl phthalate, flourene, and phenol). Similarly, there are up to eight organics in K051 that EPA believes could be present in F037 wastes (i.e., ethyl benzene, xylenes, acenaphthene, anthracene, bis(2-ethylhexyl) phthalate, di-n-butyl phthalate, flourene, and phenol). Cyanides are also believed to be present in both F037 and F038 wastes. In an Advance Notice of Proposed Ruelmaking (ANPR) published on May 30, 1991 (56 FR 24444), EPA solicited additional characterization data for F037 and F038 wastes. In response, the American Petroleum Institute indicated that it was gathering such information. As of the writing of this rule, EPA has not yet received these characterization data, but will place them in the administrative record for today's notice if they become available.

Based on the above, EPA is proposing to regulate the same constituents in F037 wastewaters and nonwastewaters that are currently regulated in the corresponding wastewater and nonwastewater forms of K051. Similarly, those constituents currently regulated in K048 wastes are proposed for regulation in F038 wastes. A detailed discussion of those constituents proposed for regulation and those for which EPA lacks characterization data can be found in the Proposed BDAT Background Document for F037 and F038.

The specific constituents proposed for regulation in F037 and F038 wastes along with their treatment standards, are presented in the tables at the end of this section. EPA believes that, by requiring treatment of these constituents, all other constituents being present will also be treated. Some of the proposed constituents are believed to be at detectable levels in F038 and F037 and thus, may deserve regulation as in K048 and K051. EPA also believes that the constituents proposed for regulation are as difficult to treat as other constituents of the same type that may be present in F037 and F038. Also, EPA does not expect that either the proposed or any other constituents would interfere with the treatment of the regulated constituents. In addition, there is available information that K048–K052, F037, and F038 can be and may have been co-treated in the same or similar treatment units. As such, EPA believes that regulating the same constituents present in K048 and K051 should reduce the administrative requirements and compliance efforts for all of these petroleum wastes.

2. Identification of Technologies Capable of Complying with BDAT Standards for F037 and F038

F037 and F038 are generated by the petroleum refining industry in units similar in design and purpose to API separators and DAF float units generating K048 and K051. Also, F037 and F038 result from the processing of similar raw materials (i.e., petroleum products) and from the treatment of similar wastewaters. Owing to these similarities, all of the applicable and demonstrated technologies for K048 and K051 wastes are also believed to be applicable to F037 and F038 wastes. EPA requested comment on this point in the May 30, 1991 ANPR. While several commenters generally concurred with this observation, others pointed out that F037 and F038 are likely to show "higher percentages of soil particles and lower concentrations of oil." They believe, therefore, that these wastes could be "characteristically different from K048 and K051 wastes." They also pointed out that the heat content of F037 and F038 is variable and is typically under 5,000 BTU/lb. Based on these physical and chemical characteristics, some commenters appear to believe that F037 and F038 could be less suitable for recovery and fuel burning practices.

EPA's data show that many hazardous wastes (including K048–K052) are routinely commingled for the purpose of treatment by technologies such as incineration and fuel substitution. The commingling of K048–K052 wastes may also occur for recovery purposes in units such as solvent recovery, thermal desorption, or high temperature thermal distillation. Therefore, F037 and F038 can presumably be commingled with K048–K052 for the purpose of treatment or recovery.

The practice of commingling F037 and F038 with K048–K052 for incineration or fuel substitutional purposes appears to be supported by at least one commenter. In addition, several commenters pointed out similarities between the physical and chemical behaviors of F037 and F038 to K051 and K048 when treated by incineration or when burned in cement kilns. Based on waste characterization data, F037 and F038 also appear to be amenable to incineration, fuel substitution, and recovery technologies. EPA thus believes these two wastes are amenable to all these treatment technologies on which the existing K048–K052 treatment standards for organics are based.

Envex and Southern Thermal Dynamics (STD) submitted comments to the ANPR describing thermal processes that may enable the recovery of valuable organics from petroleum wastes as well as volume reduction of those wastes needing land disposal. None of these recovery technologies are prohibited from being used to treat K048–K052, F037, or F038, provided all treatment residues from these processes comply with all applicable treatment standards. EPA lacks performance data for evaluating Envex's recovery process at this time.

EPA has received two data sets from STD. One data set, submitted on July 1, 1991, was previously submitted to EPA during the development of K048–K052 treatment standards (55 FR 22595 (June 1, 1990)). These data are based on the performance of STD's high temperature thermal distillation unit (identified as the "HT–5" process) on simulated petroleum wastes. For K048–K052 wastes, EPA determined that STD's HT–5 process (formerly owned, exclusively, by T.D.I. Systems, Inc.) could achieve the treatment standards promulgated for K048–K052 wastes and, as such, was considered to be an equivalent BDAT technology to incineration and solvent extraction. (See June 1, 1990 (55 FR 22596)). The second data set, submitted on August 21, 1991, consists of 17 hour composite samples characterizing untreated and treated K051 wastes using the HT–5 process. These preliminary data also appear to indicate that this process can achieve the treatment standards promulgated on June 1, 1990. These two data sets are also part of our data base and are subject to further review and analysis.

CF Systems submitted performance data to EPA during the Third Third rulemaking showing that wastes having lower concentrations of organics, such as those in F037 and F038, can also be treated by their solvent extraction process to the levels proposed today. CF has submitted additional data in response to EPA's ANPR. These data are currently under review and available for public comment. Other solvent extraction processes and incineration (both of which are considered BDAT for K048–K052 wastes) have also been demonstrated on sludges that have similar physical and chemical characteristics to F037 and F038.

It appears from these data (including data supporting K048–K052 treatment standards) that F037 and F038 can be treated to meet the treatment standards applicable to K048–K052 and that these proposed treatment standards may substantially reduce the mobility and toxicity of hazardous constituents in F037 and F038. As a result, EPA is

proposing to transfer K051 and K048 nonwastewater performance data to F037 and F038 nonwastewaters.

Treatment standards for the metals in K048–K052 nonwastewaters were based on the performance of stabilization as BDAT. Owing to the similarities in waste composition of F037 and F039 to K048–K052, stabilization is also considered BDAT for the metals in F037 and F038 nonwastewaters.

In today's rule, EPA, is also proposing to revise existing treatment standards for organic constituents in K048–K052 wastewaters (see Section IV.B. of today's preamble). The existing K048–K052 wastewater treatment standards are based on the levels of detection that organic constituents achieved in incineration scrubber waters. The proposed revisions, if adopted, would promulgate instead, treatment standards that are based on the levels the organics of concern can achieve in treated wastewater effluents resulting from one or more wasetwater treatment processes. Thus, consistent with today's proposed revisions for wastewater forms of K051 and K048, EPA is proposing the transfer of wastewater treatment performance data that were used to develop treatment standards for organics in F039 wastewaters as the basis of the proposed wastewater treatment standards for wastewater forms of F037 and F038. In the May 30, 1991, ANPR, EPA requested comment on this transfer of wastewater performance data to F037 and F038 (as well as to K048–K052). The ANPR also specifically requested comments documenting the treatment of organics in wastewater forms of F037 and F038 by biological treatment, carbon adsorption, PACT treatment, and wet air oxidation.

Wastewater treatment data available on the constituents known or believed to be present in F037 and F038 wastes indicate that biological treatment would be able to treat the organics in F037 and F038. Comments from the American Petroleum Institute and the Petroleum Environmental Research Forum to the ANPR appear to support this conclusion.

For metals in wastewater forms of K048–K052, BDAT was determined to be chemical precipitation with lime and sulfide followed by vacuum filtration, EPA does not expect any constituents in F037 and F038 to interfere or behave differently from those constituents in K048 and K051.

Since EPA is proposing concentration levels as the treatment standards for all forms of F037 and F038, other treatment or recovery technologies capable of reaching the proposed treatment standards would not be precluded from being used except where achieved through impermissible dilution.

3. Potential Overlap with the TC

The rule expanding the universe of wastes exhibiting the toxicity characteristic (TC) became effective on September 25, 1990, large-quantity generators and treatment, storage, and disposal facilities. The rule became effective on March 29, 1991, for small-quantity generators. Because a sizable number of the F037 and F038 sludges and/or the wastewaters from which these sludges are generated also may exhibit the TC, some of these wastes may have been regulated as hazardous under the TC rule before the F037 and F038 listing rule became effective. The percentage of wastes that will exhibit the TC is uncertain, and depends largely on the behavior of oily waste in the Toxicity Characteristic Leaching Procedure (TCLP).

EPA believes that some refineries may have responded to the TC rule and/or the F037 and F038 listings by reconfiguring their wastewater treatment process such that the wastes are no longer hazardous or are managed in API separators or in DAF units and, as such, are considered K048 or K051 wastes, which are already subject to the LDR treatment standards. The exact quantities of newly identified F037 and F038 sludge that are currently being managed in this manner (or may be managed this way in the future) is unclear. As such, the Agency is soliciting data and comment on these potential changes in management of F037 and F038 wastes, the resultant increases in quantities of K048 and K051 wastes generated, and their effect on demand in treatment capacity.

PROPOSED BDAT TREATMENT STANDARDS FOR F037

[Nonwastewaters]

Regulated constituent	Maximum for any single grab sample—Total composition (mg/kg)
Anthracene	28
Benzene	14
Benzo(a)anthracene	20
Benzo(s)pyrene	12
Bis(2-ethylhexyl)phthalate	7.3
Chrysene	15
Di-n-butyl phthalate	3.6
Ethylbenzene	14
Naphthalene	42
Phenanthrene	34
Phenol	3.6
Pyrene	36
Toluene	14
Xylenes (total)	22

PROPOSED BDAT TREATMENT STANDARDS FOR F037—Continued

[Nonwastewaters]

Regulated constituent	Maximum for any single grab sample—Total composition (mg/kg)
Cyanides (total)	1.8

Regulated constituent	Maximum for any single grab sample—TCLP (mg/l)
Chromiun (total)	1.7
Nickel	0.20

PROPOSED BDAT TREATMENT STANDARDS FOR F037

[Wastewaters]

Regulated constituent	Maximum for any single grab sample—Total composition (mg/l)
Acenaphthene	0.059
Anthracene	0.059
Benzene	0.14
Benzo(a)anthracene	0.059
Benzo(a)pyrene	0.061
Bis(2-ethylhexyl)phthalate	0.28
Chrysene	0.059
Di-n-butyl phthalate	0.057
Ethylbenzene	0.057
Fluorene	0.059
Naphthalene	0.059
Phenanthrene	0.059
Phenol	0.039
Pyrene	0.067
Toluene	0.080
Xylenes (total)	0.32
Cyanides (total)	0.028
Chromium (total)	0.20
Lead	0.037

PROPOSED BDAT TREATMENT STANDARDS FOR F038

[Nonwastewaters]

Regulated constituent	Maximum for any single grab sample—Total composition (mg/kg)
Benzene	14
Benzo(a)pyrene	12
Bis(2-ethylhexly)phthalate	7.3
Chrysene	15
Di-n-butyl phthalate	3.6
Ethylbenzene	14
Naphthalene	42
Phenanthrene	34
Phenol	3.6
Pyrene	36

PROPOSED BDAT TREATMENT STANDARDS FOR F038—Continued

[Nonwastewaters]

Regulated constituent	Maximum for any single grab sample—Total composition (mg/kg)
Toluene	14
Xylenes (total)	22
Cyanide (total)	1.8

Regulated constituent	Maximum for any single grab sample—TCLP (mg/l)
Chromium (total)	1 7
Nickel	0.20

PROPOSED BDAT TREATMENT STANDARDS FOR F038

[Wastewaters]

Regulated constituent	Maximum for any single grab sample—Total composition (mg/l)
Benzene	0.14
Benzo(a)pyrene	0.061
Bis(2-ethylhexiy)phthalate	0.28
Chrysene	0.059
Di-n-butyl phthaiate	0.057
Ethylbenzene	0.057
Fluorene	0.059
Naphthalene	0.059
Phenanthrene	0.059
Phenol	0.039
Pyrene	0.067
Toluene	0.080
Xylenes (total)	0.32
Cyanides (total)	0.028
Chromium (total)	0.20
Lead	0.037

B. Wastes from the Production of Unsymmetrical Dimethylhydrazine (K107–K110)

K107—Column bottoms from product separation from the production of 1,1-dimethylhydrazine from carboxylic acid hydrazine.

K108—Condensed column overheads from product separation and condensed reactor vent gases from the production of 1,1-dimethylhydrazine from carboxylic acid hydrazine.

K109—Spent filter cartridges from product purification from the production of 1,1-dimethylhydrazine from carboxylic acid intermediates.

K110—Condensed column overheads from intermediate separation from the production of 1,1-dimethylhydrazine from carboxylic acid intermediates.

Four wastes generated in the production of 1,1-dimethylhydrazine (UDMH) salts from carboxylic acid hydrazides were listed as hazardous on May 2, 1990 (55 FR 18496). (For a detailed description of wastes K107 through K110, refer to the final rule listing these wastes as hazardous and the associated listing background document.)

The Agency has also proposed to list two additional wastes, K137 and K138, generated in the production of 1,1-dimethylhydrazine (UDMH) salts from carboxylic acid hydrazides as hazardous on May 2, 1990 (55 FR 18507). These two additional wastes were proposed for listing on the basis of comments received in response to the proposed listings of K107–K110 (49 FR 49556). [3] For a detailed description of K137 and K138, refer to the Federal Register notice proposing to list these wastes as hazardous (155 FR 18507).

EPA is proposing to regulate wastes from the production of unsymmetrical imethylhydrazine by setting methods of treatment as the standard. This is based on the decision to regulate U098—the listing for off-specification, out-dated, or discarded 1,1-dimethylhydrazine—as set forth in the Final Rule for Third Third wastes (55 FR 22520 (June 1, 1990)). In that rule, the treatment standards for U098 wastes were established that specify the use of thermal or chemical treatment as BDAT. In particular, the standards specified the use of incineration as a method for nonwastewater forms of U098, and incineration or chemical oxidation followed by carbon adsorption for wastewater forms of U098. EPA believes that specifying methods of treatment appears to be the most appropriate type of standard for wastes containing primarily UDMH due to its relative instability in water and the resultant difficulties in accurate quantification in treatment residues. (In fact, the Third Thirds rulemaking classified U098, 1,1-dimethylhydrazine, as a reactive waste rather than a toxic organic waste based on its instability in water and amenability to oxidation.) While certain analytical methods were used successfully in the investigations that supported the listing of these wastes as hazardous, these methods were designed to measure UDMH present at high concentrations rather than at levels near the detection limit (as expected in residues from treatment).

While preliminary contacts with industry did not confirm that any facility is currently generating these UDMH wastes, the Agency is proposing standards in the event that these wastes may be generated some time in the future.

In the May 30, 1991 Advance Notice of Proposed Rulemaking, EPA solicited detailed comment about the compositions of these waste streams, performance data from attempts to treat these or similar waste streams by thermal, biological or other treatment processes, and analytical problems encountered or anticipated in quantifying constituents in these wastes. EPA received no comments specific to these wastes.

C. Waste from the Production of Dinitrotoluene and Toluenediamine (K111 and K112)

K111—Product wash waters from the production of dinitrotoluene via nitration of toluene.

K112—Reaction byproducts from the drying column in the production of toluenediamine via hydrogenation of dinitrotoluene.

On October 23, 1985, six wastes (K111 through K116) generated in the production of dinitrotoluene (DNT), toluenediamine (TDA), and toluene diisocyanate (TDI) were listed as hazardous (50 FR 42936). (For a detailed description of the wastes, refer to the final rule listing these wastes as hazardous and the associated listing background document.) Treatment standards for four of the six wastes, K113 through K116, were promulgated in the Second Third final rule (54 FR 26623). The Agency is now developing treatment standards for the two remaining wastes, K111 and K112.

K111 wastes—defined as product wash waters from the production of dinitrotoluene via nitration of toluene—are generated at facilities engaged in manufacturing inorganic chemicals, dyes and pigments, explosives, and organic chemicals in the course of organic synthesis operations. K112 wastes—defined as reaction by-product water from the drying column in the production of toluenediamine via the hydrogenation of dinitrotoluene—are generated in intermediate processes at facilities engaged in manufacturing photographic chemicals, plastics and resins, organic chemicals, textiles and polyurethane, as well as in the production of toluenediamine as an end product.

[3] A proposed consent decree between EPA and the Environmental Defense Fund pledges EPA to determine whether K137 and K138 are to be generated anytime between the signature of the Consent Decree and July 31, 1997; if this is the case, EPA must list these wastes as hazardous wastes by July 31, 1998 and promulgate final treatment standards by January 31, 1999.

Characterization information indicates that K111 wastes are generated as aqueous liquids with significant quantities of sulfuric and nitric acids, and are likely to be corrosive. As corrosive wastes meeting the D002 definition criteria (40 CFR 261.22) such streams are already subject to land disposal restrictions. Other organic components that could be present and potentially used as surrogates for concentration-based standards are nitrocresols, nitrophenols, nitrobenzoic acid and the more stable dinitrotoluenes. K112 is an aqueous liquid with small quantities of toluenediamines. K111 and K112 wastes also may include metals such as nickel (from catalysts).

EPA is proposing to regulate K111 and K112 wastewaters and nonwastewaters by specifying methods of treatment as standards. This is primarily due to the fact that the major organic constituents of K111 and K112 (the dinitrotoluenes and toluidines) are relatively unstable in water, and SW–846 (and equivalent) test methods cannot quantify them reliably so that the regulated community can analyze these wastes and their treatment residues on a routine basis to demonstrate compliance.

The alternative to establishing treatment standards expressed as required methods is to develop concentration-based standards. Concentration-based standards for the organics in K111 and K112 wastes (as stated above) appear to be inappropriate because the toxic organics anticipated to be present are not amenable to quantification in complex matrices.

However, if surrogate organics could be identified that could be used to demonstrate that these organic constituents of concern could be treated, the Agency would consider developing concentration-based standards. In fact, EPA solicited analytical data on the composition of these streams in the May 30 ANPR, in order to determine whether they contain constituents that can act as analytical surrogates to verify destruction of the organic constituents of concern, but received no response on this issue.

Thus, incineration for nonwastewaters, and incineration or chemical oxidation followed by activated carbon adsorption for wastewaters are being proposed as treatment standards for K111 and K112 wastes. One commenter responding to the May 30 ANPR, 56 FR 24462, suggested that K111 may be explosive because of the high DNT concentration and that incineration is therefore not an appropriate method of treatment. This commenter also provided EPA with preliminary treatability data for K111 and K112 wastes in biological treatment systems. EPA has solicited additional treatability data from this commenter and is currently evaluating whether standards based on biological treatment are appropriate. EPA requests data characterizing the treatability of these wastes in biological systems from other commenters.

D. Wastes from the Production of Ethylene Dibromide (K117, K118, and K136)

K117—Wastewater production from the reactor vent gas scrubber in the production of ethylene dibromide via bromination of ethylene.

K118—Spent adsorbent solids from purification of ethylene dibromide via bromination of ethylene dibromide via bromination of ethylene.

K136—Still bottoms from the purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethylene.

Three wastes generated in the production of ethylene dibromide (EDB) were listed as hazardous on February 13, 1986 (51 FR 5327). (For a detailed description of K117, K118, and K136, refer to the final rule listing these wastes as hazardous and the associated listing background document.) Although EPA banned the use of ethylene dibromide (EDB) in the US, EPA believes that EDB wastes may still be generated by pesticide manufacturers intending to sell EDB overseas.

K117 is a liquid stream containing ethylene dibromide, bromoethane, bromochloroethane and chloroform. K118 is a solid waste consisting of spent adsorbents saturated with ethylene dibromide, 1,1,2-tribromomethane, bromochloroethane, bromomethane and bis(2-bromo)ethyl ether. K136 is an organic liquid with high concentrations of ethylene dibromide.

Information available to the Agency suggests that only one facility generates K118 and reports disposing of it in a hazardous waste permitted landfill. This facility also reports recycling its K117 stream, a briny high-bromine stream that it returns to the bromine production unit.

The EDB wastes K117, K118 and K136 resemble very closely the organobromine wastes U029 (bromomethane), U030 (4-bromophenyl phenyl ether), U066 (1,2-dibromo-3-chloropropane), U067 (ethylene dibromide, EDB), U068 (dibromomethane) and U225 (bromoform) regulated in the Third Third final rule. Therefore, concentration-based standards have been developed for K117, K118 and K136 wastes based on a transfer of data used to calculate the U029, U030, U066, U067, U068 and U225 Third Third standards; these data were based on incineration of EDB wastes performed and monitored by EPA's Office of Toxic Substances (see the two tables at the end of this section for the proposed standards).

Incinerating brominated organic compounds raises the issue of preventing emissions of molecular bromine (Br_2) from the incinerator by shifting the combustion reaction product equilibrium to favor the formation of hydrogen bromide (HBr). These concerns can be addressed on a site specific basis through the omnibus permitting provision. Limited data available to EPA suggest that adding sulfur to the combustion mixture prevents generation and subsequent emissions of molecular bromine. EPA also realizes that organobromine wastes also offer opportunities for recycling—at least one facility is known to recover bromine from brominated wastes by thermal processing.

In response to the May, 1991, Advance Notice of Proposed Rulemaking (ANPR) soliciting comment and data on the composition and treatment of these wastes, a commenter discussed the difficulties in incinerating brominated wastes, but presented no engineering data describing how an incinerator could be designed or operated to reduce bromine emissions. One commenter also indicated that steam stripping could also be used to treat these wastes. As a result, EPA is currently evaluating performance data submitted on steam-stripping and may specify its use as BDAT for K117 and K118 or promulgate a numerical treatment standard based on these data as an alternative to the incineration-based numbers proposed here. These data are included in the public record for the ANPR.

Comments from another facility described a process for recycling K117 which includes bromine recovery. This commenter requested EPA to set incineration followed by bromine reclamation from the incinerator scrubber water as BDAT. EPA solicits comment on this.

PROPOSED BDAT TREATMENT STANDARDS FOR K117, K118, AND K136

[Nonwastewaters]

Regulated constituent	Maximum for any single grab sample—Total composition (mg/kg)
Ethylene dibromide	15
Bromomethane	15
Chloroform	5.6
1,1,2-Tribromomethane	15

PROPOSED BDAT TREATMENT STANDARDS FOR K117, K118, AND K136

[Wastewaters]

Regulated constituent	Maximum for any single grab sample—Total composition (mg/1)
Ethylene dibromide	0.028
Bromomethane	0.11
Chloroform	0.046
1,1,2-Tribromomethane	0.63

E. Wastes from the Production of Ethylenebisdithiocarbamic Acid (K123–K126)

K123—Process wastewater (including supernatants, filtrates and wash waters) from the production of ethylenebisdithiocarbamic acid and its salts.

K124—Reactor vent scrubber water from the production of ethylenebisdithiocarbamic acid and its salts.

K125—Purification solids (including filtration, evaporation and centrifugation solids) from the production of ethylenebisdithiocarbamic acid and its salts.

K126—Baghouse dust and floor sweepings in milling and packaging operations from the production of ethylenebisdithiocarbamic acid and its salts.

Four wastes generated in the production and formulation of the fungicide ethylenebisdithiocarbamic acid (EBDC) and its salts were listed as hazardous on October 24, 1986 (51 FR 37725). (For a detailed description of K123 through K126, refer to the final rule listing these wastes as hazardous and the associated listing background document).

In general, waste characterization information indicate that K123 wastes are aqueous liquids, K124 wastes are caustic aqueous liquids, K125 wastes are filtration and distillation solids, and K126 wastes are dry dust-like solids. Ethylene thiourea appears to be the primary organic component of all four wastes.

The Agency's preliminary contacts with industry indicate that one facility generates these wastes; this facility currently sends them to a publicly owned treatment works (POTW) after neutralization to an appropriate pH.

Methods of treatment are being proposed for K123, K124, K125, and K126 wastes because the principal organic components of these wastes are ethylenebisdithiocarbamic acid (EBDC) and ethylene thiourea, both of which are relatively unstable in water and thus appear to be particularly difficult to quantify. EDBC and ethylene thiourea were regulated in the Third Third rulemaking U114 and U116 respectively, both with methods of treatment as standards.

Concentration-based standards are an alternative to specifying treatment methods. EPA will, however, only set concentration-based standards for organics in K123 through K126 wastes if reliable analytical information shows the wastes contain significant concentrations of organics that are consistently amenable to quantification in complex matrices (i.e., the treatment residues) or if surrogate treatment parameters can be identified. Available data suggest that none of the hazardous organic constituents of concern in K123 through K126 wastes are easily quantified in treatment residues from treatment of other types of wastes. Nevertheless, to determine whether concentration-based standards are appropriate for the organics in these four wastes, EPA solicited analytical data on their composition in both treated and untreated wastes in the May 30, 1991, ANPR, 56 FR 24463. Based on the lack of comments received, other constituents or parameters could not specifically be identified that could act as analytical surrogates (i.e., indicators to verify destruction of the organic constituents of the stream that are difficult to analyze). Consequently, EPA could not propose concentration-based standards using surrogates. EPA is, therefore, proposing thermal and chemical methods of treatment as standards for K123, K124, K125 and K126. These methods of treatment, incineration for nonwastewaters and incineration or chemical oxidation followed by either biological treatment or carbon adsorption for wastewaters, appear to be appropriate standards for these wastes.

In the May 30, 1991 Advance Notice of Proposed Rulemaking, EPA solicited detailed comment about the compositions of these waste streams, performance data from attempts to treat these or similar waste streams by thermal, biological or other treatment processes, and analytical problems encountered or anticipated in quantifying constituents in these wastes. EPA received no comments specific to these wastes.

F. Wastes from the Production of Methyl Bromide (K131 and K132)

K131—Wastewater from the reactor and spent sulfuric acid from the acid dryer from the production of methyl bromide.

K132—Spent adsorbent and wastewater separator solids from the production of methyl bromides.

Two wastes generated during the production of methyl bromide were listed has hazardous on October 6, 1989 (54 FR 41402). For a more detailed description of wastes K131 and K132, please refer to the October 1989 rule for the initial listing of these wastes and the associated listing background documents.[4]

K131 wastes are extremely acidic aqueous liquids containing methyl bromide, dimethyl sulfate and sulfuric acid, plus other brominated ethanes and methane- and ethane-based alcohols and ethers. K132 wastes consist of adsorbent solids saturated with liquids containing methyl bromide.

The methyl bromide wastes resemble the organobromine wastes U029, U030, U066, U067, U068 and U225 regulated in the May 1990 Third Third final rule. Because of this similarity, EPA is proposing to regulate methyl bromide in the K131 and K132 waste streams with the standards promulgated for U029 (methyl bromide) in the Third Thirds rulemaking: 0.11 mg/1 in wastewaters and 15 mg/kg in nonwastewaters. BDAT for these wastes is incineration.

However, responses to the May, 1991, Advanced Notice of Proposed Rulemaking, in which EPA solicited detailed comment about these waste streams in terms of composition, feasibility of analysis and treatability, indicate that the one generator of these wastes uses steam stripping to treat these wastes. EPA is currently evaluating steam-stripping performance data from this commenter in order to evaluate steam stripping as BDAT for these wastes. Therefore, EPA may designate steam-stripping as BDAT for

[4] One plant recycles a particular methyl bromide stream in a way that may not involve discarding. EPA requested, and obtained, a voluntary remand to investigate further whether such stream is a RCRA solid waste. Today's proposal would not apply to this material if it is ultimately determined not to be a solid waste, and also does not apply during the period the Agency is studying the issue.

K131 and K132 and promulgate a set of numerical treatment standards based on steam stripping rather than the incineration-based numbers proposed here.

PROPOSED BDAT TREATMENT STANDARDS FOR K131 AND K132

[Nonwastewaters]

Regulated constituent	Maximum for any single grab sample
	Total composition (mg/kg)
Bromomethane (methyl bromide)	15

PROPOSED BDAT TREATMENT STANDARDS FOR K131 AND K132

[Wastewaters]

Regulated constituent	Maximum for any single grab sample
	Total composition (mg/l)
Bromomethane (methyl bromide)	0.11

G. Additional Organic U Wastes (U328, U353, and U359)

This section addresses the investigation of BDAT for three specific wastes listed under 40 CFR 261.33 since November, 1984. These are identified with the alphanumeric waste code that starts with a "U".

1. Ortho-toluidine and Para-toluidine (U328 and U353)

Ortho-toluidine and para-toluidine, which when discarded become U328 and U353, are manufactured from processes similar to those used in manufacturing dinitrotoluene and toluenediamine. U328 and U353, thus, may be similar to wastes identified as K111 and K112. The textile industry and the dyes and pigments industry generate o-toluidine and p-toluidine as intermediates and reagents for printing textiles and making colors fast to acids in the dyeing process. Both compounds also are components in ion exchange column preparation, used as antioxidants in rubber manufacturing, and used as lab reagents in medical glucose analyses.

EPA is proposing methods of treatment as the standards for U328 and U353 wastewaters and nonwastewaters. Methods of treatment, rather than treatment levels, appear to be the most appropriate type of treatment standard for these wastes, because the organic compounds for which the wastes are listed are considered to be relatively unstable in water such that consistent quantification of o-toluidine and p-toluidine in raw wastes and treated residuals may preclude the development of a concentration-based standard for these wastes, i.e., the alternative to specifying methods of treatment. In addition, these two organic compounds resemble other organic compounds, namely 4-chloro-o-toluidine (U049) and o-toluidine hydrochloride (U222) for which similar standards have been promulgated.

The Agency, therefore, is proposing incineration or thermal destruction as required methods of treatment for the nonwastewater forms of these wastes, and chemical oxidation followed by either biological treatment or carbon adsorption for the wastewater forms of these wastes. (Although not a primary technology for wastewaters, incineration could be proposed as an alternative method of treatment for wastewaters.)

The molecular structures of these compounds—but not their stability in water—resemble U049, 4-chloro-o-toluidine and U222, o-toluidine hydrochloride. U049 and U222 are amenable to analytical quantification and were demonstrated to be amenable to treatment by incineration by data from EPA's incinerator tests performed to support earlier rulemaking. Therefore EPA believes that incineration as a method of treatment is the appropriate standard for these wastes.

The Agency's preliminary contacts with industry indicate that one facility generates both U328 and U353. This facility estimates U328 generation at 4000 lb/yr and U353 generation at 1000 lb/yr but did not say how they disposed of these wastes.

In the May, 1991, Advanced Notice of Proposed Rulemaking, EPA solicited detailed comment about the compositions of these waste streams, performance data from attempts to treat these or similar waste streams by thermal, biological or other treatment processes, and analytical problems encountered or anticipated in quantifying constituents in these wastes. EPA received no comments specific to these wastes.

2. 2-Ethoxyethanol, U359

U359 is generated in the printing, organic chemical manufacturing and leather and tanning industries and then used in various other processes in paint removers, cleansing solutions and dye baths, as a solvent for inks, duplicating fluids, nitrocellulose, lacquers and other substances, as a chemical intermediate in 2-ethoxyacetate manufacture and in the process of leather finishing. EPA anticipates this waste to be co-treated and co-disposed with F005 wastes listed for 2-ethoxyethanol.

The Agency's preliminary contacts with industry indicate that only two facilities generate U359. One reports generating U359 as minimal spills and other losses during handling and also as laboratory waste (about 100 gallons a year); the facility sends these wastes off-site for treatment and disposal. The other reports generating unspecified quantities of U359 from spill cleanups and other sources; these wastes are treated by incineration and biological treatment depending on water content.

EPA is proposing to regulate U359 wastewaters and nonwastewaters by setting methods of thermal and chemical treatment as the standard. Methods of treatment, namely (1) incineration for nonwastewaters and (2) incineration or chemical oxidation followed by either biological treatment or carbon adsorption for wastewaters, appear to be appropriate standards for this waste because no SW-846 methods exist for quantifying 2-ethoxyethanol which is unstable in water and thus particularly difficult to quantify.

The proposed treatment standards for U359 wastes are the same treatment methods set in the Third Thirds rulemaking for U154, methanol wastewaters and nonwastewaters, namely (1) incineration for nonwastewaters and (2) incineration or chemical oxidation with carbon adsorption or biodegradation for wastewaters. Furthermore, in incineration tests performed to support previous rulemakings, incineration was demonstrated to reduce butanol to levels near the analytical limit of detection.

In the May, 1991, Advanced Notice of Proposed Rulemaking, EPA solicited detailed comment about the compositions of 2-ethoxyethanol waste streams, performance data from attempts to treat these or similar waste streams by thermal, biological or other treatment processes, and analytical problems encountered or anticipated in quantifying constituents in these wastes. One commenter offered to work with

EPA to develop an analytical method to quantify 2-ethoxyethanol in wastewaters. This commenter submitted preliminary data from biological treatment of a wastewater high in 2-ethoxyethanol and encouraged EPA to develop numerical treatment standards for 2-ethoxyethanol. EPA is currently soliciting further information from this commenter.

IV. Detailed Discussion of Today's Proposed Rule: Changes to Existing Regulations

A. Proposed Revisions to the F001–F005 Spent Solvent Treatment Standards

F001—The following spent halogenated solvents used in degreasing: Tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures/blends used in degreasing containing, before use, a total of 10 percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005 and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

F002—The following spent holgenated solvents: Tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,1,2-trifluoroethane, ortho-dichlorobenzene, trichlorofluoromethane, and 1,2,2-trichloroethane; all spent solvent mixtures/blends containing, before use, a total of 10 percent or more of the above halogenated solvents or those listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

F003—The following spent nonhalogenated solvents: Xylene acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/blends containing, before use, only the above spent nonhalogenated solvents; and all spent solvent mixtures/blends containing before use, one or more of the above nonhalogenated solvents, and a total of 10 percent or more (by volume) of one or more of those solvents listed in F001, F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

F004—The following spent nonhalogenated solvents: Cresol and cresylic acid and nitrobenzene; all spent solvent mixtures/blends containing, before use, a total of 10 percent or more (by volume) of one or more of the above nonhalogenated solvents or those solvents listed in F001, F002, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

F005—The following spent nonhalogenated solvents: Toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures/blends containing before use, a total of 10 percent or more (by volume) of one or more of the above nonhalogenated solvents or those solvents listed in F001, F002, or F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

The agency is, today, proposing revisions to the treatment standards for organic constituents in both the nonwastewater and wastewater forms of F001–F005 wastes. The Agency is soliciting comments on the proposed changes to the treatment standards as well as any treatment data that may be available to assist in further refinement of the treatment standards.

1. Regulatory Background

a. *Listing definitions.* On May 19, 1980 (45 FR 33119), the Environmental Protection Agency (EPA) listed 27 commonly used organic solvents as hazardous wastes when spent or discarded. The solvents were listed as EPA Hazardous Waste Nos. F001, F002, F003, F004, and F005. These listed wastes included certain spent halogenated and nonhalogenated solvents, including still bottoms from the recovery of these solvents.

On December 31, 1985 (50 FR 53315), the Agency promulgated an amendment to the listings to include mixtures containing a total of 10 percent or more (by volume) of one or more of the listed solvents (the 10 percent threshold always applied to solvent mixtures before use). The Agency believed that establishing a threshold level well below the minimum solvent concentration typically used in solvent formulations would bring the majority of solvent mixtures used in commerce into the hazardous waste management system, while excluding dilute mixtures. Furthermore, data showed that, at concentrations above 10 percent, solvents have been demonstrated to cause substantial harm to human health. The Agency also received numerous comments regarding the scope to the spent solvent listings. As clarified in the December 31, 1985, **Federal Register** (50 FR 53315), the listings cover only those solvents that are used for their "solvent" properties, i.e., to solubilize (dissolve) or mobilize other constituents. Manufacturing process wastes where solvents were used as reactants or ingredients in the formulation of commercial chemical products are not covered by the listing.

The final definition of the spent solvents listing did not include four solvents that were added to the F001–F005 listing on February 25, 1986: Benzene, 2-ethoxyethanol, 2-nitropropane, and 1,1,2-trichloroethane (51 FR 40607).

b. *F001–F005 Treatment Standards.* The Agency promulgated treatment standards for F001–F005 spent solvent wastes on November 7, 1986 (51 FR 40593). Lab packs containing these solvents were also subject to these treatment standards. The Agency did not include treatment standards for commercial chemical products, manufacturing chemical intermediates, and off-specification commercial chemical products (U and P wastes) that corresponded to the F001–F005 listings. The rule also did not cover the four newly listed solvents in the F001–F005 listings: Benzene, 2-ethoxyethanol, 2-nitropropane, and 1,1,2-trichloroethane (51 FR 6537).

The Agency promulgated the TCLP (i.e., the leaching procedure itself, but not the characteristic) in the final rule specifically for evaluation of the solvent and dioxin-containing wastes. As stated in 53 FR 17584, EPA's land disposal restrictions for solvent waste codes F001–F005 (51 FR 40572) uses the TCLP value as a measure of performance. At the time that EPA promulgated the treatment standards for F001–F005, useful data were not available on total constituent concentrations in treated residuals, and as a result, the TCLP data were considered to be the best measure of performance.

However, for all organic constituents whose treatment standards have been promulgated after the November 7, 1986 rule, EPA has based the treatment standards on the total constituent concentration found in the treated waste. EPA has based its decision on the fact that these technologies exist to destroy the various organic compounds. Accordingly, the best measure of performance should reflect the extent to which the various organic compounds have been destroyed or the total amount of constituent remaining after treatment.

c. *Methylene chloride standard revised.* As part of the First Third rule, the Agency revised and promulgated the BDAT treatment standard for methylene chloride in F001–F005 wastewaters from the pharmaceutical industry (53 FR 31152). The revised treatment standard was based on the transfer of treatment data for wastewater from agricultural facilities. The revised treatment standard was based on steam stripping data for methylene chloride and was based on total constituent analysis.

d. *Amendment to F001–F005 listing definition.* In the Third Third rule (55 FR 22576), the Agency promulgated treatment standards for 1,1,2-trichloroethane, benzene, 2-ethoxyethanol, and 2-nitropropane for the F002 and F005 spent solvents. These four organic constituents were added as hazardous constituents to the F002 and F005 hazardous waste listings in 1986 (see 51 FR 6737, February 25, 1986). EPA did not amend treatment standards for the other solvent constituents in F002 and F005. The Agency promulgated concentration-based treatment standards for wastewater forms of 1,1,2-trichloroethane and benzene based on performance data generated from one, or a combination of two or more, of the following BDAT technologies: Biological treatment, steam stripping, carbon adsorption, and liquid extraction, among others. The treatment standards promulgated for 1,1,2-trichloroethane and benzene in nonwastewater forms of F002 and F005 were based on performance data from incineration. These treatment standards are expressed as concentration-based standards in the treated waste.

EPA had determined that the available data were insufficient to establish concentration-based treatment standards for wastewater and nonwastewater forms of F005 containing 2-nitropropane and 2-ethoxyethanol and instead promulgated methods of treatment as the treatment standards.

2. Overlap Between F001–F005 Solvents and Other BDAT Standards

Many of the solvent constituents that are regulated in F001–F005 wastes are also regulated in the First, Second, and Third Third rules. In the April 18, 1988 and the May 17, 1988 proposed First Third rules, treatment standards for the following K wastes, containing solvent constituents also regulated in F001–F005 wastes, were proposed: K001, K015, K016, K018, K019, K020, K021, K022, K025, K030, K037, K048, K049, K050, K051, K052, K086, K087, K103, and K110. The treatment standards for these wastes were promulgated on August 17, 1988.

In the Second Third proposed rule, treatment standards for the following K wastes containing constituents that are also regulated in F001–F005 wastes were proposed: K011, K013, K014, K028, K029, K060, and K096. These treatment standards were promulgated on June 23, 1989.

In the November 22, 1989 proposed rule for the Third Third wastes, EPA proposed two alternative sets of concentration-based treatment standards for wastewater forms of the majority of the U and P wastes, many of which were solvent constituents found in F001–F005 wastes. One set of treatment standards was based on the concentration of each constituent in incinerator scrubber water. The second set of standards was based on wastewater treatment performance data for each constituent. On the basis of comments received, the Agency established and promulgated treatment standards for wastewater forms of the Third Third waste codes based on wastewater treatment performance data. These treatment standards were promulgated on June 1, 1990 (55 FR 22601). The solvent wastes affected by this change included: Acetone (U002), n-butyl alcohol (U031), carbon disulfide (P022), carbon tetrachloride (U211), chlorobenzene (U037), cresols and cresylic acid (U052), cyclohexanone (U057), 1,2-dichlorobenzene, ethyl acetate (U112), ethylbenzene, ethyl ether (U117), isobutanol (U140), methanol, methylene chloride (U080), methyl ethyl ketone (U161), methyl isobutyl ketone (U161), nitrobenzene (U169), pyridine (U196), tetrachloroethylene (U210), toluene (U220), 1,1,1-trichloroethane (U226), 1,1,2-trichloro-1,2,2-trifluoroethane, trichloroethylene (U228), trichlorofluoromethane, and xylene (U239).

The Agency also proposed treatment standards for nonwastewater forms of U and P wastes on November 22, 1989. (The U wastes that contain constituents regulated in the F001–F005 final rule are the same as the Third Third U wastes discussed above.) After the comment period, the Agency revised the proposed treatment standards for approximately 75 constituents. These changes were based on three data sources: The Interlaboratory Ash Study, an in-house study by EPA's Office of Research and Development, and EPA's reevaluation of its own calculation and methodology. These changes took the form of either different numerical values for concentration-based standards or promulgating incineration as a method of treatment for wastes for which EPA had not proposed concentration-based standards. The nonwastewater concentration-based standards, promulgated on June 1, 1990, reflect the performance of well-designed and well-operated incineration systems and were developed primarily using the results from 14 incineration test burns (55 FR 22604).

Treatment standards for the following F and K wastes containing solvent constituents present in F001–F005 solvent wastes were also proposed and promulgated in the Third Third: F025, K001, K011, K013, K014, K015, K021, K022, K025, K026, K029, K035, K037, K042, K048, K049, K050, K051, K060, K073, K083, K085, K086, K095, K096, and K105.

3. Comments Received from the May 30, 1991, Advance Notice of Proposed Rulemaking on Revisions to Standards for F001–F005 Solvent Wastes

The Agency received a number of comments on the proposed rulemaking revisions to the F001–F005 solvent waste treatment standards that were outlined in the ANPR; all the comments were generally favorable to the idea of basing the nonwastewater treatment standards for organic constituents in F001–F005 spent solvents from the existing TCLP standards to standards based on total concentrations as an alternative to the existing TCLP standards.

4. Proposed Changes to the F001–F005 Treatment Standards

The Agency is today proposing to revise the treatment standards for both nonwastewater and wastewater forms of F001–F005 wastes. (See Table at end of this section for specific treatment levels.) The methodology used to develop the treatment standards for both nonwastewater and wastewater forms of F039 (multisource leachate) was used in determining the revised treatment standards for the F001–F005 spent solvents. These revisions do not, however, include the four solvents that were added to the solvents listings: Benzene, 2-exthoxyethanol, 2-nitropropane, and 1,1,2-trichloroethane. Treatment standards for these constituents were promulgated in the Third Third final rule in accordance with the previously mentioned methodology.

In addition, the Agency is changing the measure of performance for F001–F005 solvents from treatment standards based on the TCLP to standards based on total concentration of organic constituent in the waste. This is appropriate in that EPA has previously determined that treatment technologies for organics exist to destroy the various organic compounds. Accordingly, the best measure of performance is the extent to which the various organic compounds have been destroyed or the total amount of constituent remaining after treatment.

a. *Revisions to the Standards for Cresols.* In the Solvents and Dioxins rule, the Agency promulgated BDAT treatment standards for "cresols." At that time, the Agency did not distinguish between the various isomers that are present in cresols. As a result, the Agency promulgated a concentration-

based treatment standard for cresol wastewaters of 2.82 mg/1 based on the performance of activated carbon adsorption. For nonwastewaters, the Agency had no data on TCLP extracts of residues from the incineration of cresols (cresylic acid) to use in the derivation of the BDAT treatment standard. EPA, instead, used chemical structure as the basis for transferring the treatment data to cresols (cresylic acid) spent solvents. The data from which the treatment standard for incineration of methylethyl ketone was derived was transferred to cresols (cresylic acid). The treatment standard of 0.75 mg/1 for nonwastewaters is based on the transferred data.

In the Third Third rule, EPA promulgated treatment standards for U052 waste. U052 is listed as "cresols (cresylic acid)." Cresylic acid is the name given to a mixture of three isomeric cresols (methyl phenols), in which the meta-cresol predominates. U052 typically contains various levels of ortho-cresol, metacresol, and para-cresol. Analytical methods are usually reported for o-cresol (CAS No. 95-48-7) and a combination of m- and p-cresols, because m-cresol and p-cresol cannot be distinguished by the analytical methods. Thus, the Agency promulgated concentration-based standards for U052 based on an analysis for o-cresol and the mixture of m-cresol and p-cresol.

Based on this, the Agency is today proposing to modify the current treatment standards for the constituent "cresols" in F001–F005 wastes. The Agency is proposing to transfer the treatment standards from U052 wastes for o-cresol and a mixture of m-cresol and p-cresol wastewaters and nonwastewaters to F001–F005 wastes based on total concentration of constituent(s) in the waste stream.

b. *Modification to the Regulatory Placement of F001–F005 Standards.* The Agency is also proposing to change the regulatory table as it pertains to F001–F005 wastes. The Agency has identified a placement error for F001–F005 spent solvent wastewaters. The regulated hazardous constituents in F001–F005 and their respective wastewater treatment standards are in Table CCWE—Constituent Concentrations in Waste Extract (40 CFR 268.4). However, this placement is in error; the correct location for these standards should be in Table CCW—Constituent Concentrations in Wastes (40 CFR 268.43). As such, the tables will be changed accordingly. Furthermore, in that the Agency is proposing to change the nonwastewater treatment standards from the TCLP standard to a total concentration-based standards, this part of the table will also change (if the proposal is finalized) by placing the nonwastewater standards for F001–F005 spent solvents in Table CCW—Constituent Concentrations in Wastes.

PROPOSED REVISIONS TO TREATMENT STANDARDS FOR F001–F005 SPENT SOLVENT WASTES

Regulated constituent	Proposed treatment standard		
	Treatment	Wastewater (mg/1)	Nonwastewater (mg/kg)
Acetone	BT	0.28	160
n-Butyl alcohol	BT	5.6	2.6
Carbon disulfide.	BT	0.014	NR
Carbon tetrachloride.	BT	0.057	5.6
Chlorobenzene	BT	0.057	5.7
Cresol (m- and p- isomers.	AS	0.77	3.2
o-Cresol	BT	0.11	5.6
Cyclohexanone	BT	0.36	NR
1,2-Dichlorobenzene.	BT	0.088	6.2
Ethyl acetate	AS	0.34	33
Ethyl benzene	BT	0.057	6.0
Ethyl ether	RO	0.12	160
Isobutyl alcohol	BT	5.6	170
Methanol	BT	5.6	NR
Methylene chloride.	SS	[2]0.089	33
Methyl ethyl ketone.	BT	0.28	36
Methyl isobutyl ketone.	BT	0.14	33
Nitrobenzene	SS+AC	0.068	14
Pyridine	ANFF	0.014	16
Tetrachloroethylene.	SS	0.056	5.6
Toluene	SS	0.08	28
1,1,1-Trichloroethane.	SS	0.054	5.6
Trichloroethylene.	SS	0.054	5.6
1,1,2-Trichloro-1,2,2-trifluoroethane.	As+Fil	0.057	28
Trichloromonofluoromethane.	LL+SS+AC	0.02	33
Xylenes (total)	WAO	0.32	28

[1] Wastewater treatment technologies on which the treatment standards were based are indicated in this column; all of the nonwastewater treatment standards were based on incineration.

[2] The methylene chloride treatment standard for wastewaters generated from pharmaceutical plants is 0.44 mg/1.

NR: Not regulated.

Key to Treatment Technologies

AC—Activated carbon; ANFF—Anaerobic fixed film biological treatment; As—Activated sludge biological treatment; BT—Biological treatment; GAC—Granulated Activated Carbon; Fil—Filtration; LL—Liquid liquid extraction; PACT—Powdered Activated Carbon Treatment; RO—Reverse osmosis; SS—Steam stripping; WAO—Wet air oxidation.

B. Conversion of Wastewater Standards Based on Scrubber Water

K015—Still bottoms from the distillation of benzyl chloride.

K016—Heavy ends or distillation residues from the production of carbon tetrachloride.

K018—Heavy ends from the fractionation column in ethyl chloride production.

K019—Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production.

K020—Heavy ends from the distillation of vinyl chloride in vinyl chloride production.

K023—Distillation light ends from the production of phthalic anhydride from naphthalene.

K024—Distillation bottom tars from the production of phthalic anhydride from naphthalene.

K028—Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane.

K030—Column bottoms or heavy ends from the combined production of trichloroethylene and perchloroethylene.

K048—Dissolved air flotation (DAF) float from the petroleum refining industry.

K049—Slop oil emulsion solids from the petroleum refining industry.

K050—Heat exchanger bundle cleaning sludge from the petroleum refining industry.

K051—API separator sludge from the petroleum refining industry.

K052—Tank bottoms (leaded) from the petroleum refining industry.

K087—Decanter tank tar sludge from coking operations.

K093—Distillation light ends from the production of phthalic anhydride from ortho-xylene.

K094—Distillation bottoms from the production of phthalic anhydride from ortho-xylene.

U028—Bis (2-ethylhexyl) phthalate.

U069—Di-n-butyl phthalate.

U088—Diethyl phthalate.

U102—Dimethyl phthalate.

U107—Di-n-octyl phthalate.

U190—Phthalic anhydride (measured as Phthalic acid).

On November 22, 1989 (54 FR 48372), EPA proposed as part of the Third Third rule concentration-based treatment standards for numerous listed wastes based on the performance of incineration. For the wastewaters, the treatment standards were based on the concentration of the constituents of concern in incineration scrubber waters. In the final rule (55 FR 22520), however, EPA altered its approach to setting these standards and promulgated treatment standards for wastewaters based on actual wastewater treatment data for the constituents of concern. This change was adopted for a number of reasons.

First, it was stated in the final rule for the Second Third wastes (54 FR 26629) and reiterated in the final rule for Third Third wastes (55 FR 22577) that, when the Agency had appropriate wastewater treatment data from well-designed and well-operated wastewater treatment

units, it preferred to use those data rather than scrubber water data to develop wastewater treatment standards. This is because incineration is not a normal treatment method for wastewaters. In addition, alternative standards were proposed in the Third Third notice for multisource leachate (F039) wastewaters based on a transfer of performance data from various sources, including: The Office of Water's Industrial Technology Division (ITD) and National Pollution Discharge Elimination System (NPDES) data (specifically from the Organic Chemicals, Plastics, and Synthetic Fibers (OCPSF) database); the Hazardous Waste Engineering Research Laboratory (HWERL) database (HWERL is the former name of EPA's Risk Reduction Engineering Laboratory); the Office of Solid Waste's BDAT data (from previous land disposal restriction rules); and additional wastewater treatment data from articles on wet air oxidation (WAO) and powdered activated carbon treatment (PACT).

Second, commenters on the proposed Third Third rule had urged the Agency to develop treatment standards for wastewater forms based on residues from wastewater treatment technologies rather than incineration scrubber waters. Commenters on previous rules had also stated that when EPA had performance data from technologies treating wastewaters containing the same or similar constituents that EPA could use it to develop BDAT treatment standards. Commenters emphasized that these performance data represented the treatment of organic-containing wastewaters better than incineration scrubber waters alone. Finally, comments on the proposed rules for the First Third, Second Third, and Third Third wastes almost unanimously supported the option of promulgating wastewater treatment standards based on the performance of specific wastewater treatment rather than incinerator scrubber water constituent levels.

The Agency reviewed all of the aforementioned data during the Third Third comment period to determine whether it could be considered BDAT. In reviewing these data, the Agency considered influent concentrations of the treated constituent, whether the treated stream was representative of that U, P, F, or K wastewater, and how achievable the detection limit was in similar or other matrices based on other data received. Upon conclusion of these analyses, the Agency revised the proposed wastewater standards for most of the Third Third F, K, U, and P wastes based on the data received prior to proposal: constituent-specific concentration-based standards as found in F039 wastewaters. Detailed information on the development of the wastewater treatment standards can be found in the amendment to the background document titled "Final Best Demonstrated Available Technology (BDAT) Background Document for U and P Wastes and Multi-Source Leachates (F039)," Volume A: "Wastewater Forms of Organic U and P Wastes and Multi—Source Leachates (F039) for Which There Are Concentration-Based Treatment Standards." (This document can be found in the RCRA docket for the Third Third final rule.)

As part of the First Third and Second Third rules, EPA promulgated treatment standards for wastewater forms of 24 K and U wastes (i.e., K015, K016, K018, K019, K020, K023, K024, K028, K030, K048, K049, K050, K051, K052, K087, K093, K0494, U028, U069, U088, U102, U107, and U190). These wastewater treatment standards were based on data from incineration scrubber waters. Upon review of all available data and comments, the Agency believes that the best demonstrated available technology for these wastewaters is better represented by concentration-based treatment standards based on wastewater treatment data rather than scrubber waters. Therefore, the Agency is proposing to modify the concentration-based treatment standards for these wastewaters. The waters affected by this change come primarily from three general treatability groups: chlorinated organics, petroleum wastes, and phthalate wastes. The Agency believes that this proposed change is consistent with the changes made to the wastewater standards in the final Third Third rule. It should be noted, however, that any technology not otherwise prohibited (e.g., impermissible dilution) may be used to meet the concentration-based treatment standard for these wastewaters, including incineration.

Finally, during the development of the Third Third rule, the Agency determined that for pentachloroethane (a regulated constituent in K018, K028, and K031), complications arose in terms of how reliably the constituent could be quantified (55 FR 22611). As such, the Agency made a decision to promulgate technology-specific treatment standards (i.e., a method (or methods) of treatment) rather than a constituent specific standard. As such, the Agency is today proposing to delete pentachloroethane from further regulation in the wastewater forms of K018, K028, and K030, and to rely on other constituents to act as surrogates for the treatment of pentachloroethane.

COMPARISON OF PROMULGATED WASTEWATER STANDARDS TO THE PROPOSED REVISIONS FOR VARIOUS F AND K WASTES

Waste code and regulated organic constituent	Promulgated standard (mg/l)	Proposed revision (mg/l)	Technology basis for BDAT
K015—Anthracene	1.0	0.059	BT
Benzal chloride	0.28	0.28	—
Benzo (b and/or k) fluoranthene	0.29	0.055	AS
Phenanthrene	0.27	0.059	BT
Toluene	0.15	0.080	SS
K016—Hexachlorobenzene	0.033	0.055	AS+Fil
Hexachlorobutadiene	0.007	0.055	AS+Fil
Hexachlorocyclopentadiene	0.007	0.057	BT
Hexachloroethane	0.033	0.055	AS+Fil
Tetrachloroethene	0.007	0.056	SS
K018—Chloroethane	0.007	0.27	SS
Chloromethane	0.007	0.19	SS
1,1-Dichloroethane	0.007	0.059	SS
1,2-Dichloroethane	0.007	0.21	SS
Hexachlorobenzene	0.033	0.055	AS+Fil
Hexachlorobutadiene	0.007	0.055	AS+Fil
Pentachloroetnane	0.007	NR	—
1,1,1-Trichloroethane	0.007	0.054	SS

COMPARISON OF PROMULGATED WASTEWATER STANDARDS TO THE PROPOSED REVISIONS FOR VARIOUS F AND K WASTES—Continued

Waste code and regulated organic constituent	Promulgated standard (mg/l)	Proposed revision (mg/l)	Technology basis for BDAT
Hexachloroethane	0.007	0.055	AS+Fil
K019—bis(2-chloroethyl)ether	0.007	0.033	AS
Chlorobenzene	0.006	0.057	BT
Chloroform	0.007	0.046	SS
1,2-Dichloroethane	0.007	0.21	SS
p-Dichlorobenzene	0.006	0.09	AS
Fluorene	0.007	0.059	BT
Hexachloroethane	0.033	0.055	AS+Fil
Naphthalene	0.007	0.059	BT
Phenanthrene	0.007	0.059	BT
1,2,4,5-Tetrachlorobenzene	0.017	0.055	SS
Tetrachloroethene	0.007	0.056	SS
1,2,4-Trichlorobenene	0.023	0.055	PACT
1,1,1-Trichloroethane	0.007	0.054	SS
K020—1,2-Dichloroethane	0.007	0.21	SS
1,1,2,2-Tetrachloroethane	0.007	0.057	GAC
Tetrachloroethene	0.007	0.056	SS
K023—Phthalic anhydride (measured as phthalic acid)	0.54	0.069	BT
K024—Phthalic anhydride (measured as phthalic acid)	0.54	0.069	BT
K028—1,1-Dichloroethane	0.007	0.059	SS
trans 1,2-dichloroethane	0.033	0.054	SS
Hexachlorobutadiene	0.007	0.055	BT
Hexachloroethane	0.033	0.055	AS+Fil
Pentachloroethane	0.033	NR	—
1,1,1,2-Tetrachloroethane	0.007	0.057	PACT
1,1,2,2-Tetrachloroethane	0.007	0.057	GAC
Tetrachloroethene	0.007	0.056	SS
1,1,1-Trichloroethane	0.007	0.054	SS
1,1,2-Trichloroethane	0.007	0.054	SS
K030—o-Dichlorobenezne	0.006	0.088	BT
p-Dichlorobenzene	0.006	0.09	AS
Hexachlorobutadiene	0.007	0.055	AS+Fil
Hexachloroethane	0.033	0.055	AS+Fil
Pentachloroethane	0.007	NR	—
1,2,4,5-Tetrachlorobenzene	0.017	0.055	AS+Fil
Tetrachloroethene	0.007	0.056	SS
1,2,4,-Trichlorobenzene	0.023	0.055	PACT
K048—Benzene	0.011	0.14	SS
Benzo(a)pyrene	0.047	0.061	BT
Bis(2-ethylhexyl)phthalate	0.043	0.28	BT
Chrysene	0.043	0.059	BT
Di-n-butyl phthalate	0.06	0.057	BT
Ethylbenzene	0.011	0.057	BT
Flourene	0.05	0.059	BT
Napthalene	0.033	0.059	BT
Phenanthrene	0.039	0.059	BT
Phenol	0.047	0.039	BT
Pyrene	0.045	0.067	BT
Toluene	0.011	0.080	WAO+PACT
Xylenes (total)	0.011	0.32	WAO
K049—Anthracene	0.039	0.059	BT
Benzene	0.011	0.14	SS
Benzo(a)pyrene	0.047	0.061	BT
Bis(2-ethylhexyl)phthalate	0.043	0.28	BT
Carbon disulfide	0.011	0.014	BT
Chrysene	0.043	0.059	BT
2,4-Dimethylphenol	0.033	0.036	BT
Ethylbenzene	0.011	0.057	BT
Napthalene	0.033	0.059	BT
Phenanthrene	0.039	0.059	BT
Phenol	0.047	0.039	BT
Pyrene	0.045	0.067	WAO+PACT
Toluene	0.011	0.080	SS
Xylenes (total)	0.011	0.32	WAO
K050—Benzo(a)pyrene	0.047	0.061	BT
Phenol	0.047	0.039	BT
K051—Acenaphthene	0.05	0.059	BT
Anthracene	0.039	0.059	BT
Benz(a)anthracene	0.043	0.059	BT
Benzene	0.011	0.14	SS
Benzo(a)pyrene	0.047	0.061	BT
Bis(2-ethylhexyl)phthalate	0.043	0.28	BT
Chrysene	0.043	0.059	BT
Di-n-butyl phthalate	0.06	0.057	BT
Ethylbenzene	0.011	0.057	BT
Fluorene	0.05	0.059	BT
Napthalene	0.033	0.059	BT

COMPARISON OF PROMULGATED WASTEWATER STANDARDS TO THE PROPOSED REVISIONS FOR VARIOUS F AND K WASTES—Continued

Waste code and regulated organic constituent	Promulgated standard (mg/l)	Proposed revision (mg/l)	Technology basis for BDAT
Phenanthrene	0.047	0.059	BT
Phenol	0.047	0.039	BT
Pyrene	0.045	0.067	WAO+PACT
Toluene	0.011	0.080	SS
Xylenes (total)	0.011	0.32	WAO
K052—Benzene	0.011	0.14	SS
Benzo(a)pyrene	0.047	0.061	BT
o-Cresol	0.011	0.11	BT
p-Cresol	0.011	0.77	AS
2,4-Dimethylphenol	0.033	0.036	BT
Ethylbenzene	0.011	0.057	BT
Naphthalene	0.033	0.059	BT
Phenanthrene	0.039	0.059	BT
Phenol	0.047	0.039	BT
Toluene	0.011	0.080	SS
Xylenes (total)	0.011	0.32	WAO
K087—Acenaphthalene	0.028	0.059	BT
Benzene	0.014	0.14	SS
Chrysene	0.028	0.059	BT
Fluoranthene	0.028	0.068	BT
Indeno(1,2,3-cd)pyrene	0.028	0.055	AS
Naphthalene	0.028	0.059	BT
Phenanthrene	0.028	0.059	BT
Toluene	0.008	0.080	SS
Xylenes (total)	0.014	0.32	WAO
K093—Phthalic anhydride (measured as Phthalic acid)	0.54	0.069	BT
K094—Phthalic anhydride (measured as Phthalic acid)	0.54	0.069	BT
U028—Bis(2-ethylhexyl)phthalate	0.54	0.028	BT
U069—Di-n-butyl phthalate	0.54	0.057	BT
U088—Diethyl phthalate	0.54	0.2	BT
U102—Dimethyl phthalate	0.54	0.047	BT
U107—Di-n-octyl phthalate	0.54	0.017	AS
U190—Phthalic anyhdride (measured as phthalic acid)	0.54	0.069	BT

Key to Treatment Technologies: AC—Activated Carbon; ANFF—Anaerobic fixed film biological treatment; As—Activated sludge biological treatment; BT—Biological treatment; Fil—Filtration; GAC—Granulated Activated Carbon; LL—Liquid liquid extraction; PACT—Powdered Activated Carbon Treatment; RO—Reverse osmosis; SS—Steam stripping; WAO—Wet air oxidation; NR—Not regulated.

C. Proposed Revisions to Treatment Standards for K061, F006, and K062

1. Removal of the Low Zinc Subcategory for K061 Wastes

The Agency is today proposing to transfer the treatment standards recently promulgated for high zinc K061 nonwastewaters (56 FR at 41164–41178 (August 19, 1991)) to K061 nonwastewaters in the low zinc subcategory. By so doing, there would no longer be a need for subcategorization of K061 wastes by their zinc content. Thus, EPA is also proposing to abolish both the high zinc and the low zinc subcategories. In the First Third rulemaking, the decision to separate K061 nonwastewaters was based on the premise that high temperature metals recovery (HTMR) was not typically applied to wastes containing less than 15 percent zinc, because zinc was not considered to be technically or economically recoverable for all wastes in this low zinc subcategory. Consequently, the high zinc standards were developed based on the performance of HTMR as BDAT and the low zinc standards on the performance of stabilization as BDAT. (Note: This did not preclude, however, the recovery of zinc from wastes in the low zinc subcategory.)

After the First Third rulemaking, EPA received data and comment concerning the decision to divide K061 based on zinc content. Commenters said that many K061 wastes with a zinc content less than 15 percent are sent for recovery and that the cutoff level was unnecessary. In addition, data were submitted demonstrating that there exist HTMR technologies capable of recovering metals other than zinc (e.g., chromium and nickel) from the low zinc K061 wastes. In addition, these data show that residues from the HTMR of other metals from K061 wastes in the low zinc subcategory will comply with the same standards as the residues from the HTMR of zinc from K061 wastes in the high zinc subcategory. In addition, EPA believes HTMR of either zinc or these other metals is the "best" treatment technology for all K061 wastes because HTMR decreases the amount of material sent for land disposal, recovers potentially valuable resources, and incorporates metals that are not recovered into an stable slag matrix. Hence, the Agency is proposing to establish HTMR as BDAT for all K061 wastes and transfer the existing standards for high zinc subcategory wastes to all other K061 wastes. By establishing these standards as concentration-based standards, the Agency is not requiring that HTMR be used; rather, any technology that can meet the revised treatment standard can be used, including stabilization.

In today's rule, the Agency is also proposing a concentration-based treatment standard for vanadium based on the performance of HTMR. In the rulemaking for K061 high zinc, several commenters submitted performance data for vanadium while others stressed concern about meeting the originally proposed vanadium treatment standard but claimed because of the short time-frame of the K061 high zinc comment period they could not gather data. Since vanadium has a high boiling point and can concentrate in the slag residual instead of volatilizing (like zinc, lead, and cadmium), the Agency believed that more data should be gathered before developing a final treatment standard

for vanadium. Consequently, EPA reserved the vanadium treatment standard to give facilities an opportunity to gather and submit data on vanadium. The proposed standard shown below as developed based on available HTMR performance data for vanadium. The Agency encourages those commenters who indicated difficulties achieving the vanadium level to submit data.

PROPOSED TREATMENT STANDARDS FOR K061 (LOW AND HIGH ZINC SUBCATEGORIES)

[Nonwastewaters]

Regulated constituent	Maximum for any single composite sample— TCLP (mg/l)
Antimony	2.1
Arsenic	0.055
Barium	7.6
Beryllium	0.014
Cadmium	0.19
Chromium (Total)	0.33
Lead	0.37
Mercury	0.009
Nickel	5.0
Selenium	0.16
Silver	0.30
Thallium	0.078
Vanadium	0.23
Zinc	5.3

2. Alternative Treatment Standards for F006 and K062 Nonwastewaters Based on HTMR

The Agency is proposing alternative treatment standards based on HTMR as BDAT for F006 and K062 nonwastewaters with recoverable amounts of metals (e.g., greater than 1.5 percent chromium and nickel combination). In addition, EPA is proposing a new regulatory section (40 CFR 268.46) for such alternative standards. This section would be used for any treatment standards that would serve as alternatives for compliance with standards in 40 CFR 268.41, .42, and .43. These alternative standards are being proposed in order to achieve the same goal of treatment using BDAT, but generally are designed to provide alternative means of compliance with the promulgated standards.

The Agency has received data and comment indicating that other listed metal-bearing wastes, such as F006 and K062 containing chromium and nickel, have sufficient concentrations of metals and low concentrations of interfering chemicals that make them amenable for recovery of metals in various types of HTMR units. Data indicate that residues from their recovery (the require land disposal) can apparently achieve the BDAT standards based on HTMR that were recently promulgated for high zinc K061 nonwastewaters, but for a few constituents cannot achieve the treatment standards based on stabilization for F006 and K062. EPA believes that because the stabilization performance data represented treatment of less concentrated wastes than the HTMR data (e.g., average F006 nickel concentrations of 6450 mg/kg compared to 180,400 mg/kg), and because HTMR recovers metals (e.g., 99 percent of the nickel), treatment standards for 14 metals based on HTMR will provide a better level of protection to human health and the environment than the treatment standards based on stabilization.

The Agency is not proposing these standards as replacement of the existing standards for F006 and K062 wastes, but rather as alternatives to them. While many F006 and K062 wastes are amenable to recovery, the Agency does not have sufficient waste characterization information to specifically define the universe of F006 and K062 wastes that are recoverable. However, by establishing generic exclusion levels (see below) and alternative treatment standards for HTMR residues from the recovery of these wastes, EPA is providing a mechanism that will encourage recovery of metals rather than land disposal. (See also the discussion of how these generic exclusion levels apply to HTMR residues rather than stabilized K061 wastes in the final rule for K061 high zinc subcategory.)

The Agency is proposing to establish HTMR as an alternative BDAT for F006 and K062 nonwastewasters and is proposing to transfer the treatment performance of HTMR for high zinc K061 wastes to F006 and K062 as alternative treatment standards. Some HTMR data submitted for the development of standards for the high zinc K061 wastes also represented treatment of K062 and F006 (i.e., influent to the HTMR process contained a mixture of K061 (both high and low zinc subcategories), K062, and F006). Furthermore, it appears to be common to mix different metal waste types to achieve specific feed mixtures as a means of optimizing metals recovery.

For F006 nonwastewaters, the Agency is also proposing to establish a treatment level for cyanide because it is a common constituent in most F006 wastes. While the Agency has no specific performance data on the destruction of cyanides in HTMR units, HTMR provides technical similarities to incineration and is expected to achieve a level of destruction similar to incineration. (In fact, HTMR occurs at higher temperatures than incineration: Approximately 1200–1600°C versus less than 1100°C.)

TREATMENT STANDARDS FOR K062

[Nonwastewaters]

Regulated constituent	Proposed alternative treatment standards based on HTMR performance maximum for any single composite sample TCLP (mg/l)	Promulgated treatment standards based on stabilization maximum for any single grab sample TCLP (mg/l)
Antimony	2.1	NA
Arsenic	0.055	NA
Barium	7.6	NA
Beryllium	0.014	NA
Cadmium	0.19	NA
Chromium (total)	0.33	0.094
Lead	0.37	0.37
Mercury	0.009	NA
Nickel	5.0	NA
Selenium	0.16	NA
Silver	0.30	NA
Thallium	0.078	NA
Vanadium	0.23	NA
Zinc	5.3	NA

NA—Not Applicable

TREATMENT STANDARDS FOR F006

[Nonwastewaters]

Regulated constituent	Proposed alternative treatment standards based on HTMR performance maximum for any single composite sample TCLP (mg/l)	Promulgated treatment standards based on stabilization maximum for any single grab sample TCLP (mg/l)
Antimony	2.1	NA
Arsenic	0.055	NA
Barium	7.6	NA
Beryllium	0.014	NA
Cadmium	0.19	0.066
Chromium (Total)	0.33	5.2
Lead	0.37	0.51
Mercury	0.009	NA
Nickel	5.0	0.32
Selenium	0.16	NA
Silver	0.30	0.072
Thallium	0.078	NA
Vanadium	0.23	NA
Zinc	5.3	NA

Regulated constituent	Proposed alternative treatment standards based on HTMR performance maximum for any single composite sample (mg/kg)	Promulgated treatment standards based on alkaline chlorination maximum for any single grab sample (mg/kg)
Cyanides (Total)	1.8	590
Cyanides (Amenable)	NA	30

NA—Not Applicable

3. Generic Exclusion of F006 and K062 HTMR Nonwastewater Residues

The Agency is proposing to exclude nonwastewater residues generated by HTMR of F006 and K062 wastes in units identified as rotary kilns, flame reactors, electric furnaces, plasma arc furnaces, slag reactors, and rotary hearth furnace/electric furnace combinations or industrial furnaces (as defined in 40 CFR 260.10) from the hazardous waste regulations when disposed in a subtitle D unit, provided the residues meet the generic exclusion levels and part 268 treatment standards for all constituents, and provided the residues do not exhibit one or more of the hazardous waste characteristics.

Generic exclusion levels have already been established for K061 and EPA believes that a similar rationale can be used to develop exclusion levels for F006 and K062. The Agency concluded in the final rulemaking for K061 high zinc wastes that K061 (both low and high zinc) HTMR nonwastewater residues that meet the generic exclusion levels and part 268 treatment standards for all constituents and that exhibit no characteristics will not be hazardous. The decision to generically exclude nonwastewater HTMR K061 residues was based on the fact that the treatment process is well-defined and thus does not require an in-depth evaluation of each facility's processes. The Agency determined that the "derived-from" rule's presumption of hazardousness no longer should apply to HTMR K061 residues with toxic metals treated to specified levels. The Agency made this determination after considering the factors in section 3001(f) specified for delisting decisions and after satisfying the underlying philosophy of the delisting provisions.

The proposed generic exclusion levels include all of the Appendix VIII and indicator metals that might reasonably be expected to be present in the HTMR nonwastewater residues from processing F006 and K062 wastes by HTMR. (This is consistent with RCRA section 3001(f) requiring EPA to evaluate whether toxic constituents in addition to those for which a waste is listed could make a waste hazardous.)

The Agency evaluated the treatment standard levels using its vertical and horizontal spread (VHS) landfill model, which predicts the potential for groundwater contamination from wastes that are landfilled. See 50 FR at 7882 (Feb. 26, 1985), 50 FR at 48896 (Nov. 27, 1985), and the RCRA public docket for this notice for a detailed description of the VHS model and its parameters. Using the health-based levels developed for delisting (i.e., removing a listed waste from 40 CFR part 261) and a waste volume of greater than 8,000 cubic yards per facility which corresponds to a dilution factor of 6.3 (a worst case estimate for purposes of the VHS model), EPA determined the "generic" concentration levels which it considers safe to human health and the environment.

The BDAT and VHS-based levels are not identical, since each set was calculated for a different purpose: The BDAT standards are technology-based levels, while the VHS results derive from health-based modeling. The Agency determined that to be eligible for this generic exclusion, the residues must meet the lower of the two sets of standards for each constituent, because the exclusion was not site-specific and the difference between the technology and health-based levels was quite small (see 56 FR at 41170, August 19, 1991 for more detail about this determination).

Since the high zinc rulemaking, EPA has proposed to use the EPA Composite Model for Landfills (The "EPACML") instead of the VHS model to evaluate hazardous waste delisting petitions. 56 FR at 32993 (July 19, 1991). If this new model is finally adopted and replaces the VHS model, it may be used to establish generic exclusion levels for K061, K062, and F006 HTMR nonwastewater residues. At this time, however, the Agency has decided to propose the generic exclusion levels developed using the VHS model.

The proposed exclusion levels would apply only if the residues are land disposed in a subtitle D unit. The residues would remain a hazardous waste if used in a manner constituting disposal because EPA does not yet have proper means of evaluating hazards posed by uses, since the VHS or EPACML models do not evaluate the potential exposure pathways posed by these uses.

It is important to point out that the current vanadium exclusion level for HTMR residues (i.e., the level finalized in the K061 high zinc rulemaking) is health-based since the treatment standard was reserved. Also, the Agency is proposing to add an exclusion level for zinc. Using the health based level of 7 mg/l for zinc (see 1990 Health Effects Assessment Summary Table, Third Quarter, OERR, 9200.b-303-(90-3)) multiplied by the 6.3 dilution factor, a concentration level of 44 mg/l is calculated using the VHS model.

For F006 nonwastewaters, the Agency is not proposing exclusion levels for organics although they can be common constituents in F006 wastes. While the Agency has no specific performance data on the destruction of organics in HTMR units, HTMR operates at higher temperatures and longer residence times than incineration; hence, HTMR is expected to achieve a level of destruction similar to or better than incineration. Consequently, the Agency believes that regulation of organic constituents in HTMR residues is not required since any organic constituents will be destroyed to nondetectable levels in the HTMR residents, and that regulation of the fourteen metals and cyanide will ensure proper operation of the HTMR system. The following tables present the proposed concentration levels which must be met to qualify for the generic exclusion.

Finally, the Agency requests comment on requiring those who seek to exclude their F006 and K062 nonwastewater HTMR residues from Subtitle C regulation through the proposed generic exclusion, to carry the burden of proving their compliance with the generic exclusion requirements by "clear and convincing" evidence. This standard of proof is a widely recognized legal concept that requires proof beyond a slight balance (a standard often referred to as proof by a "preponderance" of the evidence). However, this standard is less than the "beyond a reasonable doubt" standard applied in criminal cases.

Although the exclusion criteria clearly require HTMR treatment and disposal in a Subtitle D unit, it may not always be clear that the HTMR residues meet the specified exclusion levels and treatment standards, and do not exhibit a characteristic of hazardous waste. Under this allocation of the burden of proof, if EPA raises significant questions (e.g., whether testing was performed according to proper protocols), those seeking to exclude their waste would be required to satisfy EPA that the terms of the exclusion have been met. (This could

be particularly appropriate where the relevant information is in the control of those seeking to exclude their waste.) No additional procedures or submissions necessarily would be required to implement this approach. However, EPA seeks comment on appropriate procedures, if any, should the Agency finalize this approach.

PROPOSED GENERIC EXCLUSION LEVELS FOR K061 AND K062 HTMR RESIDUES

[Nonwastewaters]

Constituent	Maximum for any single composite sample—TCLP (mg/l)
Antimony	0.063
Arsenic	0.055
Barium	6.3
Beryllium	0.0063
Cadmium	0.032
Chromium (total)	0.33
Lead	0.095
Mercury	0.009
Nickel	0.63
Selenium	0.16
Silver	0.30
Thallium	0.013
Vanadium	0.23
Zinc	44.0

PROPOSED GENERIC EXCLUSION LEVELS FOR F006 HTMR RESIDUES

[Nonwastewaters]

Constituent	Maximum for any single composite sample
	TCLP (mg/1)
Antimony	0.063
Arsenic	0.055
Barium	6.3
Beryllium	0.0063
Cadmium	0.032
Chromium (total)	0.33
Lead	0.095
Mercury	0.009
Nickel	0.63
Selenium	0.16
Silver	0.30
Thallium	0.013
Vanadium	0.23
Zinc	44.0

Regulated constituent	Maximum for any single composite sample
	(mg/kg)
Cyanide (Total)	1.8

D. Inorganic Constituents To Be Added to Appendix VIII

In today's rule, the Agency is proposing to begin expanding the list of inorganic constituents in Appendix VIII by adding vanadium, and its compounds. These constituents have either been demonstrated to be aquatic toxins and/or of sufficient human toxicity to warrant inclusion in Appendix VIII. (See the record for this rulemaking located in the RCRA docket for environmental and health effects information.) In addition, vanadium and its compounds have the potential to be present in metal-bearing wastes that can be processed in HTMR units and HTMR residues. Hence, EPA determined in the Land Disposal Restrictions (LDR) rulemaking for high zinc K061 that enough information existed to regulate these constituents so that human health and the environment are protected.

The LDR program typically considers all inorganic constituents currently in 40 CFR part 261 Appendix VIII as potential subjects of treatment standards. The Agency could permissibly regulate these constituents under the ultimate protectiveness standard in sections 3004(d), (e), and (g), which complements the requirement in section 3004(m) that treatment standards minimize migration of or concentration of Appendix VIII constituents. See *NRDC* versus *EPA*, 907 F. 2d 1146, 1171–72 (D.C. Cir. 1990) (dissenting opinion). However, it would be simpler, in EPA's view, to include these constituents in Appendix VIII and avoid the need for continued explanations in future rules that might control these constituents.

The Agency believes that it is important that vanadium and its compounds be added to Appendix VIII, and regulated in residuals resulting from metals recovery. In past LDR rulemakings, commenters have expressed concern that cross-media transfer should be evaluated when determining the Best Demonstrated Available Technology. By expanding Appendix VIII to include these inorganic constituents, EPA hopes in the future to eventually establish a comprehensive list of inorganic constituents that will enhance the Agency's ability to accomplish this goal by evaluating the potential for constituent releases to air, land, and water that may impact aquatic ecosystems and potentially have acute or cumulative effects on humans. EPA is currently investigating sources such as RCRA, CERCLA, SARA, the Clean Air Act (CAA), the Safe Drinking Water Act (SDWA), and the Clean Water Act (CWA) to help determine which inorganics are candidates for inclusion into the comprehensive multi-media list of inorganics.

Besides aiding in treatment technology selection, another potential use of a multi-media composite list of constituents would be the establishment of universal treatment standards and universal generic exclusion levels for inorganic constituents. Inorganic constituents, particularly metals, are of special concern to EPA since they cannot be broken down into an innocuous form the way hazardous organics can be. EPA believes that a comprehensive list of inorganic constituents is an integral part of formulating these universal treatment standards and generic exclusion levels. Investigating a composite list of constituents would allow the Agency to address the potential for cross-media transfer of these constituents.

E. Notification and Certification for Characteristic Wastes

One of the issues in the Third Third rulemaking involved the § 268.9 tracking requirements for characteristic waste. Section 268.9(d) requires the generator or treater of a characteristic waste that is no longer hazardous to send a notification and certification to the appropriate EPA Regional Administrator or authorized state, stating that the waste has been treated as required, and identifying the Subtitle D facility receiving the waste. This documentation is required for each off-site shipment to a subtitle D facility. Similarly, § 261.3(c)(2)(ii)(C) requires an LDR notification and certification to be sent to the appropriate EPA Regional Administrator or authorized state prior to Subtitle D landfill disposal of K061 residues from high temperature metal recovery that meet the generic exclusion levels and do not exhibit any hazardous waste characteristics. The Agency believed that sending the tracking forms to Subtitle D facilities would have counterproductive effects, and determined that the notifications and certifications should be sent to the appropriate EPA Regional Administrator or state authorized to implement the land disposal restrictions program. The Agency requests comment regarding the level of burden on the regulated community being caused by these tracking requirements. See 55 FR 22662–64.

In an effort to reduce the paperwork burden on the regulated community, the Agency is proposing to amend §§ 268.9(d) and 261.3(c)(2)(ii)(C) to replace the current reporting requirement. The Agency requests

comment on its proposal and on several alternatives.

EPA proposes to require that, in the case of characteristic waste that meets the treatment standards and is no longer hazardous and for K061 residues that meet the generic exclusion levels, the initial generator or treatment facility prepare a one-time notification and certification to be kept on-site, but not sent to EPA or the states. The notification and certification would need to be updated if the process generating the waste changed and/or if the Substitle D facility receiving the waste changed. The rationale for proposing the change is that it may not be necessary for EPA or the states to be notified of K061 that meets generic exclusion levels or characteristic wastes that meet treatment standards and are nonhazardous; however, EPA and the states still need to be able to verify such treatment and shipments when conducting inspections of waste management operations.

EPA requests comment on this proposal and on the following three alternatives. The first alternative would be to require the initial generator or treatment facility to send a one-time notice to the EPA Regional Administrator or authorized state with a new notice if the waste changes. This would reduce the paperwork burden of the current notification requirement for each shipment, while still keeping regulatory authorities informed when a particular waste type that is treated and nonhazardous is disposed. The second alternative would be to require the initial generator or treatment facility to maintain records on-site for each shipment. Facilities would be saved the trouble of notifying regulatory authorities, yet would provide EPA with a means to measure volumes of the treated wastes. This alternative would, however, still impose the burden of keeping records for each shipment. The last alternative would be a periodic notification and certification submitted by the generator and/or treatment facility to the EPA Region or authorized state on a monthly, quarterly, or annual basis. Such a report would include information on all treated waste that was shipped to a Subtitle D facility during the reporting period. Periodic reporting would reduce the frequency of reports over the current per-shipment requirement, while still allowing EPA and the states to assess waste volumes.

F. Applicability of Part 268 for Certain Waste Mixtures No Longer Exhibiting a Characteristic

EPA is proposing a clarification regarding the applicability of the part 268 treatment standards to certain waste mixtures described at 40 CFR 261.3(a)(2)(iii): "a mixture of a solid waste and a hazardous waste that is listed in subpart D (of Part 261) solely because it exhibits one or more characteristics of hazardous waste as identified in subpart C, (but which) no longer exhibits a characteristic." The issue concerns the standards which must be met before a waste listed for a characteristic is in compliance with the land disposal restrictions.

In the preamble to the technical amendment to the Third Third rule, the Agency stated that even after the characteristic is removed from a waste listed for a characteristic, the waste must be treated to meet part 268 treatment standards (56 FR 3871, January 31, 1991). This would mean, for example, that wastes such as F003 must meet the numerical standards set for those wastes. Today's proposal would further clarify the point by amending § 261.3(a)(2)(iii) to indicate, consistently, that the same requirement applies to mixtures involving these wastes. As stated in the technical amendment to the Third Third rule (56 FR 3871, January 31, 1991), for waste listed for a characteristic, once the characteristic is removed and part 268 treatment standards are met, the waste need not be disposed in a Subtitle C disposal unit.

G. Storage and Treatment in Containment Buildings

In some cases, hazardous wastes that are prohibited from land disposal must be stored or treated for short periods of time to facilitate recycling, recovery, treatment, or transport off site to meet LDR standards. Some of these hazardous wastes are generated in large volumes (often in batches), contain no or very small quantities of free liquids, and may not easily be amenable to management in RCRA tanks or containers. Rather, this type of hazardous waste is sometimes stored or treated on concrete pads inside a building. EPA currently classifies this type of management unit as an indoor waste pile, which is considered prohibited land disposal (see section 3004(k)). Lead slags and spent potliners from primary aluminum production are examples of hazardous wastes that may be managed in such units; contaminated debris may also be managed in such units. Many believe that if a hazardous waste is managed inside a unit that is designed and operated to contain the hazardous waste within the unit, akin to storage in a RCRA tank or container, this mode of hazardous waste management does not pose the types of potential harms Congress sought to address in defining land disposal, such as uncertainties as to containment of hazardous constituents placed on the land, the goal of initial appropriate management of the waste, and the potential for persistence, toxicity, mobility and bioaccumulation of hazardous wastes placed on the land. See section 3004(d)(a)(A)—(C). Therefore, in order to examine this issue fully, EPA is proposing that the management of hazardous wastes such as lead slags, spent potliners, and contaminated debris within such units, to be termed "contaminant buildings," would not be viewed as placement on the land and consequently not land disposal if this proposal is finalized. To allow storage and treatment of prohibited wastes in containment buildings, EPA is proposing to establish a new definition of containment building, amend the existing definition of pile to exclude containment buildings, and include containment buildings within the storage prohibition of § 268.40. Also, EPA is proposing to establish specific design and operating standards for such units under parts 264 and 265 and also to allow generators' containment buildings to be eligible, under § 262.34, for a 90-day generator exemption from permitting if their unit(s) meets all of the technical requirements for containment buildings. (It should be noted that this proposal, if adopted, would also remove such units at generator sites from the scope of the loss of interim status provisions in section 3005(e) (2) and (3).) EPA requests public comment on the appropriateness of establishing a new unit—"containment building"—to manage hazardous wastes. EPA is also considering and seeking comment on other ways to accomplish the same goal of allowing protective management of wastes in indoor buildings without necessitating compliance with the LDR treatment standards.

1. Revised Definition of Pile

EPA is proposing to revise the regulatory definition of pile to exclude containment buildings. Specifically, the Agency proposes to revise the definition of "pile" explicitly to exclude containment buildings that accumulate or treat prohibited wastes under the proposed requirements of parts 264 and 265. Although the Agency has previously classified roofed structures used to manage dry wastes as indoor waste piles, the Agency believes that there could be distinctions between an indoor waste pile that constitutes land placement and a containment building.

Under existing § 264.250, indoor waste piles are required to exclude liquids or material containing free liquids, be protected from surface water run-on, control dispersal of waste by means other than wetting, and not generate leachate through decomposition or other reactions. In contrast, the containment building design and operating standards (discussed below) generally provide a higher level of containment and may be in many ways comparable to RCRA tanks—that is, the hazardous waste is contained during storage or treatment. For example, containment buildings would be fully enclosed, have self-supporting wall and floor systems, are equipped with a secondary containment system if the hazardous waste contains very small quantities of free liquids, and are provided with fugitive dust emission controls.

2. Definition of Containment Building

EPA is proposing to define in § 260.10 a new unit, "containment building," that is used to store or treat hazardous wastes and that is designed and operated in compliance with special requirements that ensure containment. (Although EPA is defining containment buildings to allow storage and treatment of certain types of prohibited wastes, hazardous wastes that are not yet prohibited may also be managed in such units subject to the special requirements discussed below.)

3. Applicability of the 90-Day Accumulation Exclusion in § 262.34

Under § 262.34, a generator may accumulate hazardous waste on-site for 90 days or less without a permit or without having interim status provided, among other requirements, that he complies with the subject I, J, or W requirements in 40 CFR part 265. To date, the Agency has limited applicability of the 90-day provision to containers, tanks, or drip pads (see 55 FR 50450, December 6, 1990). EPA solicits comment on the association of containment buildings with generator production activities. See 45 FR 12730 (February 26, 1980). EPA today proposes to extend the 90-day generator exemption in § 262.34 to containment buildings.

Under today's proposal, all containment buildings would have to meet the same technical standards and, consequently, provide the same level of protection to human health and the environment. As such, EPA today is proposing to require that containment buildings operating under the proposed Part 265, Subpart DD interim status standards be designed, operated, and maintained to meet the same technical requirements as permitted containment buildings.

EPA is requesting comment on whether generators who store or treat hazardous waste in containment buildings pursuant to the 90-day accumulator exemption should be required to maintain, on site for the operating life of the containment building, a description of all procedures that would be followed to ensure that all wastes are removed from the containment building at least once every 90 days. Documentation of each waste removal would be required to be in the generator's on site files recording, at a minimum, the quantity of waste removed, and the date and time of removal. The Agency is aware that certain operations, for example, the continuous processing of wastes, or blending of wastes, may complicate the generator's ability to determine and thus document when a waste ceased to be accumulated within the containment building. EPA is requesting public comment on how best to ensure and document that a generator complies with the requirement limiting the time any waste is accumulated within the containment building to less than 90 days.

If the generator can not meet the 90-day time limit or if a hazardous waste is stored or treated in a containment building off site, the unit must be permitted in accordance with the existing permitting regulations.

It is anticipated that some existing units, previously classified as piles, would, as a result of today's proposal, be modified so as to be converted to a containment building. It is feasible that there may be releases of hazardous wastes that could be impacted by today's proposal. An issue that EPA is evaluating is whether the Agency will or should retain RCRA corrective action authority at new units and at those existing interim status or permitted units that subsequently become 90-day generators with containment buildings as their only RCRA activity. The Agency points out that, even without RCRA corrective action authority, generators would still be liable for any releases under the provisions of CERCLA. Also, EPA solicits comments on the extent facility wide corrective action authority for releases of hazardous constituents for solid waste management units at generator facilities will be forgone under this proposal. Public comment regarding the issue of corrective actions at generators' containment buildings, particularly for indoor piles that have been or will be converted to containment buildings, is welcome. In addition EPA, requests public comment on whether the 90-day generator accumulation provision should be extended to containment buildings or whether all such containment building should be required to be RCRA-permitted under subtitle C. In providing comments on this point, the Agency specifically requests commentors to articulate the rationale for requiring all containment buildings to be RCRA-permitted under subtitle C.

4. Special Requirements

The special requirements for containment buildings restrict the types of hazardous wastes that may be stored or treated in the unit and specify performance standards for the design and operation of the unit to ensure a measure of protection of human health and the environment greater than that provided by an indoor waste pile. See proposed subpart DD, parts 264 and 265.

(a) Acceptable Wastes. EPA intends that containment buildings be used to store or treat only dry wastes, i.e., those with no free liquids or those hazardous wastes that contain very small quantities of free liquids. The containment standards discussed below will ensure that hazardous waste that is dry or contains very small quantities of liquids will not pose a hazard to human health or the environment. The Agency's intent regarding the meaning of a very small quantity of liquid may best be indicated by the following example.

Example: A secondary lead smelting facility processes used lead-acid batteries to recover the lead. One of the steps involved in this process, battery cracking, necessarily generates wet lead-bearing materials. For process efficiency, among other reasons, free liquids are removed to the extent feasible prior to the materials being staged for furnace feed. However, some residual moisture (free liquid) remains and cannot easily be removed. In this example, although an attempt has been made to eliminate free liquids, the nature of the material precludes the complete removal of such liquid and, as such, can be viewed as incidental.

If liquids cannot be removed from the hazardous waste to a very small level, the hazardous waste stored in such a building would be considered a waste pile, a form of land disposal. Also, please note that if EPA allows very small quantities of liquids in hazardous waste to be stored in a containment building, the Agency would be making a distinction between these units and indoor waste piles which must only be used to manage no free-liquid wastes. Public comment is invited on the Agency's proposal to allow hazardous waste containing very small quantities of free liquids to be stored in

containment buildings and, if so, how EPA should define the term "very small." The Agency specifically requests comment on whether the liquids release test or paint filter liquids test should be used for testing wastes to be stored.

(b) Design and Operating Standards. EPA is proposing the following design and operating standards for both permitted units and units operated under interim status. (See proposed subpart DD, parts 264 and 265.)

Hazardous wastes managed in these units must be fully contained within the unit. As such, the Agency believes the unit must be completely enclosed with a floor, walls and a roof to prevent exposure to precipitation and wind. Many of the hazardous wastes presently managed in these units may have a significant volume of fine particulates. Enclosure within a structure will prevent the escape of these fine particulates from the unit. Contact of the waste with precipitation also needs to be avoided to prevent the formation of and migration of leachate which could potentially result in release of hazardous waste into the environment. Also, exposure to precipitation could cause chemical reactions, including corrosion of the unit, to occur.

The unit would need to be constructed of man-made materials with sufficient structural strength to support itself, the waste contents, and any personnel and heavy equipment that operate within the unit. Factors such as settlement, frost-heave, and exposure to wind force need to be taken into consideration in designing the unit. Any surface that is to be in contact with the hazardous waste should be chemically compatible with the waste. Because the intended use for these units is storage or treatment, the unit would have to be designed to accommodate appropriate levels of loading and unloading activity during its operating lifetime.

As previously stated, this proposal requires a containment building to be designed and operated in a manner so that any hazardous waste placed inside the unit be contained. EPA is proposing several measures to ensure that the hazardous waste does not escape into the environment. Although these units are intended for dry hazardous wastes (i.e., those with no free liquids), the Agency realizes that very small quantities of free liquids may be associated with certain hazardous wastes not capable of storage/treatment in a tank or container. Containment buildings used to store/treat hazardous wastes with very small quantities of free liquids would have to be provided with a means by which to manage any such liquid that collects on the containment building floor. Surfaces (e.g., the floor) that would be in contact with free liquids must inhibit the migration of liquid into the concrete matrix and facilitate the collection and removal of such liquid. For example, concrete surfaces must be provided with a penetrating sealer or a coating that inhibits the migration of liquid into the concrete matrix. EPA requests comment on appropriate methods for ensuring compliance with this criteria. Containment buildings used to manage hazardous wastes containing very small amounts of free liquid also would need to be provided with secondary containment that is capable of detecting, collecting, and holding any leaks/accumulated liquid until the collected material is removed. A secondary containment system for a containment building that manages hazardous waste with very small levels of liquids must meet the same performance standards as required for a hazardous waste tank system under 40 CFR parts 264 and 265, subpart J. EPA is proposing that secondary containment only need be provided if the containment building will be used to manage hazardous waste containing a very small quantity of free liquid. The Agency invites public comment on whether secondary containment should be a requirement for every containment building, including those that only will be used to store or treat hazardous waste containing no free liquids. Under this approach, if hazardous wastes with more than very small quantities of free liquids or hazardous wastes that decompose and generate free liquids are stored in a unit that otherwise meets the special requirements for a containment building, the unit would be subject to regulation as a waste pile land disposal unit.

Another measure to ensure containment of hazardous waste managed in these units is a requirement that the level of the waste inside the unit cannot exceed the height of the unit's walls intended to come in contact with the hazardous waste. The Agency believes it is a good housekeeping practice to prevent stored/treated hazardous waste from spilling over the walls of the unit and, in the case of certain hazardous wastes, to be able to contain any potential "landsliding" of material out of the unit. It is important to note that the walls being referred to in this provision are those walls, or portions of the unit's walls, that have been designed and constructed to be in contact with the hazardous waste and capable of supporting the weight of the waste. The following example makes this distinction.

Example: A facility has constructed a containment building to accumulate its hazardous waste prior to conducting treatment to meet LDR standards. The unit has a reinforced concrete floor and 10-foot high reinforced concrete walls. The remainder of the sidewalls, built atop the concrete wall and extending to the roof, is steel framing with fiberglass panels. In this example, the hazardous waste stored/treated inside the unit must not be piled any higher than the 10-foot reinforced concrete walls. The remainder or upper portion of the walls are not designed to support the weight of the waste and may not provide adequate containment of the waste, i.e., hazardous waste may escape through the panel joints.

Yet another concern that needs to be addressed regarding wall construction is the issue of specifications for doors and other openings that are part of a wall and used for equipment and/or personnel. EPA believes these doors and openings should be capable of providing the same level of structural support and containment as the rest of the wall. Although EPA today is not proposing specific standards for doors and openings that are part of a wall providing support and containment of hazardous waste managed within a containment building, public comment is invited on this issue.

As noted earlier, EPA believes the routine handling of hazardous waste within these units demands the frequent, if not constant, presence of personnel and handling equipment, e.g., front-end loaders, cranes. As such, particularly when the hazardous waste is comprised of small particulates or where handling of the hazardous waste generates dust, the potential for tracking hazardous waste out of the unit may be significant. A containment building must contain any hazardous waste stored/treated inside it. Therefore, EPA is proposing that measures be taken to ensure the containment of hazardous waste within the unit. Washing-down of vehicles prior to exiting the unit and dedicating vehicles for the sole purpose of operating within the unit are examples of measures that owners/operators of these units would need to take when the potential exists for tracking of hazardous waste out of the unit. (These measures could only occur, however, if EPA decides to allow the introduction of free liquids in containment buildings as part of treatment.)

Given the dusty nature of certain hazardous wastes that may be managed in these units and/or the dusty conditions that may be caused by the handling of the hazardous waste within the unit, EPA is proposing that measures also be taken to control fugitive dust emissions. In these situations, the

owner/operator would be required to install and operate a system whereby a negative pressure is maintained within the unit and particulates are collected, e.g., by fabric filter or electrostatic precipitator. Such a system would be designed and operated to function effectively at all times, including those periods when doors are opened for vehicle entry/departure.

An important goal of an inspection plan is the need to ensure the unit is operating as designed This goal is achieved through the establishment of an inspection program that ensures maintenance of the structural integrity of the unit and leaks/releases will be promptly detected, should they occur. EPA is proposing that an inspection schedule for these units be adhered to whereby, at least once each operating day (as is required for tanks and tank systems), monitoring/leak detection equipment, the containment building, and the area surrounding the containment building is checked to ensure the unit is being properly operated and that no leaks/releases have occurred. These observations would need to be recorded in the facility's operating log. Comment on the applicability and adequacy of each of the design and operating measures discussed above is welcomed. A requirement that the Agency is considering but is not proposing today is the written certification by an independent registered professional engineer (i.e., one who is not an employee of the company, or of its parent or subsidiary); the benefit of such a certification would be to ensure that any new or existing containment building is designed and constructed with sufficient structural integrity to safely manage and contain the hazardous waste. Public comment is requested on the need for this certification and which factors should be considered in an assessment of the integrity of the unit.

Finally, EPA is aware that in certain situations, such as hazardous waste site remediation efforts, a containment building can serve to enhance the performance of bioremediation treatment technologies; however, because such structures for site remediation are likely to be temporary in nature, they currently are not constructed with floors or sidewalls that would meet performance standards proposed today. EPA is evaluating if such temporary containment buildings should be designed and constructed to the same standards as more permanent containment buildings or whether perhaps a separate subcategory of design and operating requirements is merited for these bioremediation treatment buildings. Public comment is invited on this issue. In particular, EPA solicits comment on whether less stringent requirements, such as allowing the use of synthetic liners and non-load bearing walls, can be considered adequately protective.

As noted elsewhere in today's preamble, EPA would allow wastes to be treated as well as stored in containment buildings. Examples of such treatment could include the various types of technologies that are discussed in Appendix I to this preamble for treatment of contaminated debris. Because many of these technologies require the use of liquid, the Agency proposes to allow such technologies to be conducted in containment buildings. In some cases, such treatment would be conducted in tanks or containers in such buildings. When this occurs, the standards for tanks and containers would also apply. For example, a treatment system to treat debris waste could include a containment building with a tank inside that is used for stabilization; following treatment the waste may be stored in the containment building (subject to all existing storage requirements). In this example, the tank standards would have precedence in regard to the debris being treated in the tank, while the containment building standards would have precedence in regard to the treated debris that is being stored in the containment building.

In other cases, treatment in tanks and containers may not be possible. For example, personnel may not be able to apply safely many of the prescribed debris treatment technologies to large bulky debris in confined tanks and containers. Therefore, EPA is also proposing to allow the actual treatment in containment buildings that utilizes the addition of liquid as part of BDAT treatment. Where this is done, appropriate mechanisms need to be provided to control liquids utilized during the treatment of waste. The design standards EPA proposes today include primary containment via walls and floors along with secondary containment. Also, any drainage or accumulation of liquids applied to contaminated debris must comply with relevant statutes and regulations. For example, if debris liquid residuals are land disposed from the containment building they must first be treated to meet the F039 treatment standards. EPA believes that liquids should be removed from the containment building at the earliest practicable time that protects human health and the environment. EPA also solicits comments as to what other, if any, performance standards may be necessary to ensure that liquids in containment buildings are managed to protect human health and the environment. The Agency specifically requests comments on how often liquid application as part of contaminated debris treatment occurs or may occur. Also, the Agency requests comment on whether treatment utilizing the addition of liquid should be done in a dedicated portion of the containment building or whether the whole building could be used.

5. Wastes Eligible for Accumulation/Treatment in Containment Buildings

Under this proposal, many land disposal prohibited wastes potentially may be eligible to be stored or treated in containment buildings in order to facilitate/accomplish compliance with the prescribed BDAT standards. EPA considered two options regarding which hazardous wastes should be eligible for management in these units: (1) All hazardous wastes, including contaminated debris; and (2) only contaminated debris and certain additional bulky, high volume hazardous wastes that the Agency currently understands cannot be practicably stored/treated in tanks or containers.

Prior to being incorporated into this proposal, EPA was considering developing a Policy Directive whereby certain hazardous wastes, i.e., aluminum spent potliners, recycled lead batteries, and possibly electric arc furnace dusts, were definitively identified as candidates for management within containment buildings. Although EPA believes other hazardous wastes with no or very small quantities of liquids could also be more practicably managed in containment buildings rather than tanks or containers, information on such wastes was and remains lacking. EPA requests data on other hazardous wastes that could qualify for management within containment buildings.

EPA is proposing today to allow any hazardous waste, including contaminated debris, that is dry or contains only very small quantities of liquids to be stored/treated in containment buildings. Although EPA conceived these units to manage dry, bulky land disposal restricted wastes whose volume and/or physical characteristics make storage or treatment in a tank or container infeasible or impractical, the Agency sees no reason to restrict the eligibility of hazardous wastes for management in these units only to those hazardous

wastes for which EPA has data available (or even only to land disposal prohibited wastes), no matter what type of hazardous waste is accumulated. A containment building managing any hazardous waste that is dry or containing only very small incidental quantities of liquids, when designed and operated in accordance with the standards being proposed today, should ensure protection of human health and the environment. Nevertheless, the Agency requests comment on whether the applicability of this particular provision should be limited to certain types of wastes; if so, please indicate which wastes.

6. Amendment of § 268.50 Storage Prohibition and Permit Requirements

Under existing § 268.50, the storage of hazardous wastes prohibited from land disposal is also prohibited unless, among other requirements, the waste is stored in tanks or containers on site solely for the purpose of the accumulation of such quantities of hazardous waste as necessary to facilitate recovery, treatment, or disposal. At the time EPA adopted this provision, tanks and containers were the only types of storage units that did not also involve land disposal. Under today's proposal, there would be other types of storage units (i.e., containment buildings, subpart X storage units) not involving land disposal. EPA is thus proposing to conform § 268.50 to include these units.

Today's rule also proposes to amend Appendix I of § 270.42 by adding section M which will classify permit modifications for containment buildings. In addition, today's proposal would amend the modifications for enclosed waste piles by adding an item which classifies a modification to an enclosed waste pile to meet the standards for a containment building as a Class 2 modification. EPA believes that many facilities will make modifications to their permitted enclosed waste piles to meet the standards for containment buildings. For more information on these permit modification procedures, see 53 FR 37912, September 28, 1988.

V. Detailed Discussion of Today's Proposed Rule: Contaminated Debris

A. Overview

Debris that is contaminated with a prohibited waste or that exhibits a prohibited characteristic is presently subject to the treatment standard for that listed waste or characteristic. See, e.g., 55 FR 22649 and RCRA section 3004(e)(3). However, although contaminated debris (as well as contaminated media) are subject to the LDR prohibitions, there is no requirement that they have the same treatment standards as the wastes with which they are contaminated. Indeed, because contaminated debris may be a matrix significantly different from the underlying prohibited waste, it is appropriate as a technical matter to investigate whether different treatment standards are needed.

Today, EPA is proposing separate treatment standards for contaminated debris, so that, in effect, contaminated debris would be dealt with as a separate treatability group. Under today's proposal, contaminated debris must be treated by specified technologies based on the type of debris and type of contaminant(s) present. In addition, as described more fully below, debris also may be treated by any method (other than impermissible dilution) and would no longer be a prohibited waste or a hazardous waste if it achieves levels at which debris no longer "contains" hazardous waste. If the debris already achieves those levels as generated, it also would not be a hazardous waste or require treatment.

EPA has sought to specify a group of BDAT technologies for each type of debris, with the choice of which technology from within the group left up to the person managing the waste. The technologies in each group include widely used treatment methods. EPA is thus seeking to preserve as much flexibility for treatment of debris as possible.

Contaminated debris would be defined as debris that exhibits a prohibited characteristic of hazardous waste or that is contaminated with a prohibited listed waste. Contaminated debris must be treated by one of the specified treatment technologies for each "contaminant subject to treatment" defined as: (1) For debris contaminated with a prohibited listed waste, the BDAT constituents for the listed waste and any Appendix VIII, part 261, constituent that the owner or operator could reasonably know may be contaminating the debris; and (2) for debris exhibiting the Extraction Procedure [5] toxicity characteristic, the constituent(s) for which it fails the characteristic. (The Agency is also requesting comment on requiring treatment of any appendix VIII, part 261, constituent that the owner or operator could reasonably know may be contaminating any contaminated debris—i.e., debris that exhibits a prohibited characteristic as well as debris that is contaminated with a prohibited listed waste.) An owner or operator need not identify "contaminants subject to treatment" if a generic treatment technology is used. A generic treatment technology is one that the Agency believes will provide effective treatment for all Appendix VIII constituents. EPA is proposing six such technologies in this rule.

To ensure effective treatment, the treatment unit would be required to meet performance standards or design and operating conditions specified in the rule. In addition, the treatment unit would be subject to the part 264 and 265 standards for treatment facilities to ensure protection of human health and the environment.

As noted above, the proposal addresses not only the issue of when contaminated debris is sufficiently treated, but the further question of when it is a hazardous waste. Under the proposal, treated debris would be conditionally excluded from the definition of hazardous waste. The exclusion is conditioned on: (1) The use of an extraction or destruction treatment technology rather than an immobilization technology; and (2) the treated debris must not exhibit a characteristic of a hazardous waste. If an immobilization technology is used, the treated debris remains subject to Subtitle C regulation.[6]

In addition, EPA may determine on a case-by-case basis that untreated contaminated debris, or contaminated debris treated by a technology other than that specified by the proposed rule (and other than impermissible dilution), is not mixed with, or does not contain hazardous waste and, thus, need not be managed as a hazardous waste. The rule, if adopted, would thus codify the contained-in principle that the Agency currently applies on a case-by-case basis. If toxic constituents are not present at levels that could pose a hazard to human health or the

[5] If debris is a hazardous waste solely because it exhibits the toxicity characteristic for any of the 40 constituents listed in § 261.24, it would be defined as contaminated debris only if it exhibited the toxicity characteristic for one or more of the 14 constituents of the EP toxicity characteristic. Further, today's proposal would require such debris to be treated only for those EP constituents for which it exhibited the toxicity characteristic. EPA is proceeding in this fashion because it prefers to deal with all issues relating to prohibitions for wastes identified by the expanded toxicity characteristic in one single proceeding. See 56 FR 55166–172 (October 24, 1991) soliciting data to be used in developing treatment standards for wastes identified by the TC

[6] See section V.E.1. where EPA requests comment and data to support the design of performance standards for immobilization technologies that would be sufficient to allow contaminated debris treated by such technologies to be excluded from Subtitle C management.

environment (and if the debris does not exhibit a characteristic), the debris would be excluded from the definition of hazardous waste. EPA seeks comment on further criteria to be applied in making this case-by-case exclusion determination.

Residuals generated by treatment of contaminated debris would be subject to the numerical LDR standards EPA established for waste code F039 (multi-source leachate wastewater and nonwastewater treatment standards) under §§ 268.41 and 268.43. Unlike the debris treated using extraction or destruction technologies, these residuals are not excluded from the hazardous waste rules—that is, after these residuals meet the LDR standards, they must be managed at a subtitle C facility, unless the residuals are no longer defined as a hazardous waste.[7]

B. Definitions

Before discussing the specific standards that are being proposed today for contaminated debris, it is necessary to first define several terms.

1. Definition of Debris

Debris is defined as solid material that: (1) Has been originally manufactured or processed, except for solids that are listed wastes or can be identified as being residues from treatment of wastes and/or wastewaters, or air pollution control devices; or (2) is plant or animal matter; or (3) is natural geologic material exceeding a 9.5 mm sieve size including gravel, cobbles, and boulders (sizes as classified by the U.S. Soil Conservation Service), or is an inseparable mixture of such materials with soil, liquid, sludge, or other solid waste materials (i.e., inseparable by simple mechanical removal processes). See proposed amendment to § 268.2. (This definition would essentially incorporate the existing regulatory definition of inorganic solid debris in § 268.2, and adds further categories of materials that can legitimately be viewed as debris.) EPA requests comment on the proposed definition of debris, and particularly on the terms or phrases "solid material," "originally manufactured or processed," and "simple mechanical removal."

We identified the following six categories of debris—in essence, six treatability groups. The groups are specifically designed to reflect the ability of treatment technologies to decontaminate them: (1) Metal objects; (2) brick, concrete, rock, and pavement; (3) glass; (4) wood; (5) paper and cloth; and (6) rubber and plastic. The treatment standards discussed in Section V.F below are established as a function of these debris categories as well as the type of contaminant(s) present (see Section V.C below).

Debris can be generated from a wide variety of activities including remedial actions at Superfund and RCRA corrective action sites, routine generation (e.g., discarded drums and containers), and sporadically generated debris (e.g., building demolition materials). Debris includes many different objects, such as concrete blocks and bricks, structural steel, drums and tanks, glass and plastic bottles, cloth, paper, appliances, battery cases, tires, and gas cylinders. A survey of the types of debris found at over 200 waste sites (primarily Superfund sites) revealed that the most frequently found debris consists of metal objects (typically drums and tanks), brick, concrete, and rock.

Categories of debris at hazardous waste sites, in order of decreasing frequency of occurrence, are:

- Metal objects, including drums, tanks, pipes, iron bars, and steel beams;
- Brick, concrete, rock, and pavement, including concrete blocks, concrete foundations, cinder blocks, concrete sidewalks, and asphalt pavement;
- Wood, including wood furniture, pallets, plywood, wood walls, wood floors, leaves, live vegetation, wood telephone poles, trees, and railroad ties;
- Rubber and plastic, including tires, hoses, battery cases, PVC piping, plastic bags, fiberglass tanks, and plastic sheets;
- Paper and cloth, including books, magazines, cardboard, paper packing, paper insulation, fiber drums, rags, and mattresses; and
- Glass, including bottles, windows, beads, glass bricks, and glass containers.

In addition to the six categories of debris listed above, EPA identified other miscellaneous types of debris (PCB-contaminated debris and debris contaminated with radioactive materials, see Sections V.H.2 and V.H.4). Special standards would apply to these types of debris. In addition, EPA determined late in the development of today's proposed rule that standards are needed for asbestos debris. Accordingly, the Agency is requesting comment on technologies that would be considered BDAT for contaminated asbestos debris. See Section V.H.3. Finally, EPA specifically requests comment on whether there are other types of debris for which treatment standards should be established.

2. Definition of Contaminated Debris

The Agency is proposing to define contaminated debris as debris that contains a hazardous waste listed in subpart D of part 261 for which land disposal restriction (LDR) standards have been promulgated under 40 CFR part 268, or that exhibits a characteristic of hazardous waste identified in subpart C of part 261 for which LDR standards have been promulgated under part 268.[8] The Agency is proposing to define "contains RCRA hazardous wastes" to mean that RCRA listed hazardous wastes are contained on the surface or contained in the pore structure of the debris. This proposed definition would to a large extent codify the Agency's current interpretations of when debris would be a hazardous waste, and obviously does not alter the fact that such contaminated debris is already subject to regulation under the Subtitle C rules. See *Chemical Waste Management* v. *EPA*, 869 F.2d 1526, 1539–40 (D.C. Cir. 1989) upholding as a reasonable interpretation of the mixture and derived from rules EPA's conclusion that environmental media contaminated with listed wastes remain subject to regulation as hazardous waste.

We note that material-specific LDR standards have already been established for some materials that meet the definition of contaminated debris (e.g., lead acid batteries). In such cases, the LDR standard for the specific debris would take precedence over the standards proposed today.

A person who generates debris must determine if the debris is contaminated. The debris is contaminated if it contains a prohibited listed waste or if it exhibits a prohibited characteristic of hazardous waste. For newly-generated debris, the generator can readily determine if the debris is contaminated with a listed hazardous waste. For debris that has been re-generated by, for example, a Superfund clean-up or RCRA Corrective Action, the generator must use all information that is reasonably available to determine if the debris is contaminated with a listed hazardous waste.[9] To determine whether the

[7] See footnote 6.

[8] Although debris that exhibits the TC (see § 261.24) for any of the 40 constituents regulated under the TC is a hazardous waste, only debris that exhibits the TC for the 14 Extraction Procedure (EP) constituents would be defined by today's proposal as contaminated debris subject to the proposed treatment standards. When the Agency proposes BDAT standards for wastes that exhibit the TC for the remaining 26 constituents, we plan also to propose to expand the definition of contaminated debris to include debris exhibiting the TC for those additional constituents.

[9] See, e.g., the preamble to the National Contingency Plan (55 FR 8666 (March 8, 1990)).

debris exhibits a characteristic of hazardous waste, the generator must use either best professional judgment or, as practicable, analysis of a representative sample of debris.

3. Debris Subject to the Proposed Rule

As summarized above, EPA is proposing that all debris that is contaminated with (1) prohibited listed wastes and (2) listed wastes for which EPA is proposing prohibitions and treatment standards in today's rule, be subject to the debris treatment standards proposed here. In addition, any debris exhibiting the characteristic of ignitability, corrosivity (probably impossible, since only liquids can be corrosive, see § 261.22(a)), or reactivity would be covered, as would wastes identified by the toxicity characteristic that also exhibit the old EP characteristic. The types of contaminated debris not covered in this rule may be amenable to the same approach proposed here, but EPA prefers to defer these issues until such time as the debris becomes prohibited from land disposal. Given the time constraints of the May 8, 1992 lapsing of national capacity variances for already prohibited debris, the Agency believes it appropriate not to increase the scope of this rulemaking.

C. Contaminant Categories

To develop treatment standards for contaminated debris, the Agency divided the toxic constituents that may contaminate debris into 10 categories based on similar physical and chemical properties:

- Halogenated pesticides and aromatics;
- Dioxins, furans, and their precursors;
- Halogenated aliphatic compounds;
- Nitrated compounds;
- Non-polar aromatics, heterocycles, and other organic compounds;
- Polynuclear aromatic hydrocarbons;
- Other nonhalogenated polar organic compounds;
- Nonvolatile metals;
- Volatile metals; and
- Non-metal inorganics.

These contaminant categories take into account differences in the applicability and effectiveness of treatment technologies for those particular contaminants. EPA proposes to assign all toxic constituents listed in Appendix VIII, part 261, except for radionuclides (see Section V.H.4), to these contaminant categories as indicated in Table 2 of proposed § 268.45. (In addition, we note that proposed Table 2 contains several constituents that are not on Appendix VIII, part 261. As discussed in Section D below, contaminated debris that is contaminated with a prohibited listed waste must be treated for the BDAT constituents for that listed waste. For reasons discussed in Section D below, some BDAT constituents are not on Appendix VIII.)

One determines the contaminant category for which the debris must be treated by the type of hazardous constituent with which the waste is contaminated. For example, if debris is contaminated with F001 solvents, the debris must be treated using a technology specified in proposed Table 1 of § 268.45 (see discussion in Section V.F.2 below) as acceptable for halogenated aliphatics. This is determined by identifying the BDAT constituents for F001 in existing §§ 268.41 and 268.43 and determining from Table 2 of proposed § 268.45 that they all are included in the halogenated aliphatics contaminant category. If the debris also exhibits EP toxicity for cadmium, for example, the debris must also be treated using a technology specified in Table 1 of § 268.45 as acceptable for nonvolatile metals, because proposed Table 2, § 268.45, assigns cadmium to the nonvolatile metal category. This approach allows EPA to regulate debris contaminated with any prohibited listed waste without individually addressing every RCRA listed waste.

EPA specifically requests comment on whether the proposed contaminant categories and the assignment of constituents to those categories as proposed in Table 2 of § 268.45 is an appropriate scheme for assigning constituents to similar treatability groups. We note that one alternative approach is the "Table of Treatability Groups Used to Develop the Proposed Treatment Standards for U and P Waste Codes" that the Agency previously developed. See 54 FR 48392–48418 (Nov. 22, 1989).

D. Determining Contaminants Subject to Treatment

Contaminated debris must be treated for each contaminant category (e.g., polynuclear aromatics; volatile metals) represented by each contaminant that is "subject to treatment." See proposed Table 2 to § 268.45. The contaminants that are "subject to treatment" are: (1) For each listed hazardous waste known to contaminate the debris, the constituents for which LDR concentration limits have been established (i.e., "BDAT constituents") that are present at detectable levels as well as all constituents on Appendix VIII, part 261, that an owner or operator of a treatment facility could reasonably know may contaminate the debris at detectable levels; (2) for debris that exhibits the Toxicity Characteristic (TC), those constituents for which the debris exhibits the Extraction Procedure (EP) [10] toxicity characteristic; and (3) for debris that exhibits the reactivity characteristic due to presence of cyanide, cyanide.

When debris is contaminated with a prohibited listed waste, EPA is proposing that the debris be treated for any Appendix VIII, Part 261, constituent that the owner or operator could reasonably know may contaminate the debris at levels of analytical detection (using procedures prescribed in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", EPA Publication SW–846 (Second Edition, 1982 as amended by Update I (April 1984), and Update II (April 1985)) because the Agency wants to ensure treatment of all toxic constituents given that the treated debris is conditionally excluded from Subpart C regulation.[11] See section V.E. below. If, for example, an owner or operator of a treatment facility could reasonably know that a debris is contaminated with a solid waste that may contain Appendix VIII constituents (for example, because a particular material was produced or used at a site), and if the debris could subsequently be contaminated with detectable levels of those Appendix VIII constituents, the debris must be treated for the contaminants. EPA requests comment on how to define what "reasonably know" means in regard to appendix VIII constituents that may be contaminating debris.

Further, the Agency specifically requests comment on whether the rule

[10] See footnote 8.

[11] EPA requests comment on whether in the final rule to waive the requirement to identify as contaminants subject to treatment any Appendix VIII constituent that an owner or operator could reasonably know may contaminate the debris at levels of analytical detection if an owner or operator elects to continue to manage the treated debris as hazardous waste. In addition, EPA requests comment on whether Appendix VIII constituents that an owner or operator could reasonably know may contaminate the debris should be considered "contaminants subject to treatment" only if they are present at levels of potential health significance rather than merely at detectable levels as proposed. Commenters should provide supporting rationales for measures of significance. One possibility on which EPA solicits comment are the F039 levels, which correspond to the levels that residues from debris treatment would meet in order to be land disposed (albeit in Subtitle C facilities). Ultimately, EPA would use the *de minimis* levels, assuming it proves technically feasible to develop such levels, as the measure of when treatment of hazardous constituents is unnecessary See 55 FR 6642 (February 26, 1991).

should also require that debris that is hazardous solely because it exhibits a characteristic (i.e., toxicity, ignitability, or reactivity) be treated for all constituents on appendix VIII, part 261, that an owner or operator of a treatment facility could reasonably know may contaminate the debris at detectable levels. The Agency noted in the Third Third rule that it would seek to adopt this approach where feasible. See 55 FR 22654. This approach clearly fulfills the statutory goal of requiring treatment that minimizes short- and long-term threats posed by land disposal of hazardous waste. See section 3004(m) and 55 FR 22652. In the Third Third rule, EPA was able to develop such treatment standards for only a few characteristic wastes (certain reactive cyanides, lead batteries, certain mercury wastes, and high TOC ignitable liquids) due partially to time constraints, and to the formidable technical problems of determining appropriate treatment levels for all possible hazardous constituents found in the huge variety of characteristic waste matrices.

It appears that the technical task may be easier for characteristic debris. There are fewer matrices to consider (there is probably no corrosive debris, and little ignitable debris, since these characteristics identify chiefly liquid wastes), and there may be little reactive debris. Also, because the treatment standards for debris consist of treatment methods, and treatment of residues to F039 levels, the problem in the Third Third of determining *a priori* a whole range of treatment concentrations is not present here.[12] EPA solicits comment on these points, and also notes (as discussed more fully below) that today's rule applies the Third Third approach to reactive cyanide debris by requiring effective treatment of cyanide in both the debris and treatment residues so that, for at least this waste, EPA anticipates a standard resulting in treatment that removes a characteristic and treats hazardous constituents.

To determine whether debris contaminated with a listed prohibited waste may be contaminated with appendix VIII constituents (other than the BDAT constituents for the prohibited waste) at levels of analytical detection, an owner or operator of a treatment facility must make a reasonable effort to identify the generator of the debris. If the generator can be identified, generator or other information (e.g., general knowledge about the types and concentrations of chemicals used by the generator that may be in waste or other materials that may contaminate debris) must be used to identify Appendix VIII constituents that may contaminate the debris at detectable levels. Sampling and analysis of the debris is not required given the difficulty of obtaining representative samples of complicated matrices (e.g., mixtures of debris types such as stumps, plastic or metal piping, boulders, lumber).

EPA solicits comment on documentation to support the determination of contaminants subject to treatment. In particular, EPA requests comment on whether documentation must include a description of efforts to identify the generator of the debris and determinations regarding the types of appendix VIII constituents that are present at the site of generation and that may be contaminating the debris, and whether such documentation must be provided in the operating record for the treatment facility (or for debris treated on site, in a generator's waste analysis plan developed pursuant to § 268.7(a)(4)).

EPA notes that an owner or operator need not make determinations regarding the presence of contaminants subject to treatment if a treatment technology that effectively treats all appendix VIII constituents is used. Such generic treatment technologies (for one or more debris categories) are identified in proposed appendix X to the rule. (Note that the generic treatment technologies are generic for all contaminants but are not generic for all debris types.) We are proposing that five surface removal technologies and thermal destruction be considered generic technologies. Surface removal technologies (e.g., abrasive blasting, scarification and grinding) effectively treat all types of contaminants because the contaminants are removed from the debris with the surface layer. As noted in proposed appendix X (see discussion in Section V.F.3 below), EPA believes that many debris types can be effectively treated by these technologies (i.e., when the performance standards of proposed appendix IX are met). EPA considers thermal destruction to be a generic technology because organic contaminants are destroyed and metal contaminants partition to the ash residue which is subject to the F039 treatment standards (see Section V.G below). Thermal destruction would be a generic technology for organic debris types only, however, because if inorganic debris contaminated with a metal contaminant of concern is treatment by thermal destruction, the inert debris that may be separated from the residue would continue to be considered contaminated debris subject to treatment for the metal. Thus, when an inert debris contaminated with a metal contaminant is treated by thermal destruction, a treatment train is required to treat the inert debris remaining for the metal contaminant. Given that presence of a metal contaminant subject to treatment drives this decision, thermal destruction cannot be a generic treatment technology for inert debris.

E. Exclusion of Contaminated Debris from Subtitle C

Under today's proposed rule, contaminated debris may be excluded from the definition of hazardous waste by either: (1) Treatment by the technology specified in proposed § 268.45 and appendix IX (see Section V.F below), provided that the technology is an extraction or destruction technology [13] and that the treated debris does not exhibit a hazardous characteristic; or (2) a case-by-case determination by EPA upon request of the generator or treatment facility owner or operator that an untreated debris, or a debris treated by a technology other than specified in § 268.45 and appendix IX, is a solid waste (e.g., discarded concrete, metal or plastic drums, or piping) that is not mixed with a hazardous waste, or is not a solid waste (e.g., rock) that does not contain hazardous waste at significant levels. The latter approach would codify the Agency's existing practice with respect to when hazardous wastes are "contained-in" or mixed with debris.

EPA is proposing the following decision rules regarding the interplay of the debris treatment standards and the contained-in policy. First, if debris is found not to contain or be mixed with a hazardous waste it need not be treated by a prescribed method of treatment. The debris may be deemed not to contain or be mixed with a hazardous waste as a result of treatment (which need not be a prescribed treatment method) or as generated. The level could not be achieved by impermissible dilution. The legal basis for this decision rule is that the Agency tentatively believes that these levels could be viewed as levels at which potential threat to human health and the environment are minimized and

[12] Under the Third Third, however, residue from treating characteristic debris would not require further treatment if the residue was a new treatability group not exhibiting a characteristic. See 55 FR 22661. If the debris and residue are considered to be the same nonwastewater treatability group, however, then the residue would remain prohibited. If EPA were to take this view, the F039 standards would appear to be the appropriate treatment standards.

[13] See footnote 6.

therefore that further treatment is unnecessary. See section 3004(m).

Second, the same principles apply in the case of toxic characteristic debris (i.e., debris that exhibits both TC and EP toxicity, plus the type of reactive debris known to be contaminated with toxic constituents, namely reactive cyanide debris). Thus, such debris, if found to no longer be contaminated with hazardous constituents at the contained-in level, would not require further treatment in order to be land disposed and would not be a hazardous waste. On the other hand, merely removing the characteristic but not treating by a prescribed method (or determining that the debris does not contain hazardous constituents at the contained-in level) would not be sufficient. Although such debris would no longer be a hazardous waste, it could not be legally land disposed. See generally 55 FR 22651–654 (June 1, 1990). Such a result appears necessary here if the prescribed treatment methods are to have any practical applicability to toxic characteristic debris. The result is also needed to prevent dilution to remove the characteristic in lieu of treatment that adequately minimizes threats posed by the contaminated debris.

EPA is thus proposing to allow two alternatives that can be followed so that contaminated debris is no longer prohibited from land disposal and is no longer a hazardous waste. The first is to treat by one of the methods specifically listed in the rule (see proposed § 268.45) [14] in accordance with the conditions set out in proposed Appendix IX (or by an alternative equivalent method approved on a case-by-case basis). The other is to treat by a different method and obtain a determination that the debris no longer contains hazardous waste, or to obtain that demonstration before treating the waste. See proposed § 261.3(e). The levels could not be achieved by impermissible dilution. Residues from treating debris contaminated with listed wastes would still be listed wastes and could not be land disposed unless and until they meet the F039 treatment standards. In addition, such residues would remain hazardous wastes unless and until delisted.

1. When Debris Stops Being a Hazardous Waste

As just discussed, the first way contaminated debris would no longer be a hazardous waste would be to treat the debris with an extraction or destruction technology [15] according to the provisions of the proposed rule (and for the debris not to exhibit a hazardous characteristic after treatment). The Agency believes that, based on literature surveys, data analyses, and engineering judgment, the extraction and destruction technologies specified in today's proposed rule under § 268.45 when certified by the owner or operator to be designed and operated in compliance with the standards of appendix IX, coupled with the oversight by EPA (or authorized State) will effectively reduce the hazardous waste contaminant in or on the debris to levels that will not pose a hazard to human health or the environment absent Subtitle C control.[16]

EPA is also considering extending the proposed exclusion from Subtitle C management for debris that is treated by extraction and destruction technologies to debris that is treated by immobilization technologies. However, the Agency does not have sufficient data or information to support such an outcome at the time of this proposal. Therefore, we specifically solicit comment and data to support the design of performance standards for immobilization technologies that would be sufficient to allow contaminated debris treated by such technologies to be excluded from Subtitle C management. If such information is provided, the Agency will extend the exclusion accordingly.

EPA is also soliciting comment on the issue of whether certain types of treated debris should remain within the Subtitle C program. In particular, there may be debris that is contaminated with hazardous constituents, such as dioxins, that adhere strongly to debris surfaces and so are less amenable to surface removal treatment technologies such as water washing or spalling. Thus, it may be that the final rule will differentiate among certain debris types, contaminants, and removal (and conceivably destruction) technologies in determining which types of treated debris are no longer subject to Subtitle C regulation following BDAT treatment. (The foregoing discussion assumes, of course, that no case-by-case contained-in demonstration is made for the treated debris.)

The Agency's "contained-in" policy states that environmental media (groundwater, soil, and sediment) contaminated with a RCRA listed hazardous waste must be managed as if the media were a hazardous waste until it no longer "contains" the hazardous waste. The Agency has interpreted the contained-in policy to apply to media and debris that contain a waste (such as contaminated soil, groundwater, clothing, and rock). Currently, media that are contaminated with hazardous waste must be managed as if they were hazardous wastes until they no longer "contain" the listed waste, no longer exhibit a characteristic, or are delisted. The Agency has not issued any general rules as to when, or at what levels, environmental media or debris contaminated with hazardous wastes are no longer considered to "contain" those hazardous wastes. EPA believes that such levels for media are most appropriately determined on a site-specific basis by the EPA Region (or authorized State) overseeing the cleanup of such materials, such as a Superfund or Corrective Action remediation. Such levels for media are generally determined according to risk.

Under a close reading of existing rules, debris (such as concrete or piping) is a solid waste when discarded. If the debris is contaminated with a listed hazardous waste, it remains in the Subtitle C system unless and until delisted. (See § 261.3(a)(2)(iv) (the mixture rule).) Other debris is not a "solid waste" and so would not be subject to the mixture rule when contaminated with a listed hazardous waste. Such debris would stop being managed as a hazardous waste once it no longer "contains" a listed waste (see further discussion below). 53 FR 31147 (August 17, 1988) and *Chemical Waste Management* v. *EPA*, 869 F.2d 1356 (D.C. Cir. 1989).

EPA is proposing to deal with these two classes of debris (i.e., debris that is a solid waste and debris that is not a solid waste) in the same manner in this rule. By doing so, the debris would no longer be subject to Subtitle C if it is treated in accord with the methods designated in the rule, or no longer has listed wastes present at concentrations at which the debris would be considered to contain hazardous waste. EPA is proposing this result because there may be no environmental difference between solid waste debris and debris that is not a solid waste, and so the same rules as to when the debris no longer should be subjected to Subtitle C regulation could apply in either case. It simply appears to make no sense that two classes of debris which appear environmentally indistinguishable be subject to very different regulatory regimes for exiting the hazardous waste system (i.e., delisting for one class, but case-specific determinations for the other). (In

[14] See footnote 6.

[15] See footnote 6.

[16] Note that, to be excluded, treated debris may not exhibit a hazardous characteristic.

addition, EPA will refer to both classes of debris as "contaminated debris" from this point on in this notice.) EPA also requests comment on an alternative approach, which would continue to apply the "derived from" and "mixture" rules to contaminated debris that is composed of solid waste and listed hazardous waste.

EPA also requests comment on requiring the generator or owner or operator to maintain the burden of demonstrating compliance with the treatment and certification requirements.

2. Case-by-Case Determination that Untreated Debris is Excluded from Subtitle C

Some contaminated debris may contain or be mixed with very low levels of toxic (appendix VIII, part 261) constituents, even before treatment. In addition, an owner or operator of a treatment facility may choose to treat contaminated debris by a technology that does not meet the requirements of § 268.45 and appendix IX. In either case, today's rule would codify the existing contained-in policy. The owner or operator of the treatment facility (or any person in possession of the debris, such as the generator) thus may request from EPA (or an authorized State) a case-by-case determination that the levels of toxic constituents present will not pose a hazard to human health and the environment absent Subtitle C control.

F. Contaminated Debris Treatment Standards

In this section, we discuss: (1) The 18 treatment technologies proposed as BDAT; (2) the debris treatment standards as a function of debris and contaminant category; (3) performance standards that must be met to ensure effective treatment and to comply with the BDAT standards; (4) how the rule would apply to mixtures of contaminant categories; (5) how the rule would apply to mixtures of debris categories; (6) deactivation of characteristic debris; (7) standards for debris that is inherently toxic (i.e., it fails the TC and EP for metal contamination because it is fabricated from a toxic metal); and (8) mixtures of soil and contaminated debris.

1. Identification of BDAT Treatment Technologies

The Agency has identified 18 treatment technologies as Best Demonstrated Available Technology (BDAT) for one or more debris types and contaminant categories. We considered a treatment technology to be "available" if the technology itself or the services of the technology are able to be purchased, and the technology substantially diminishes the toxicity of the waste or reduces the likelihood of migration of the waste's hazardous constituents. The technologies identified in today's notice have been used to treat contaminated debris at Superfund sites, to remove radioactive metals from debris, to treat debris-like material contaminated with compounds similar to one or more of the compounds in the debris contaminant categories or, based on engineering judgment, are applicable to debris.

A technology is considered to be demonstrated for a particular waste if the technology currently is in commercial operation for treatment of the waste or constituent of interest or similar wastes or constituents of interest, including wastes not regulated under RCRA, such as PCBs and radioactive waste. For some of the debris/contaminant combinations identified in today's proposal, EPA identified demonstrated technologies either through a review of the literature in which current waste treatment practices were discussed, or through information provided by specific facilities currently treating the waste or similar wastes. EPA also considered as demonstrated technologies those used to separate or otherwise process chemicals and other materials which are similar to the waste or constituent of interest. Due to the variable nature of debris and the number of combinations of contaminants which may exist on debris, no single technology is identifiable as BDAT for all possible cases within each specific debris/contaminant combination. EPA is proposing to identify more than one technology as the BDAT standard for debris/contaminant combinations in order to give the regulated community flexibility in addressing particular contaminated debris wastes.

To identify BDAT technologies, the Agency also reviewed the properties of debris which may directly affect the efficiency of treatment technologies. Debris characteristics which may affect the performance or effectiveness of treatment technologies to clean various types of debris include:

- Destructibility;
- Hardness and brittleness;
- Moisture content;
- Permeability;
- Size, homogeneity, and location (in situ versus ex situ);
- Surface texture; and
- Total organic carbon (TOC).

All treatment standards for debris in today's rule are expressed as a treatment method. EPA considered establishing concentration-based standards whereby a numerical treatment level would be required for the treated debris. A concentration-based treatment standard would provide maximum flexibility in the choice of treatment technology because any effective treatment, including recycling or any combination of treatment technologies, unless prohibited (e.g., impermissible dilution) or unless designed as land disposal (e.g., land treatment), could be used to achieve the standards. However, the Agency did not have a means of calculating valid concentration-based standards given the matrix variations of debris and the difficulties in sampling and analyzing many debris types. By identifying numerous technologies that qualify as BDAT, the Agency is seeking to provide substantial flexibility.

The Agency is today proposing that the following 18 treatment technologies are BDAT for contaminated debris for specific combinations [17] of contaminants and debris types:

- Extraction Technologies:

—Abrasive blasting
—Acid washing
—Electropolishing
—Liquid phase solvent extraction
—Thermal desorption
—Scarification and Grinding
—Spalling
—Vapor phase solvent extraction
—Vibratory finishing
—Water washing and spraying

- Destruction Technologies

—Biodegradation
—Chemical oxidation
—Chemical reduction
—Photochemical treatment
—Thermal destruction

- Immobilization Technologies

—Macroencapsulation
—Microencapsulation
—Sealing

Additional information on these technologies can be found in Appendix I of today's preamble. Detailed information on the various treatment technologies can be found in the Technical Support Document.[18]

2. Contaminated Debris Treatment Standards

EPA has grouped the 18 treatment technologies that EPA is proposing as BDAT (see section V.F) into three

[17] We note that EPA considers six technologies (see proposed Appendix X to the rule) to be generic treatment technologies that can effectively treat all contaminants on specific debris types.

[18] See U.S. EPA, *Technical Support Document for the Contaminated Debris Proposed Rule*, November 1991.

general families of technologies: (1) Extraction; (2) destruction; and (3) immobilization. Based on an extensive review of the available technical literature, data received following the May 30, 1991 ANPR, contacts with trade associations, and the Agency's best engineering judgment, EPA developed a Debris Treatment Standards table (proposed Table 1 to § 268.45) establishing which specific technologies are BDAT for specific combinations of debris and contaminant categories. When marked "YES" on that table, the Agency believes that a treatment technology operated in compliance with the design and operating standards or the performance standards provided by appendix IX, part 268, will effectively treat the debris contaminated with one or more contaminants from the designated contaminant category.[19] When marked "NO", the Agency believes that the technology is not appropriate or acceptable for that debris/contaminant combination and may not provide adequate treatment of toxic constituents. Note that technologies marked "YES" may not always be appropriate (e.g., operator safety concerns, equipment damage) for the debris/contaminant category, but the Agency believes they will effectively remove or destroy the contaminant. Contaminants that may present a safety hazard to workers when using a particular treatment technology are noted in appendix IX where the design and operating or performance standards are specified.

Technologies marked "NO" in Table 1 are not prohibited from being used on debris as a pretreatment step, but do not qualify as BDAT. Use for initial treatment will allow mixtures of debris or debris contaminated with many contaminants to be treated for all debris/contaminant combinations using a treatment train. For example, crushed metal drums that are contaminated with both metal and organic contaminants subject to treatment may be treated with a treatment train using an extraction technology (e.g., thermal desorption) to remove the organic contaminants followed by an immobilization technology (e.g., macroencapsulation) to treat the metal contaminants.

The proposed technology-based approach offers the regulated community flexibility in selecting technologies for treatment of debris. However, until EPA can develop performance standards for immobilization technologies, EPA prefers extraction and destruction technologies over immobilization because the contaminants are either removed or destroyed.[20] When a treatment train is employed which involves an immobilization technology, for obvious reasons, immobilization must be the final treatment employed. See proposed § 268.45(a)(3). Further treatment of immobilized products would result in a deterioration of the immobilized waste and an increase in the likelihood that the immobilization product will leach hazardous constituents.

Further, as discussed below, because the contaminants have been removed or destroyed, most contaminated debris treated by extraction or destruction technologies in compliance with the standards of proposed appendix IX, part 268, would no longer be considered to be contaminated (unless it exhibits a characteristic of hazardous waste), and would be excluded from the definition of hazardous waste. Contaminated debris treated by immobilization technologies are still considered to contain a hazardous waste, and thus must be land disposed in a Subtitle C facility.[21]

EPA recommends that the owner or operator of the treatment facility consider the thermal, chemical, physical, and biological properties of the debris and the contaminants on the debris before selecting a treatment technology. The Agency plans to develop a nonregulatory implementation assistance document to provide assistance on how to select the most appropriate technologies for a given debris/contaminant combination.

3. Requirements to Ensure Effective Treatment

To ensure effective treatment and that the debris no longer contains hazardous waste and, thus, is excluded from the definition of hazardous waste (provided that an extraction or destruction technology is used and that the treated debris does not exhibit a hazardous characteristic), the rule would require that the treatment technology meet specific performance standards or be designed and operated under specific operating conditions. See Appendix IX to the proposed rule. In addition, we are requesting comment on whether to require a treatment facility owner or operator that intends to claim the exclusion for the treated debris to submit to EPA a one-time written notice at least 30 days prior to first treating a debris/contaminant category stating that the owner or operator intends to claim the exclusion and certifying that the treatment technology will be operated in compliance with the design and operating or performance standards provided by appendix IX. These issues are discussed below.

a. *Performance and design and operating standards.* The Agency developed performance standards or design and operating requirements for each of the treatment technologies based on an analysis of the supporting data base.[22] The data base was developed by conducting an extensive review of the available technical literature, reviewing the data received following the May 30, 1991 ANPR, and contacting vendors and trade associations to obtain reports describing treatment of contaminated debris at waste sites in the United States. The literature search identified the types of debris and types of contaminants on debris typically found at waste sites, and treatment technologies applicable for debris treatment. In particular, the Agency searched the Record of Decision data base and the Alternative Treatment Technology Information Center data base for information on debris treatment methods, contacted Remedial Project Managers and other governmental officials at the State level to discuss debris treatment technologies in use or under evaluation in their Region or State, and contacted over 50 vendors to collect information about the operation, performance, and effectiveness of their technology. The Agency summarized the design and operating and performance standards for successfully demonstrated treatment operations and incorporated them into proposed Appendix IX to part 268.

When data were not available for treatment of specific debris/contaminant combinations, the Agency used best engineering judgment to transfer design and operating and performance standards from technologies that are expected to be effective on those specific debris/contaminant combinations.

The Agency is proposing performance standards rather than design and operating standards for a technology where supporting data are available. An example of a performance standard is the requirement that abrasive blasting of metal debris must remove all paint, surface coating, rust, visible cracks and crevices, scale, corrosion, and visible staining to leave a white metal finish. An example of design and operating standards are the standards for biodegradation that specify the pH,

[19] See footnote 13.

[20] See footnote 6.

[21] See footnote 6.

[22] See footnote 13.

temperature, moisture level, and oxygen concentration of the slurry. We are proposing performance standards where possible because performance standards may provide more effective treatment for a debris/contaminant category given the variability in physical forms of debris within a category. Further, performance standards give the owner and operator the flexibility to tailor the design and operation of the treatment unit to the specific debris being treated to ensure effective treatment as demonstrated by compliance with a performance standard.

EPA specifically requests comments and supporting data on whether the standards proposed in appendix IX will ensure completely effective treatment—leaving a nonhazardous debris as well as significantly reducing the toxicity and mobility of hazardous constituents—for the debris/contaminant categories specified in § 268.45. Further, EPA specifically requests data or information supporting the development of performance standards for those technologies where the Agency is currently able to propose primarily design and operating requirements only. If EPA determines based on public comments and further analysis that the performance standards for a particular technology may not ensure effective treatment for particular debris types or contaminant categories specified in proposed Table 1 of § 268.45 as acceptable, the final rule could provide either that such technology is not BDAT in that situation or that the treated debris could be land disposed but would not be excluded from Subtitle C regulation.

Late in the process of developing today's proposed rule, we realized that the performance standards proposed in appendix IX, part 268, may preclude the need for specifying acceptable technologies as a function of debris type as provided by Table 1 of § 268.45. Appendix IX provides performance standards that vary, when necessary, according to type of debris. Thus, it may be redundant to specify acceptable technologies by debris category in Table 1.[23] Table 1 could be revised in the final rule to specify acceptable technologies solely as a function of contaminant category.

We note further that the performance standards and design and operating conditions being proposed for the various methods of treatment would not be part 264 or 265 standards and so need not be implemented by means of permits or interim status standards. Nor is the Agency finding that performing these types of treatment in these ways is necessary to protect human health and the environment.[24] Rather, these standards are adopted pursuant to section 3004(m) to assure that treatment minimizes the hazardous constituents' toxicity or mobility. Furthermore, by optimizing treatment, rather than simply performing the treatment without any criteria of how it is to be properly operated, the Agency can find further that most treated debris no longer contains a hazardous waste, and so is no longer subject to subtitle C regulation (assuming that the treatment is an extraction or destruction technology[25]).

b. *Notification and certification requirements.* In addition to the standards being proposed today, the Agency also requests comment on whether to apply new notification and certification requirements in order for EPA to provide oversight to ensure that a treatment unit is meeting the design and operating or performance standards established in appendix IX, part 268. EPA may need the opportunity to provide such oversight for debris that will be excluded from regulation (i.e., debris that is treated with an extraction or destruction technology and that does not exhibit a hazardous characteristic) upon treatment to ensure that the debris is effectively treated. For contaminated debris that remains within the subtitle C hazardous waste management system upon treatment, the existing notification and certification requirements of § 268.7 will apply. For contaminated debris that is no longer considered hazardous, EPA proposes in § 268.7(d) a one-time notification and certification to be kept in the facility files for each combination of debris/contaminant categories.

In particular, for debris that will be excluded from Subtitle C upon treatment, the Agency is requesting comment on whether to require the owner or operator of the treatment unit to provide EPA a written notification prior to treating a debris/contaminant category that provides certain information (as discussed below) and certifies that the technology will be operated under the standards of appendix IX, part 268. This would give EPA the opportunity to review the information and inspect the facility (if considered necessary) where EPA has questions on whether the technology will, in fact, be operated in compliance with the standards because of factors such as an unusual or difficult to treat debris or contaminant, or the enforcement history of the facility. In providing comments, EPA specifically requests suggestions on the timing of the notice.

EPA could require that the following information be included in the notification to enable EPA to determine the difficulty of meeting the standards of appendix IX, part 268:

- Name and address of the owner and operator of the facility as well as the location of the treatment unit;
- Date that the notification is submitted to EPA;
- Brief description of the treatment technology;
- Types and quantities of debris to be treated, and source of the debris; and
- Each contaminant for which the debris is subject to treatment, and a determination whether the untreated debris exhibits a hazardous characteristic.

4. Mixtures of Contaminant Categories

Today's treatment standards apply to mixtures of different waste streams. Where a waste mixture consists of different debris or contaminant categories and has more than one technology treatment standard, all standards must be met prior to land disposal. See proposed § 268.45 (a)(3) and (a)(4). This may result in the use of a treatment train, in which several technologies are employed to treat the waste. In such cases, as noted previously, immobilization, where required, must be the last technology employed. In the event that such a waste mixture cannot feasibly be treated by the different treatment methods, the Agency will accept petitions for a variance from the treatment standard pursuant to § 268.44.

5. Mixtures of Debris Categories

When debris is a mixture of debris categories, treatment would be required for each debris category according to proposed § 268.45(a)(3). The owner or operator of the treatment facility may

[23] We also noted that the performance standards for a particular technology could be met for some debris/contaminant category combinations even though Table 2 would preclude use of the technology. For example, Table 2 precludes the use of abrasive blasting of plastic even though abrasive blasting of rigid plastic pipe to remove surface combination should be an effective treatment technology and could meet the performance standards specified in Appendix IX for nonpermeable debris like glass (i.e., removal of all paint, surface coatings, scale, visible cracks and crevices, and visible staining).

[24] Although the performance standards are not intended to provide protection of human health and the environment (HHE) from the treatment operation itself, the standards will ensure protection of HHE when the treated debris becomes excluded from Subtitle C and may be disposed of in a municipal waste landfill. Thus, EPA expects that permit writers will add conditions to the permit to ensure compliance with the performance standards.

[25] See footnote 6.

either: (1) Treat the debris using a technology which qualifies as BDAT for all debris/contaminant combinations within the matrix, or (2) treat the debris using a treatment train such that BDAT for each debris/contaminant category is achieved by at least one of the technologies in the treatment train.

If a debris is a mixture of debris categories but the application of the specified treatment technology for one debris category (normally the primary debris category) will cause the secondary debris category to be removed from the primary debris in the treatment residue in a form such that it no longer meets the definition of debris, the debris treatment standards have been met. The treatment residue is subject to the numerical F039 treatment standards and remains subject to Subtitle C (like all treatment residues). An example is metal equipment that is contaminated with a prohibited listed waste, and has a paper label. If abrasive blasting is used to treat the pipe, the paper label will be removed and shredded, and will become part of the treatment residue.

6. Treatment of Characteristic Debris

Contaminated debris that exhibits ignitability or reactivity [26] must be treated to deactivate the ignitability or reactivity characteristic. See proposed § 268.45(a)(2). If such debris is also contaminated with "contaminants subject to treatment," [27] it must be deactivated before the debris can be treated for the contaminants subject to treatment unless the treatment for the contaminants also will deactivate the debris.

As discussed above, EPA is also soliciting comment as to whether there should be treatment of "contaminants subject to treatment" if debris that is hazardous waste solely because it exhibits the ignitability or reactivity characteristic is contaminated with appendix VIII, part 261, constituents. Effective treatment of such contaminants would require deactivation as an initial treatment step. EPA also solicits comment on whether dilution should be considered permissible treatment for ignitable and reactive debris.

Debris that exhibits reactivity because of the presence of cyanide, however, would be subject to treatment with a technology specified for cyanide. Cyanides would be included in CC10 (nonmetal inorganics) in proposed Table 2 of § 268.45. We are proposing to require treatment of cyanide rather than simply deactivation of the reactivity characteristic because cyanide is a toxic constituent. In addition, treating cyanide-reactive waste for cyanide would be consistent with the existing land disposal restrictions. See existing § 268.43—Waste Code D003 (Reactive cyanides subcategory identified by § 261.23(a)(5)).

7. Debris That Continues to Exhibit the Toxicity Characteristic Due to Fabrication With Toxic Metals

Some types of debris may continue to exhibit the (prohibited) Extraction Procedure (EP) toxicity characteristic. Examples are: Refractory brick containing metals such as chromium; certain metal alloys containing nickel and chromium, such as stainless steel; treated wood that contains wood preserving compounds such as chromium, and arsenic; battery casings that contain lead; lead pipe; and lead paint chips. EPA is proposing rules covering two possibilities: Where such debris is contaminated with contaminants subject to treatment, and when the debris is not. Where the debris is contaminated, EPA is proposing that the contaminants be treated by the appropriate method. If the debris continued to exhibit a characteristic because of its fabricated content (i.e., exhibited both the TC and EP for a metal), it would have to be immobilized before land disposal. An alternative, however, would be to recycle the debris, which in most cases would be scrap metal (as defined in § 261.1) exempt from further subtitle C regulation. See § 261.1(a)(3)(iv). EPA in fact is proposing treatment of contaminants subject to treatment for this type of characteristic debris, but soliciting comment on this alternative for other types of characteristic debris, because of the likelihood that most of the debris will be managed in this unregulated mode as recycled scrap metal. It is thus important that other contaminants not be present to avoid environmental contamination at unregulated sites and also to avoid unexpected contaminants in the recycling process itself.[28]

If the inherently hazardous debris is not contaminated with contaminants subject to treatment, it could either be immobilized and disposed, or recycled, and if scrap metal, be exempt from further regulation.

To illustrate, suppose a restaurant is demolished and several stainless steel counters are the only metal included among other debris consisting of concrete, brick, wood, plaster, and glass. There are no listed wastes present, and the restaurant demolition debris does not exhibit ignitability, corrosivity, or reactivity. A representative sample of the debris would include stainless steel, concrete, brick, wood, plaster, and glass in the same proportions as they are found in the restaurant demolition debris. Unless such a representative sample exhibits the toxicity characteristic under the Toxicity Characteristic Leaching Procedure (TCLP), the restaurant demolition debris would not be considered hazardous.

However, if a representative sample of the restaurant demolition debris exhibits the toxicity characteristic for chromium under the TCLP, due to the presence of the stainless steel, all the restaurant demolition debris would be considered hazardous. Deliberate dilution of the debris to obtain a sample that would not exhibit the toxicity characteristic is prohibited; such deliberate dilution of a sample would violate the sampling protocols of SW-846 which are incorporated by reference in § 260.11. If the stainless steel in this example is segregated from the other restaurant demolition debris, it may be recycled as provided in § 261.6(a)(3)(iv) without treatment under proposed § 268.45 because it is not contaminated with any other contaminants subject to treatment. The Agency suggests that metal be removed from demolition sites for recycling prior to demolition, to the most cost effective extent possible, particularly where the site does not involve the production or use of listed hazardous wastes; in this way, the potential for generating contaminated debris may be lessened.

EPA recognizes, however, that in some situations where recycling is impracticable, treatment with an immobilization technology may also be impracticable. EPA specifically requests comment and supporting information on situations where recycling is impracticable for inherently hazardous debris and where immobilization is also

[26] We note that contaminated debris cannot exhibit corrosivity under § 261.22 because only liquids may exhibit corrosivity while debris is defined as a solid material. However, contaminated debris (i.e., debris that is mixed with a listed waste or exhibits a hazardous characteristic) may *contain* a corrosive waste (e.g., crumpled drums containing corrosive liquids). In this situation, not only would the debris be subject to the debris treatment technology requirements, but the corrosive waste must be deactivated.

[27] I.e., because it exhibits the TC and EP or is contaminated with a listed prohibited waste.

[28] Residues from treating inherently hazardous debris, however, could be considered a new treatability group not exhibiting a characteristic and therefore not prohibited. An alternative would be to require treatment to F039 standards, viewing both the debris and treatment residues as part of a nonwastewater treatability group.

impracticable for such debris. Further, EPA requests comment on regulatory controls that may be applied to such debris in a manner that is workable and protective of human health and the environment.

8. Mixtures of Soil and Contaminated Debris

When soil is agglomerated on debris or compacted/contained inside the cracks and crevices of debris, it is difficult to separate. Soil (e.g., clay) adhering to debris is considered contaminated soil if it is removed during treatment of contaminated debris (e.g., water washing and spraying). Nonwastewater residuals containing soil that are separated during the treatment of residuals from debris treatment will be subject to the forthcoming contaminated soil standards.

G. Regulation of Treatment Residuals

Four general categories of residuals from the treatment of contaminated debris have been identified: (1) Nonwastewater residuals containing soil; (2) treated debris; (3) nonwastewater residuals derived from the treatment of contaminated soil and debris that are neither soil nor debris; and (4) wastewater [29] residuals derived from the treatment of contaminated soil and debris. (This discussion assumes contamination with a listed waste.) The Agency is today proposing to continue to subject nonwastewater residuals containing soil to the existing LDR standards, to conditionally exclude treated debris from Subtitle C as discussed previously, and to transfer the F039 nonwastewater and wastewater treatment standards to the non-soil, non-debris, nonwastewater, and wastewater residuals (i.e., categories 3 and 4) generated by the treatment of contaminated debris.

We also discuss in the section the rationale for transferring the F039 multisource leachate standards to debris treatment residues. Finally, we also discuss the special requirements for residues from the treatment of cyanide-reactive debris and ignitable nonwastewater residue.

1. Nonwastewater Residues Containing Soil

Nonwastewater residuals containing soil may be generated when soil is removed from contaminated debris during debris treatment operations (e.g., water washing and spraying). Nonwastewater residuals containing soil that are separated from debris during the treatment of contaminated debris are subject to the existing LDR standards for the listed waste that contaminated the debris and the LDR standards for the toxicity characteristic that the debris exhibited until standards specific for contaminated soil are promulgated.

2. Treated Debris

Treatment technologies other than thermal destruction of an organic debris will generate a treated debris residue. (See discussion below regarding residue from thermal destruction.) If the debris has been treated for all "contaminants subject to treatment," the treated debris is excluded from Subtitle C provided it was treated with an extraction or destruction technology [30] and the treated debris does not exhibit a hazardous characteristic.

3. Nonwastewater, Nonsoil, Nondebris Residuals

Under today's proposed rule, nonwastewater residuals that are nonsoil and nondebris would be subject to the F039 nonwastewater treatment residual standards. These residuals may be land disposed after meeting the F039 standards, but are subject to Subtitle C. The residue would be subject to the F039 nonwastewater treatment standards under existing § 268.43 for all contaminants subject to treatment (see proposed § 268.45(b)) and for all constituents in appendix VIII, part 261, that are added to the debris or residue during treatment.

Note that EPA considers residue generated by surface removal technologies other than spalling (e.g., abrasive blasting, electropolishing, acid washing, waster washing and spraying) to be nonwastewater, nonsoil, nondebris residue. Although the residue will usually contain particles of debris (e.g., abrasive blasting of concrete) along with the contaminants, we believe that it is more appropriate to subject the residue to the F039 standards rather than to further treatment as contaminated debris. Such residues generally have the physical characteristics of a treatment residue (e.g., small particle size) rather than the debris. Residue from spalling, however, will generally closely resemble the debris and so would be subject to further treatment as contaminated debris.

We note further that the solid residue from thermal treatment (e.g., incineration) may contain both inert debris as well as ash resulting from destruction of waste and organic debris. If the contaminated debris is not contaminated with a metal "contaminant subject to treatment," inert debris that is separated from the ash residue is considered treated debris rather than residue subject to F039 standards.[31] (The ash residue would be subject to the F039 standards).

4. Wastewater Residuals

Wastewater residuals are liquid residuals derived from the treatment of contaminated debris (e.g., rinsate from acid washing operations) that are neither soil nor debris. These wastewater residuals would be subject to the F039 wastewater treatment residual standards under the proposed rule. (Any nonwastewaters generated in the course of treating the wastewater such as precipitated solids will be subject to the F039 nonwastewater standards). As with nonwastewater residuals, the wastewater residual would be subject to the F039 wastewater treatment standards under existing § 268.43 for all contaminants subject to treatment (see proposed § 268.45(b)) and for all constituents in appendix VIII, part 261, that are added to the debris or residue during treatment.

5. Nonanalyzable Constituents

The Agency has also considered the issue of nonanalyzable constituents. Nonanalyzable constituents may be identified as "contaminants subject to treatment" if debris is contaminated with a prohibited listed waste and the owner or operator of the treatment facility could reasonably know that the debris is also (i.e., in addition to the BDAT constituents for the prohibited

[29] Wastewaters are wastes that contain less than 1 percent by weight total organic carbon (TOC) and less than 1 percent by weight total suspended solids (TSS). See existing § 268.2(f).

[30] See footnote 6.

[31] We note that, although the separated inert debris may be contaminated with the ash residue through surface coating (e.g., dust) or by entrainment within the debris (e.g., pockets of ash residue entrained in crumpled metal containers), the inert debris will pose little hazard to human health and the environment because the nonmetal toxic contaminants in the debris have been destroyed. If debris is contaminated with a metal contaminant subject to treatment, the inert debris remaining in the residue from thermal treatment would be subject to additional treatment (e.g., extraction, immobilization) for the metal contaminant. We note further that if organic debris (e.g., wood, cloth or paper, or rubber or plastic) remains after treatment by thermal destruction, EPA considers such debris to be contaminated debris subject to the treatment standards. If the organic debris has not been destroyed, EPA is concerned that the organic contaminants subject to treatment may not have been destroyed (or metal contaminants subject to treatment contaminating the organic debris may not have been liberated and partitioned to the ash residue (where they are subject to the F039 treatment standards)).

waste) contaminated with an appendix VIII, part 261, constituent that is nonanalyzable.[32] Even though the owner or operator will not be able to determine whether the nonanalyzable constituent contaminates the debris at detectable levels, the Agency believes it is reasonable to take the conservative view to require treatment of such nonanalyzable constituents.

Treatment residues must be treated to meet the F039 multisource leachate standards for all contaminants subject to treatment. See proposed § 268.45(e). When a prohibited hazardous waste containing a constituent without an EPA-approved analytical method contaminates the debris, EPA considers the treatment residue to be treated for the nonanalyzable constituent when the residue is shown to meet the F039 standards for the BDAT constituents for the prohibited waste. This is because the BDAT constituents act as a surrogate for the nonanalyzable constituent. This is consistent with the approach taken by the Agency during the regulation of F039 multisource leachate. At that time, the Agency believed that the constituents with EPA-approved analytical methods would act as surrogates for constituents without EPA-approved methods.

6. Rationale for Transferring F039 Standards to Debris Treatment Residuals

Limited characterization data are available on the residuals from debris treatment and no specific treatment performance data on debris residuals are currently available. As part of the F039 regulation effort, the Agency did collect and summarize treatment performance data on several wastewater treatment technologies. For nonwastewater F039, the Agency compiled treatment performance data from the incineration of many waste codes subject to LDRs. These two databases (the F039 wastewater and nonwastewater databases) represent an appropriate data source for transfer to residuals from the treatment of contaminated debris.

The advantage of using the F039 wastewater database is that this data represents treatment performance of the best demonstrated and available wastewater technologies currently in use for treating various wastes. This database represents treatment of wastes with high variabilities of constituents and constituent concentrations.

The F039 nonwastewater database represents incineration treatment performance data for various wastes with high variabilities of constituents and constituent concentrations. Incineration has often been identified as the best demonstrated and available technology for the treatment of organic constituents in nonwastewaters. The use of F039 treatment performance data to determine concentration-based treatment standards for contaminated debris treatment residuals, therefore, represents a feasible and environmentally sound option. This regulatory approach maximizes use of the Agency's available treatment performance data and has been promulgated successfully with the multisource leachate regulation during the Third Third rulemaking.

For those contaminants subject to treatment that partition to the debris treatment residual and that do not have treatment standards under F039, standards could be developed in the future using a transfer of data from a similar constituent in F039 or in another waste code. This procedure is common in the BDAT program and will allow all of the debris contaminants subject to treatment to have a concentration-based residue treatment standard. In the interim, however, EPA believes that constituents with approved analytical methods would act as surrogates for constituents that do not have such approved methods. Thus, when the residue is treated to meet the F039 standards for contaminants with approved methods, the contaminants without approved methods will also be effectively treated. The Agency also addressed this concern in the same manner during the regulation of F039 multisource leachate.

There are several advantages to using the F039 transfer approach for the regulation of contaminated debris treatment residuals. The residuals likely to be generated from the treatment of contaminated debris will contain, in many cases, treatable concentrations of various contaminants that have been removed during the debris treatment process. For example, extraction technologies would include the removal of contaminants from the debris material. The contaminants removed and any extraction chemicals used (e.g., spent solvent wash or rinsing solution) would constitute the contaminated debris treatment residual. This residual could contain any number of contaminants at varying concentrations. This residual would require additional treatment before it would be safe to land dispose.

As is the case with multisource leachate, the types of contaminants and their concentrations in contaminated debris treatment residuals will vary greatly. The characterization of debris treatment residuals will depend on many factors, such as the hazardous waste on the contaminated debris, the degree to which the treatment technology (such as extraction) removes the contaminants, etc. In addition, this approach does not require that the original waste codes contaminating the debris be identified; only the constituents of concern on/in the debris that are likely to be in the residuals from debris treatment must be identified. The approach is thus consistent with the universal treatment standard approach discussed in EPA's ANPR of May 30, 1991 (56 FR 24444).

The Agency also explored the development of new treatment standards for debris treatment residuals but believes that this action would be both costly and time consuming. Since debris residuals are likely to be highly variable, it would be very difficult to characterize these wastes as a group.

The Agency also evaluated establishing specified technology-based treatment standards for wastewater and nonwastewater forms of these residuals. However, this regulatory option is more restrictive than setting a numerical treatment standard since it would require industry to use a specific technology. Setting concentration-based treatment standards allows industry greater flexibility in choosing innovative treatment technologies; it also helps to promote the development of new treatment technologies.

7. Special Requirements for Cyanide-Reactive Residue

Residue from the treatment of debris that is reactive because of cyanide would be subject to the F039 standards for cyanide under § 268.43 of this chapter. As with cyanide-reactive waste, EPA believes that BDAT for cyanide-reactive debris should require treatment of cyanide because of its toxicity.

8. Special Requirements for Ignitable Nonwastewater Residue

Today's rule would subject ignitable nonwastewater residue containing equal to or greater than 10 percent total organic carbon to the technology-based standards for D001: "Ignitable Liquids

[32] We note that the prohibited listed waste may also contain toxic nonanalyzable constituents. The list of BDAT constituents for the prohibited waste, however, accounts for the presence of nonanalyzable constituents by, in some cases, designating as BDAT constituents nontoxic, surrogate constituents. When the prohibited waste (or contaminated debris) is treated for the surrogate constituent, EPA believes that the nonanalyzable constituent will also be treated.

based on § 261.21(a)(1)" under § 268.42. Those standards would require that the residue be treated by fuel substitution (i.e., burning as fuel in a boiler or industrial furnace), recovery of organic constituents (e.g., distillation, carbon adsorption), or incineration. EPA has established these technologies as BDAT for high total organic carbon ignitable liquids because they will effectively remove or destroy toxic organic constituents.

H. Other Provisions of the Rule

In this section, we discuss several other provisions of the proposed rule: (1) Waste codes for contaminated debris; (2) relationship of the proposed rule to existing TSCA rules for PCBs; (3) standards for debris containing asbestos and asbestos debris; (4) special requirements for debris contaminated with radioactive waste; (5) sham contamination of debris with a waste to avoid LDR number standards for the waste; (6) sampling and analysis of debris; (7) procedures for demonstrating the equivalency of new technologies; and (8) applicability of existing treatment standards to contaminated debris.

1. Waste Codes for Contaminated Debris

The waste code applicable to contaminated debris is determined under the same approach used for other hazardous waste. For example, if debris is contaminated with a listed waste F006, the contaminated debris carries that waste code. If the debris exhibits the toxicity characteristic for arsenic, it carries waste code D004.

Contaminated debris that is treated according to proposed § 268.45(a)(1) and appendix IX, part 268, by an extraction or destruction technology and that does not exhibit a characteristic would no longer be a hazardous waste (and would no longer carry a waste code). Contaminated debris that is treated by an immobilization technology and remains in Subtitle C [33] would carry the waste code for the waste or the toxicity characteristic for which it was immobilized.

Although residues from the treatment of contaminated debris are subject to the LDR standards for F039, the residue normally carries the waste code of the contaminated debris. However, residue from treating debris that is hazardous solely because it exhibits a characteristic would not carry the waste code for the characteristic after treatment to deactivate the residue.

[33] See footnote 6.

2. Relationship of Debris Rule to TSCA PCB Rules

a. *TSCA disposal requirements.* Under the Toxic Substances Control Act (TSCA), disposal of debris contaminated with PCBs is regulated under 40 CFR 761.60. In addition, disposal of debris and materials resulting from the cleanup of certain PCB spills is subject to the PCB Spill Cleanup Policy, as provided under 40 CFR 761.125. On June 10, 1991, EPA published (56 FR 26738) an Advance Notice of Proposed Rulemaking which, among other things, asked for suggestions on how to amend the current PCB disposal rules to provide flexibility in disposing of PCB contaminated media (see 1.A. Large Volume, Non-Liquid Wastes). The current PCB disposal rules (40 CFR 761.60) were not designed to address large volumes of non-liquid wastes, such as certain classes of soils, sludges, and sediments. EPA is reviewing the comments submitted on the ANPR in anticipation of publishing a Notice of Proposed Rulemaking.

b. *Proposed approach for overlap of RCRA and TSCA requirements.* The Agency is today proposing that RCRA contaminated debris that is also a waste PCB under 40 CFR part 761 be required to comply with both the TSCA and RCRA regulations, by satisfying the more stringent applicable requirements, including incineration or treatment followed by land disposal in a Subtitle C facility. This is EPA's consistent approach to this issue. See 55 FR 22678 (June 1, 1990), and 52 FR 25770 (July 8, 1987).

The Agency is today proposing the use of specific treatment technologies as standards for the treatment of contaminated debris. These standards also apply to debris contaminated with PCBs and RCRA hazardous wastes. Debris treated by an extraction or destruction technology would remain subject to TSCA rules only, whereas debris treated by an immobilization technology would remain subject to applicable requirements under both statutes.

3. Treatment Standards for Asbestos Debris

Asbestos is a naturally occurring family of fibrous mineral substance. The typical size of asbestos fibers is 0.1 to 10 micrometers in length, a size that is not generally visible to the human eye. Some longer fibers are used in making textile products. Asbestos is a popular commercial product because it is noncombustible, resistant to corrosion, has a high tensile strength, and a low electrical conductivity. When disturbed, asbestos fibers may become suspended in the air for many hours, thus increasing the extent of asbestos exposure for individuals within the area.

Asbestos fibers have been mixed with various types of binding materials to create an estimated 3,000 different commercial products. Asbestos has been used in brake linings, floor tile, sealants, plastics, cement pipe, cement sheet, paper products, textile products and insulation, and other products such as fireproof garments, curtains, and shields, paper, insulating boards, and insulating cements. The amount of asbestos contained in these products varies significantly from 1 to 100 percent, but is typically less than 50 percent.

We determined late in the process of developing this proposed rule that asbestos itself could also be contaminated debris if it is mixed with a prohibited waste or exhibits a prohibited characteristic.[34] However, asbestos is not included in the six categories of debris in proposed Table 1 to § 268.45 for which the Agency is proposing treatment technologies as BDAT. Consequently, we specifically request comment on whether the final rule should include a column in proposed Table 1 for asbestos debris.[35] In addition, we request comment on whether the technology/contaminant category combinations presented in appendix II to this preamble will provide effective treatment for toxic constituents in asbestos debris. As discussed below, although the treated asbestos debris would be excluded from Subtitle C if it was treated with an extraction or destruction technology and the asbestos debris did not exhibit a hazardous characteristic, the treated debris will still be subject to applicable controls under OSHA, NESHAPS, and TSCA.

a. *Existing federal regulatory controls on asbestos.* The EPA and the Occupational Safety and Health Administration (OSHA) have major responsibility for the regulatory control over exposure to asbestos. Emissions of asbestos to the ambient air are controlled under section 112 of the Clean Air Act, which establishes the National Emission Standards for Hazardous Air Pollutants (NESHAPs).

[34] Note that if asbestos which is not contaminated with a prohibited waste and does not exhibit a prohibited characteristic is separated from contaminated debris, the asbestos debris would not be subject to the proposed debris treatment standards.

[35] If a debris is comprised of asbestos and another type of debris, the debris must be treated for each debris category. See section V.E. 5 of the text.

The regulations specify control requirements for most asbestos emissions, including work practices to be followed to minimize the release of asbestos fibers during handling of asbestos waste materials. These regulations do not identify a safe threshold level for airborne asbestos fibers.

The OSHA regulations are established to protect workers handling asbestos or asbestos-containing products. The current OSHA regulations include a maximum workplace airborne asbestos concentration limit of 0.2 fibers/cc on an 8-hour time weighted average basis, and a ceiling limit of 10 fibers/cc in any 15-minute period. The standards include requirements for respiratory protection and other safety equipment, and work practices to reduce indoor dust levels. See 29 CFR part 1910.

The transport and disposal of asbestos is regulated by TSCA under 40 CFR part 763, subpart E, appendix E, and by NESHAPs under 40 CFR part 61, subpart M. The NESHAP requirements for asbestos disposal begin at the point of removal. The asbestos material must be wet when removed and should be kept wet through the final disposal. A surfactant must be used in wetting of the asbestos. If an asbestos waste is removed dry, it must be wetted after removal until it is collected and sealed in leak-tight containers while wet. The recommended container is a leak-tight 6 millimeter thick plastic bag. The void space or air should be minimized prior to sealing the bag. Double bagging, plastic lined cardboard, or plastic-lined metal containers are considered to provide better containerization. Slurries of asbestos waste can be contained in leak tight drums if they are too heavy for plastic bags. Both EPA and OSHA specify that the containers be tagged with a warning label, e.g., Caution: Contains Asbestos Fibers. Avoid Creating Dust. May Cause Serious Bodily Harm.

An alternative handling method for wet asbestos waste is to use a vacuum truck. The slurry is transported in the vacuum truck to the disposal site. Air from the vacuum intake is dried and filtered through High Efficiency Particulate Air (HEPA) filter.

Improperly containerized waste is a violation of NESHAPs and the EPA should be notified. As a form of recordkeeping, a "cradle-to-grave" system is established under TSCA by a chain-of-custody form.

At the disposal site, EPA requires either no visible emissions to the air or the minimization of emissions by covering the containerized waste within 24 hours of receipt with at least 6 inches of a non-asbestos material or an approved dust suppressing agent. It is recommended that the landfill operator have a separate area for asbestos disposal. The final closure of an area containing asbestos requires a cover of an additional 30 inches of compacted non-asbestos material to provide a 36 inch final cover. Other disposal site requirements include the control of public access by the use of approved warning signs and, if necessary physical barriers. Any variation to the disposal methods must receive prior approval by the Administrator.

b. *Treatment standards.* The single largest use of asbestos in the U.S. is in building products. Given the tremendous versatility of asbestos-containing material used in these products, EPA believes that a significant portion of asbestos debris will be generated through building renovation and demolition. EPA also believes that some of this debris may be contaminated with a prohibited listed waste (or may exhibit a prohibited characteristic) either as initially generated or after improper land disposal subject to Superfund or Corrective Action. Thus, asbestos debris could be contaminated debris subject to today's proposal rule (e.g., chromium-contaminated asbestos pipe and equipment insulation). Given that asbestos debris is not included in the six categories of debris for which we are today proposing treatment technologies in Table 1 of § 268.45, we specifically request comment on adding required treatment technologies for asbestos debris to Table 1.

Although it may be technically feasible to treat contaminated asbestos debris (or a debris mixture containing asbestos) using many of the 18 debris treatment technologies discussed in previous sections, many of the treatment technologies are not practicable for asbestos debris because of the potential for occupational exposure or environmental release of asbestos. In particular, based on engineering judgment, EPA believes that the following debris treatment technologies, while perhaps technically feasible in some situations, are not practicable for asbestos treatment because of the potential for occupational or environmental exposure (i.e., controls under OSHA, NESHAPs, and TSCA could not reasonably be met): Abrasive blasting, electropolishing, scarification and grinding, spalling, thermal desorption, vibratory finishing, thermal destruction (except vitrification), microencapsulation, and sealing.

On the other hand, EPA believes that the following technologies will be effective in treating specific contaminants present in or on asbestos debris, but would probably require the use of filtration devices to control air or wastewater emissions containing asbestos to prevent occupational and environmental exposure in compliance with applicable controls under OSHA, NESHAPs, and TSCA: Acid washing; liquid phase solvent extraction; vapor phase solvent extraction; water washing and spraying; biodegradation; chemical oxidation; chemical reduction; photochemical treatment; and macroencapsulation.

Accordingly, we have evaluated these nine technologies that may be applied to asbestos debris in compliance with applicable controls under OSHA, NESHAPs, and TSCA to identify those contaminant categories that they could effectively treat. See Appendix II of this preamble. The Agency specifically requests comment on the applicability of these technologies to asbestos debris and whether effective treatment would be ensured for the contaminant categories identified in appendix II when the technology performs according to the requirements of proposed Appendix IX to the rule.[36]

4. Special Requirements for Radioactive Debris

a. *Definition of mixed wastes.* Mixed wastes are those wastes that satisfy the definition of radioactive waste subject to the Atomic Energy Act (AEA) and also contain a RCRA listed hazardous waste or exhibit a hazardous characteristic. On July 3, 1986 (51 FR 4505), EPA determined that the hazardous waste portions of mixed waste are subject to RCRA regulation.

The majority of mixed wastes can be divided into three categories based on the radioactive component of the waste: (1) Low-level wastes, (2) transuranic (TRU) wastes, and (3) high-level wastes. Low-level wastes include radioactive waste that is not classified as spent fuel from commercial nuclear power plants, or that is not defense high-level radioactive waste from producing weapons. TRU wastes are those wastes containing elements with atomic numbers greater than 92, the atomic number of uranium. High-level radioactive wastes are defined as spent fuel from commercial nuclear power plants, and defense high-level radioactive waste from the production of weapons.

b. *RCRA Requirements.* On June 1, 1990 (55 FR 22520), EPA promulgated

[36] Residues from the treatment of asbestos debris would be subject to the F039 standards as proposed for residues from treatment of any other debris.

treatment standards for four treatability groups of mixed waste: (1) Specific high level wastes, (2) D008 radioactive lead solids, (3) mixed waste containing elemental mercury, and (4) mercury containing hydraulic oil contaminated with radioactive materials. The Agency further asserted that "all promulgated treatment standards for RCRA listed and characteristic wastes apply to the RCRA hazardous portion of mixed radioactive (high-level, TRU, and low-level) wastes, unless EPA has specifically established a treatability group for that specific category of mixed waste."

However, there are a number of potential problems presented by applying the existing land disposal restriction standards to mixed waste contaminated debris, including the achievability of the existing standard and the consistency of these standards with AEA regulations. For instance, the specified technology to be used for mixed waste containing elemental mercury is "Amalgamation with Zinc as a Method of Treatment." This technology effectively reduces the leachability of liquid mercury. However, this technology may not effectively reduce the leachability of mercury contained in the pores of wood or cloth debris.

Also, incineration of mixed wastes containing radioisotopes of carbon and hydrogen would result in the spread of these isotopes through uncontrolled emissions of carbon dioxide and water vapor. This could result in an increase of the radiation hazard, which would conflict with the requirements of AEA.

The Agency is today proposing that mixed waste contaminated debris be required to comply with the treatment standards for contaminated debris (in addition to any regulation of that material under AEA), rather than to the treatment standards for the contaminating waste. This includes debris contaminated with mixed waste for which special treatability groups have been established (as discussed above) will be subject to debris standards rather than to the specified treatability group standards.

The exception would be the D008 radioactive lead treatability group, which would be subject to both debris standards and the treatability group standards when contamination includes other hazardous waste in addition to D008. EPA views that debris which is also in the radioactive lead treatability group to be similar to inherently hazardous debris, and is thus proposing a similar approach. We note further that application of both the D008 lead solids standard and the applicable debris standard would not conflict with the existing D008 lead solids standard unlike the existing standards for mixed waste, as noted above. Further, application of both standards would also address the hazardous associated with D008 as well as any other hazardous wastes present on the debris.

5. Sham Contamination of Debris

a. *Sham contamination.* Sham contamination of debris is the deliberate addition of a hazardous waste to debris to avoid compliance with the LDR standards for that hazardous waste. When a rule is promulgated that defers or excludes certain solid wastes from regulation, the ability to differentiate whether the addition of hazardous waste is a sham situation or a legitimate situation is always an issue. The Agency believes, however, that there is little incentive to deliberately contaminate debris to avoid compliance with the treatment standards because the debris would still have to be treated prior to land disposal and any residual generated from the treatment would still have to meet the F039 treatment standards.

The Agency considered requiring generators to certify that debris had been contaminated inadvertently and not as a result of deliberate action to avoid compliance with the LDRs. However, the Agency felt it would be difficult to require such certification, particularly at sites where the source of the original contamination is unknown, and it would be difficult to manage from an enforcement perspective.

b. *Impermissible dilution.* The Agency also considered whether deliberate contamination of debris is likely to occur followed by impermissible dilution of the contaminant to avoid compliance with the debris treatment standards. However, the Agency feels that existing regulations on permissible and impermissible dilution are quite specific as to when they apply. Current regulations (40 CFR 268.3(a) and (b)) specify when dilution is a permissible or impermissible treatment process.

The rules on dilution and the Agency's interpretive statements regarding those rules indicate that the dilution prohibition has a two-fold objective: (1) To ensure that prohibited wastes are actually treated; and (2) to ensure that prohibited wastes are treated by methods that are appropriate for that type of waste. EPA has indicated that prohibited wastes which are aggregated are normally not diluted impermissible if they are treated legitimately (i.e., subject to effective treatment, 55 FR 22666) in centralized treatment systems, irrespective of the dilution inherent in such a system. Thus, if dilution is a legitimate type of treatment, or a necessary pretreatment step in a legitimate treatment system, such dilution is permissible.

EPA is proposing that in the case of debris that is ignitable or reactive, but nontoxic (i.e., it is not contaminated with a prohibited listed waste and does not exhibit EP toxicity), any type of deactivation would be a permissible means of removing the characteristic property. However, the Agency is soliciting comment on treating "contaminants subject to treatment" in characteristic debris, and were EPA to adopt such an approach, dilution prohibitions would probably apply due to concern for adequate treatment of toxics. 55 FR 22657, 22665–66. For toxic debris, including reactive cyanide debris that must be treated for cyanide, dilution in lieu of the prescribed method of treatment or to reach contained-in levels is impermissible since such dilution would occur for purposes of evading the treatment standards. See § 268.3. Since no wastewater treatment is involved (i.e. debris is a solid, not a liquid), the Agency need not balance any of the difficult issues relating to relationship of the RCRA prohibition and Clean Water Act subtitle D treatment impoundments receiving diluted non-hazardous, formerly characteristic wastewaters. See 55 FR at 22656–58. Centralized treatment of contaminated debris would be allowed under the proposal, of course, so that aggregation of debris amendable to the same type of treatment is permissible under the proposal.

6. Sampling and Analysis

Sampling and analysis of contaminated debris would not required to comply with the proposed treatment standards. Nonetheless, the Agency is considering developing implementation assistance regarding sampling and analysis techniques for debris because it will: (1) Facilitate the actions at Superfund sites of the on-scene coordinators (OSCs) and remedial project managers (RPMs); and (2) assist the Agency and generators and treatment facility operators in determining whether debris exhibits the toxicity characteristic or whether debris contaminated with a prohibited listed waste is contaminated with detectable levels of appendix VIII, part 261, constituents.

The Agency considered requiring sampling and analysis of treated debris to demonstrate that the treatment technologies effectively treated the toxic contaminants. Sampling would

potentially identify inadequate or fraudulent debris treatment, as well as other conditions where performance of the specific technology was insufficient. However, the Agency believes that requiring sampling and analysis of treated debris, or establishing concentration-based treatment standards, is not workable given the difficulty of sampling debris. Nevertheless, the Agency requests comment on the feasibility of numerical standards for those types of debris that can be sampled without difficulty. The Agency also requests comment on which types of debris are amendable to sampling and how such samples should be collected.

The Agency believes that when the specified treatment technologies are designed and operated to meet the performance standards prescribed by proposed appendix IX of the rule, the debris will be effectively treated. As discussed previously, EPA specifically requests comment on whether the performance standards are adequate to ensure effective treatment.

7. Procedures for Demonstrating Equivalency of New Technologies

A generator or treater can demonstrate that an alternative technology can achieve the equivalent level of performance as that of the specified treatment method (40 CFR 268.42 (b)). This demonstration must be specific for both debris category and contaminant category and may be based on: (1) The demonstration of a technology utilizing a target analyte or surrogate or indicator compound that indicates effective treatment of the hazardous waste constituents contaminating a particular debris type; (2) the development of new analytical and/or sampling methods for quantifying the hazardous constituents; or (3) other demonstrations of equivalence for alternative method of treatment based on statistical comparisons of technologies, including comparisons of specific design and operating parameters. As a result, a new treatment standard based on this demonstration, as well as any analytical and sampling methodology used in the demonstration, could then be proposed to be applicable to other debris categories and contaminant categories.

8. Applicability of Existing Treatment Standards to Contaminated Debris

EPA is specifically requesting comment on whether the existing LDR standards for the listed waste(s) with which a debris is contaminated and the existing LDR standards for the EP toxicity characteristic should be allowed as an alternative to the debris treatment standards of proposed § 268.45 and appendix IX, part 268.

I. Permits for Treatment Facilities

EPA is concerned that adequate treatment capacity may not be available for contaminated debris. The national capacity variances for these wastes have expired, or will expire by May, 1992. Consequently, EPA intends to use the discretion provided by existing permitting standards to allow the construction of new treatment units at both permitted facilities and facilities operating under interim status.

1. Capacity Shortfall

EPA's capacity analysis is based on data received in response to the ANPR for wastes covered in this proposal, from a series of "Roundtable meetings" that EPA held in May and June of 1991 with representatives of companies involved in the management and disposal of contaminated debris, and from the TSDR and Generator Surveys. Comments from the Roundtable meetings indicate that decommissioning of large chemical plants and increasing remediation activities can significantly increase the estimated volume of contaminated debris.

Waste generators and TSDFs report that most of the contaminated debris volumes are currently landfilled without prior treatment. Stabilization or incineration are the reported treatment technologies for the small amounts of contaminated debris that are currently treated before landfilling. In addition, EPA has received information on materials-handling problems limiting the amount of contaminated debris that currently can be treated by stabilization and incineration. In general, the size of the debris must be reduced (e.g., by shredding, grinding, etc.) before it can be treated, and heavy duty equipment reportedly is currently not available at most treatment facilities. Therefore, EPA believes, based on qualitative assessment, that very large quantities of contaminated debris will require treatment and that available treatment capacity will be very limited in the short term. By May 8, 1992, all the national capacity variances will expire for as much as 800,000 tons of debris contaminated with previously regulated wastes (i.e., wastes for which LDR standards have been promulgated). This is coincidental to the effective date for LDR standards for additional newly listed and identified wastes.

Notwithstanding this projected capacity shortfall in the near term, EPA believes that there is sufficient flexibility in its existing regulations for facilities and generators to add additional treatment capacity and new waste treatment processes in a short period of time. However, EPA welcomes any additional capacity information that commenters can provide to aid the Agency's decisions in the final rule.

2. Permitted Facilities

Permitted treatment, storage, and disposal facilities may add new treatment processes and additional capacity by applying for a permit modification under the Federal regulations at § 270.42 (see 53 FR 37912, September 28, 1988, for a full explanation of the permit modification procedures). Although the regulations at § 270.42 were promulgated under pre-HSWA authority, EPA may use these regulations in authorized States when necessary to implement HSWA provisions such as the land disposal restrictions. See 53 FR 37933.

The types of modifications needed to add new capacity or processes would likely require the submittal of a Class 2 or 3 modification. The Class 2 modification process requires Agency action on the request within 120 days. This action would consist of approval or denial, reclassification as a Class 3 modification, or authorization to conduct the activities for up to 180 days pending Agency action. Furthermore, for Class 2 modifications, construction to implement the requested facility change may commence 60 days after submission of the request. There is no deadline for Agency action for Class 3 modifications, which apply to more substantial facility changes. Permitted facilities may also apply for a temporary authorization to initiate necessary activities while a Class 2 or 3 permit modification request is undergoing review, or to undertake a treatment or storage activity which will be of short duration. EPA may grant a temporary authorization for a term of up to 180 days. Any request for a temporary authorization must demonstrate compliance with the part 264 standards and also meet the criteria of § 270.42(e) for approval. Interested public (i.e., those that have previously expressed interest in any permitting action for the facility) will receive notice by mail of a facility's request for a temporary authorization, and another mail notice if EPA approves the request. The temporary authorization may be renewed once if the additional procedures of § 270.42(e) are followed, including the submission of appropriate permit modification information and the initiation of public meetings and public comment period. See 53 FR 27919, September 28, 1988 for additional discussion of temporary authorizations.

Some of the contaminated debris treatment processes that are proposed as BDAT under § 268.45 would take place in units that EPA is proposing to define as containment buildings. See discussion above in Section IV.G. To assist in the development of treatment capacity by permitted facilities to meet the requirements of this proposed rule, the Agency is proposing a change to the criteria that must be met to grant a temporary authorization. The existing regulation at § 270.42(e)(3)(ii)(B) allows approval of the request if the activity is necessary to treat or store restricted wastes in tanks or containers in accordance with part 268. Today's proposal would amend these criteria to include the treatment or storage of contaminated debris in containment buildings meeting the requirements in proposed subpart DD, parts 264 and 265.

3. Interim Status Facilities

Treatment, storage, and disposal facilities managing hazardous waste under interim status may add new treatment processes or additional treatment or storage capacity by using the existing procedures for changes during interim status in § 270.72. Under these procedures, a facility must submit to EPA a revised Part A permit application and justification explaining the need for the change. The change must then be approved by EPA.

In order for the change to be approved by EPA, it must meet one of several criteria, such as being necessary to comply with a Federal, State, or local requirement. However, changes may not be made if they amount to reconstruction of the facility. This occurs when the capital investment for the changes to the facility exceed 50 percent of the capital cost of a comparable entirely new facility.

Section 270.72(b)(6) lifts the reconstruction limit for changes to treat or store in tanks and containers hazardous waste subject to land disposal restrictions imposed by part 268, provided that such changes are made solely for the purpose of complying with part 268. EPA believes that this exemption should also apply to treatment or storage of contaminated debris in containment buildings for the reasons stated above. Accordingly, today's rule proposes to amend § 270.72(b)(6) to make treatment or storage in containment buildings as regulated under proposed subpart DD, parts 264 and 265, exempt from the reconstruction limit.

4. Documentation of Compliance with Proposed Appendix IX, Part 268

Proposed appendix IX, part 268, would establish performance or design and operating requirements for the treatment technology specified by proposed Table 1, § 268.45, for each combination debris/containment category. Although contaminated debris treatment facilities are subject to the appropriate part 264 or 265 facility standards, we did not codify the proposed Appendix IX treatment technology requirements under part 264 or 265 because the treatment technology requirements would apply to any (nonprohibited) waste treatment unit treating contaminated debris, including, subpart J tank systems, subpart I containers, subpart O incinerators, subpart X miscellaneous units, and proposed subpart DD containment buildings.[37] Rather than amending each of those subparts to include the Appendix IX requirements or to reference Appendix IX, today's proposed rule would simply require (in proposed § 268.45) owners and operators of contaminated debris treatment facilities to comply with the requirements and to document compliance in the operating record required under subpart E, parts 264 and 265.

In addition, we expect that permit writers will use the omnibus permit authority of § 270.32(b)(2) to add conditions to the RCRA operating permit issued under subpart B, part 270, to ensure that contaminated debris treatment facilities comply with the appendix IX requirements. EPA believes that compliance with the appendix IX requirements are necessary to protect human health and the environment from treated debris given that it would be conditionally excluded from Subtitle C regulation. EPA specifically requests comment on whether the use of omnibus permit authority would be an effective approach to ensure compliance with the appendix IX requirements, or whether EPA should amend the facility standards under parts 264, 265, 266 (for boilers and industrial furnaces), and 268 (for containment buildings, as proposed today) to require contaminated debris treatment facilities to comply with the appendix IX requirements.

5. On-Site Treatment in Containers and Tanks

EPA notes that generators who store or treat contaminated debris on-site in tanks or containers for a period not exceeding 90 days are not subject to permit requirements. See existing § 262.34. However, the tank or container must be designed and operated in compliance with the requirements of subparts I or J of part 265 to ensure protection of human health and the environment. (Further, today's rule would require that treatment of contaminated debris in tanks or containers (or any other treatment unit) meet the requirements of proposed § 268.45(a) and appendix IX, part 268, to ensure effective treatment. See proposed § 268.45(c)). In section IV.G.3 of today's notice, EPA proposes to extend the 90-day generator exemption in § 262.34 to containment buildings, a new waste management unit proposed today.

J. Comments on the May 30, 1991 ANPRM

Sixty-six commenters responded to the May 30, 1991 ANPR. Of these 66, 40 commenters provided over 250 comments on the potential BDAT for contaminated debris section in the ANPR. Almost half of the comments received focus on the treatment standards and their applicability to debris. Many of the commenters suggested a different approach to the establishment of treatment standards, while others agreed with EPA's approach or requested clarifications of statements that were made in the ANPRM.

Of the remainder of the comments, 15 addressed the Agency's contained-in policy. Almost all of these 15 comments supported the establishment of a level at which debris would no longer "contain" hazardous waste. One commenter suggested that health-based standards be established for these levels and that the contained-in policy be codified with these levels. In other issues, 36 comments were received concerning how to establish a waste code for contaminated debris. Of these, 16 supported a new waste code for debris and 5 supported the retention of existing waste codes. Three comments suggested a new waste code for debris, but only if the source of contamination was unknown.

Nine comments were received on the issue of how to manage refractory brick. Most of these comments addressed refractory brick content and recycling. About half noted that refractory bricks are recycled into cement. The other comments noted that the chromium content is much lower than 40 percent and suggested that the bricks may not even be considered hazardous.

Other issues raised by commenters addressed inherent content, permitting, representative sampling, and capacity

[37] And subpart H, part 266 boilers and industrial furnaces.

concerns over disposal of debris. Most of the comments on inherent content supported macroencapsulation or some other type of treatment for inherently hazardous debris. For permitting, commenters were concerned that the Agency not include decontamination as an activity requiring a RCRA permit. One commenter suggested a "permit by rule" provision for decontamination or debris washing. Several commenters requested additional guidance on representative sampling of debris, and one commenter urged the Agency to expedite de minimis rulemaking in order to relieve capacity concerns over disposal of debris.

VI. Capacity Determinations

This section presents the data sources, methodology, and results of EPA's capacity analysis for today's newly listed wastes. Specifically, Section VI summarizes the results of the capacity analysis for petroleum refining wastes and other organic wastes; wastes mixed with radioactive contaminants; and debris contaminated with the newly listed wastes.

The capacity analysis for the newly listed wastes for which the Agency is today proposing treatment standards relied on information obtained from several sources. Primary data sources include the National Survey of Hazardous Waste Treatment, Storage, Disposal, and Recycling Facilities (the TSDR Survey), the National Survey of Hazardous Waste Generators (the Generator Survey), data received in response to the ANPRM for the Newly Identified and Listed Wastes (56 FR 24444), data received in voluntary data submissions, and information requests authorized under section 3007 of RCRA.

EPA conducted the TSDR Survey during 1987 and 1988 to obtain comprehensive data on the nation's capacity for managing hazardous waste and on the volumes of hazardous waste being land disposed. For the capacity analysis, EPA used the TSDR Survey information on the volumes of waste streams managed in land-disposal units and requiring alternative treatment/recovery due to the land disposal restrictions and on available capacity of hazardous waste management technologies.

EPA conducted the Generator Survey in 1987. This survey requested information on waste volumes and waste characteristics of hazardous waste generated, and provided capacity information for facilities not included in the TSDR Survey.

In general, EPA's capacity analysis methodologies focus on the amount of waste currently land disposed that will require alternative treatment. Wastes that are not land disposed (e.g., discharges under NPDES or to a POTW) are not included in the required capacity estimates. Also, land-disposed wastes that do not require alternative treatment (e.g., those that are currently treated using an appropriate technology) are excluded form the required capacity estimates. Land-disposed wastes requiring alternative treatment or recovery capacity that is available on site or within the same company are also omitted from required commercial capacity estimates. Therefore estimates for available capacity at commercial hazardous waste management facilities are based on the net available commercial capacity for the newly listed wastes.

A. Capacity Analysis Results Summary

Table VI.A.1 lists each waste code for which EPA is proposing LDR standards today. For each code, this table indicates whether EPA is proposing to grant a two-year national capacity variance for surface-disposed or deepwell disposed wastes. As seen by this table, the Agency is proposing to grant national capacity variances only for storage and treatment of petroleum wastes in surface impoundments, debris contaminated with newly listed wastes, and mixed radioactive wastes.

TABLE VI.A.1.—SUMMARY OF PROPOSED CAPACITY VARIANCE DECISIONS FOR NEWLY LISTED WASTES

Waste code	Variance for surface-disposed wastes?	Variance for deepwell-disposed wastes?
F037–S.I.	Yes	No.
F038–S.I.	Yes	No.
F037	No	No.
F038	No	No.
K107	No	No.
K108	No	No.
K109	No	No.
K110	No	No.
K111	No	No.
K112	No	No.
K117	No	No.
K118	No	No.
K123	No	No.
K124	No	No.
K125	No	No.
K126	No	No.
K131	No	No.
K132	No	No.
K136	No	No.
U328	No	No.
U353	No	No.
U359	No	No.
Mixed Rad. Waste	Yes	No.
Contam. Debris	Yes	No.

B. Petroleum Refining Wastes and Other Organic Wastes

This section presents the capacity analysis for today's newly listed petroleum refining wastes and other organic wastes.

1. Comparison of Required and Available Capacity for Newly Listed Petroleum Refining Wastes (F037 and F038) and Other Organic Wastes

Table VI.B.1 summarizes available capacity for each alternative treatment or recovery technology required for petroleum refining wastes (F037 and F038) and newly listed organic wastes. This table also summarizes the required capacity for each technology. The analysis of commercial capacity for newly listed wastes is based primarily on data from the TSDR Survey capacity data set, data received in response to previous LDR notices and regulations, and data received in voluntary data submissions. Analysis of data indicates that commercial capacity is currently available for wastewater treatment, stabilization and combustion of liquids. However, commercial capacity for combustion of sludges and solids is currently expanding, and the expected availability of capacity for the newly listed wastes is dependent on planned capacity being fully operational by May 1992.

Commercial capacity for combustion of sludges and solids is available at both incinerators and at industrial furnaces (primarily cement kilns that have used hazardous waste as fuel). Due to the expected increase in demand for combustion of sludges and solids (because many wastes have BDAT standards based on incineration), and also because of the new regulations for burning of hazardous wastes in boilers and industrial furnaces, many commercial cement kiln facilities are currently changing their operating practices to comply with new regulatory requirements and to significantly expand their capacity. Current analyses of these planned changes indicate a major increase in capacity will occur prior to May 1992, and that consequently there is no need for a national capacity variance. However, the Agency does recognize that planned activities are not always completed as scheduled. Thus, the Agency plans to continue to monitor the on-going changes in commercial combustion capacity, and will modify the capacity estimates as new data indicates. The Agency requests public comment on the current and planned commercial capacity for combustion of sludges and solids, and is especially

interested in receiving data on the status of planned changes to that capacity.

TABLE VI.B.1.—COMPARISON OF REQUIRED AND AVAILABLE CAPACITY FOR NEWLY LISTED PETROLEUM REFINING AND OTHER ORGANIC WASTES

Technology	Available capacity (thousand tons/year)	Required capacity (thousand tons/year)
Biological Treatment	188	<1
Chemical Precipitation	813	<1
Combustion of Liquids	696	<1
Combustion of Sludges and Solids	301	76
Stabilization	1,204	15

2. Required Capacity for Petroleum Refining Wastes (F037 and F038)

EPA is proposing treatment standards for F037 and F038 nonwastewaters that are based on a transfer of the performance of the technologies previously established for K048–K052 nonwastewaters (55 FR 22520). Nonwastewater treatment standards for F037 and F038 wastes are based on solvent extraction or thermal desorption, and incineration for organic constituents, and stabilization for metals. EPA is proposing to transfer multi-source leachate (F039) wastewater performance to F037 and F038. That is, for F037 and F038 wastewaters, the proposed standards are based on biological treatment for organics and chemical precipitation for metals.

The capacity analysis for the F037 and F038 petroleum refining wastes was conducted using information collected from a number of data sources. The primary data sources include data submitted voluntarily from refineries, the F037 and F038 Regulatory Impact Analysis (RIA), from the listing of the F037 and F038 wastes, the Petroleum Refinery Data Base (PRDB), the TSDR Survey, and the Generator Survey.

The RIA was prepared by EPA in 1990 in support of the listing rule for F037 and F038 wastes (55 FR 46354). The RIA includes in industry overview and profile of facilities affected by the listings, an analysis of baseline waste management practices, and regulatory compliance scenarios. The PRDB is based on a mail survey conducted by EPA in 1983 and has been updated to contain 1985 refining information. The TSDR Survey and Generator Survey were discussed previously (in the introduction to section VI).

Supplemental data sources include two reports prepared by Midwest Research Institute (MRI), which support the F037 and F038 listing and the Toxicity Characteristic (TC) rule, and which summarize sampling and analysis data collected by EPA for 16 petroleum refining facilities; no-migration petitions submitted by petroleum refineries for land treatment units; and the California Hazardous Petroleum Waste Data Base, which contains information on wastes that fit the F037 and F038 definition.

Using the available data and the Agency's best engineering judgment, EPA developed estimates of F037 and F038 waste volumes based on current management practices as well as options for alternative management due to the LDR requirements. The Agency also developed estimates of available on-site treatment/recovery capacity and evaluated information submitted by refineries and treatment technology vendors on the viability of constructing on-site treatment/recovery capacity and the time that would be required to make such additions.

EPA estimates that approximately 74,000 tons per year of dewatered F037 and F038 wastes (nonwastewaters) from routine waste treatment will require alternative treatment. The Agency also considered the accumulated sludge quantities in surface impoundments, but believes that this waste will either be disposed of prior to the LDR effective date or will be managed by on-site closure of surface impoundments. Although there apparently is treatment capacity sufficient to accommodate these wastes, there is a complexity factor due to the fact that many of these wastes are generated in unretrofitted impoundments (i.e., impoundments not satisfying the minimum technology requirements specified in sections 3004(o) and 3005(j)(11)). These wastes would thus be land disposed in a prohibited manner before they are treated. These impoundments can of course be retrofitted or replaced with tank systems, but not by the effective date of this rule, or for some time thereafter. See RCRA section 3005(j)(6), allowing four years to retrofit or close impoundments receiving newly identified or listed wastes (and no other hazardous wastes). Because alternative treatment or storage capacity that could accommodate these wastes before they are land disposed is not available, EPA is proposing a national capacity variance for F037 and F038 wastes generated in surface impoundments.

The lack of alternative storage/treatment capacity raises two significant legal issues. The first is that during the period of a national capacity variance, restricted wastes disposed in surface impoundments can only do so in impoundments meeting the minimum technology requirements of section 3005(j). See § 268.5(h), RCRA section 3004(h)(4) and *Mobil Oil* v. *EPA*, 871 F. 2d 149 (D.C. Cir. 1989). On the other hand, section 3005(j)(6) states that impoundments receiving newly identified or listed hazardous wastes have up to four years from the date of promulgation of the rule making the waste hazardous to retrofit or close the impoundment. As will be described more fully in another **Federal Register** notice, EPA believes tentatively that these provisions are in irreconcilable conflict, and accordingly that EPA has significant discretion in determining how best to interpret them. The Agency further intends to propose that in the case of wastes subject to a national capacity variance, that impoundments managing such wastes (and no other wastes subject to an earlier prohibition) that the impoundments still have four years to retrofit or close.

EPA is using that same resolution here. However, this is not the only issue to reconcile in the present proceeding. This is because there is available treatment capacity for these petroleum refining wastes. In such cases, the strong statutory policy is to treat hazardous wastes rather than allow them to be land disposed. See RCRA sections 1002(7) and 1003 (4), (5), and (6). Although land disposal in impoundments remains necessary during the four year period allocated by statute for retrofitting, the Agency does not see why the wastes have to stay in the impoundments untreated for that period. They can be removed and sent for the mandated treatment. In this regard, section 3005(j)(11) requires that hazardous wastes in retrofitted impoundments be removed annually for treatment. The required annual sludge removal practice would be compatible with continuous use of the surface impoundment and would not require that they be taken out of service to conduct sludge removal. The Agency is of the initial view that the same result should apply to the unretrofitted impoundments holding restricted wastes for which treatment capacity exists. The Agency's initial view is that this is a reasonable resolution of the conflict between sections 3004(h) and 3005(6) in that it gives maximum effect to both the policy to use treatment where treatment is available, but not eliminating the four year retrofit period for impoundments receiving exclusively newly identified and listed wastes. EPA requests comment on this issue.

EPA is also considering a similar resolution with respect to closing those impoundments that choose to close

rather than to retrofit at the end of the four-year period. The Agency is considering prohibiting impoundments from leaving prohibited wastes in place when they close if capacity is available to treat the wastes. Thus, if there is treatment available, the impoundments must be clean closed. In this way, not only is the statutory goal of treatment accommodated, but hazardous wastes are not left in the least secure type of land disposal unit for an indefinite period, raising the very environmental concerns that the land disposal prohibitions were enacted to prevent (RCRA sections 3004(d)(1) (A)–(C) and 1002(7)). Consequently, EPA may limit the options available for impoundments managing wastes for which there is available treatment to retrofitting or clean closure. Owners and operators would, however, have up to four years from the date of promulgation of the rule listing or identifying the waste to make these changes. The Agency requests comment on this issue; in responding to this issue, the Agency specifically requests comment on how much additional F037 and F038 would become subject to LDRs if such impoundments were requested to clean close.

Thus, the estimate of the total F037 and F038 waste generation requiring alternative treatment is 74,000 tons per year (nonwastewaters). There are no data indicating that any land-disposed wastewaters will require alternative treatment, and therefore this volume is assumed to be zero.

Based on the estimate that 74,000 tons per year of dewatered F037 and F038 wastes will require alternative treatment, EPA believes that there is adequate capacity for the treatment of all land disposed F037 and F038 wastes, except those wastes that are generated in surface impoundments; therefore, EPA is proposing to grant a national capacity variance only for F037 and F038 wastes that are generated in surface impoundments. EPA is not proposing a variance for other nonwastewaters or for wastewaters.

3. Required Capacity for Other Newly Listed Organic Wastes

This section presents EPA's analysis of required capacity for other newly listed organic wastes including organic U waste, UDMH wastes, toluene diisocyanate (TDI) wastes, ethylene dibromide (EDB) wastes, ethylenebisdithiocarbamic (EBDC) wastes, and methyl bromide wastes.

(a) Organic U Wastes (U328, U353, and U359).

U328—Ortho-toluidine
U353—Para-toluidine
U359—2-Ethoxyethanol

For U328, U353 wastes, EPA is proposing to establish incineration or thermal destruction as methods of treatment for the nonwastewater forms of these waters, and chemical oxidation followed by either biological treatment or carbon adsorption as methods of treatment for the wastewater forms of these wastes. For U359, EPA is proposing to establish concentration standards based on incineration for the nonwastewaters and incineration or chemical oxidation followed by carbon adsorption or biodegradation for the wastewaters.

Generation and management information of the organic U wastes was collected by EPA during 1990 and early 1991 under the authority of section 3007 in RCRA. This capacity analysis incorporates data from that section 3007 information request.

The Agency estimates that less than 100 tons of U328, U353, and U359 wastes are being land disposed and require further treatment. Most of the U359 waste generated in 1989 was incinerated on-site, and the remainder (less than one percent) was incinerated off-site. In addition, unspecified and variable volumes of untreated wastewater contaminated with U359 are reportedly generated on occasion at one generator's facility, however this wastewater undergoes biological treatment on site. Because these wastes are rejected products, and the product has a market value, the Agency believes these wastes would be generated in small volumes.

Based on the available data (see Table VI.B.1), EPA believes that sufficient capacity exists for treatment of the U328, U353, and U359 wastes; therefore, EPA is not proposing to grant a national capacity variance for U328, U353, and U359 wastewaters or nonwastewaters.

(b) UDMH Wastes (K107, K108, K109, K110).

K107—Column bottoms from product separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides.
K108—Condensed column overheads from product separation and condensed reactor vent gases from the production of UDMH for carboxylic acid hydrazines.
K109—Spent filter cartridges from product purification from the production of UDMH for carboxylic acid hydrazines.
K110—Condensed column overheads from intermediate separation from product purification from the production of UDMH for carboxylic acid hydrazines.

For UDMH wastes, EPA is proposing to establish incineration as the method of treatment for the nonwastewaters, and incineration or chemical oxidation followed by carbon adsorption as methods of treatment for the wastewaters.

EPA listed four UDMH waste (K107, K108, K109, K110) that are generated from the production of UDMH (unsymmetrical dimethylhydrazine, or 1,1-dimethylhydrazine) from carboxylic acid hydrazides. Also, some of these wastes are ignitable or corrosive and as such are currently subject to LDR standards.

Generation and management information concerning the UDMH wastes was collected by EPA during 1990 and early 1991 under the authority of section 3007 in RCRA. This capacity analysis incorporates data from that section 3007 information request.

The response to the section 3007 request noted that the only manufacturer who used the proprietary process generating UDMH wastes has ceased UDMH production. Therefore, the Agency assumes that no UDMH will require treatment prior to land disposal.

Based on available data, EPA believes that sufficient capacity exists for treatment of the UDMH wastes; therefore, EPA is not proposing to grant a national capacity variance for K107, K108, K109, and K110 wastewaters and nonwastewaters.

(c) Toluene Diisocyanate Wastes (K111–K112).

K111—Product washwaters from the production of dinitrotoluene via nitration of toluene.
K112—Reaction by-product water from the drying column in the production of toluenediamine via hydrogenation of dinitrotoluene.

For toluene diisocyanate (TDI) wastes, EPA is proposing to establish incineration as the method of treatment for nonwastewaters, and incineration or chemical oxidation followed by carbon adsorption as methods of treatment for wastewaters.

Generation and management information concerning the TDI wastes was collected by EPA during 1990 and early 1991 under the authority of section 3007 in RCRA. This capacity analysis incorporates data from that section 3007 information request. In addition, the Agency has contacted other facilities in order to obtain further information concerning K111 and K112 waste generation, management practices, and residuals.

The Agency has identified less than 100 tons of K111 and K112 nonwastewaters and no K111 or K112 wastewaters requiring alternative treatment. The majority of the K111 and K112 wastes generated are currently treated using a variety of alternative

treatment or recovery methods and discharged through NPDES. The data indicate that the residuals from treatment of K111 and K112 were further treated before being land disposed.

Based on available data (see Table VI.B.1), EPA believes that sufficient capacity exists for treatment of the TDI wastes; therefore, EPA is not proposing to grant a national capacity variance for K111 and K112 wastewaters or nonwastewaters.

(d) Ethylene Dibromide (EDB) Wastes (K117–K118, K136).

K117—Wastewaters from the reactor vent gas scrubber in the production of ethylene dibromide (EDB) via the bromination of ethene.

K118—Spent absorbent solids from the purification of EDB produced by bromination of ethene.

K136—Still bottoms from the purification of EDB.

For K117, K118, and K136 wastes, EPA is proposing to establish concentration-based standards based on a transfer of data used to calculate the U029 (bromomethane), U030 (4-bromophenyl phenyl ether), U066 (1,2-dibromo-3-chloropropane), U067 (ethylene dibromide, EDB), U068 (dibromomethane) and U225 (bromoform) Third Third Rule standards for nonwastewaters and wastewaters.

Generation and management information concerning EDB wastes was collected by EPA during 1990 and early 1991 under the authority of section 3007 in RCRA. This capacity analysis incorporates data from that section 3007 information request. In addition, the Agency reviewed information provided in response to the ANPR (56 FR 24444).

Based on the available information, EPA has identified 1,650 tons of nonwastewater residuals from treatment of K118 that is currently land disposed and will require alternative treatment. K118 wastewater streams currently undergo treatment before disposal, and EPA has identified no K117 or K136 waste generation.

Based on available data and using incineration as the treatment technology (see Table VI.B.1), the Agency believes that sufficient capacity exists for treatment of the EDB wastes, and, therefore, the Agency is not proposing to grant a national capacity variance for K117, K118, and K136 wastewaters or nonwastewaters.

(e) Ethylenebisdithiocarbamic (EBDC) Wastes (K123, K124, K125, and K126).

K123—Process wastewater (including supernates, filtrates, and washwaters) from the production of ethylenebisdithiocarbamic acid (EBDC) and its salts.

K124—Reactor vent scrubber water from the production of EBDC and its salts.

K125—Purification solids (including filtration, evaporation, and centrifugation solids) from the production of EBDC and its salts.

K126—Baghouse dust and floor sweepings in milling and packaging operations from the production or formulation of EBDC and its salts.

For EBDC wastes, EPA is proposing to establish incineration or thermal destruction as the method of treatment for nonwastewaters, and incineration, thermal destruction, or chemical oxidation followed by activated carbon as methods of treatment for wastewaters.

Generation and management information concerning the EBDC wastes was collected by EPA during 1990 and early 1991 under the authority of section 3007 in RCRA. This capacity analysis incorporates data from that section 3007 information request.

The Agency has identified less than 100 tons of K125 nonwastewaters which are currently land disposed and will require alternative treatment; no volumes of K123, K124, or K126 wastes are currently being land disposed, and there is no generation of K125 wastewaters, K124 wastes, or K126 wastes.

Based on available data, EPA believes, sufficient capacity exists for treatment of the EBDC wastes; therefore, EPA is not proposing to grant a national capacity variance for K123, K124, K125, and K126 wastewaters or nonwastewaters.

(f) Methyl Bromide Wastes (K131 and K132).

K131—Wastewater from the reactor and acid dryer from the production of methyl bromide.

K132—Spent adsorbent and wastewater separator solids from the production of methyl bromide.

For methyl bromide wastes, the Agency is proposing concentration-based standards based on standards promulgated for U029 (methyl bromide) in the Third Third rulemaking.

Generation and management information of the methyl bromide wastes was collected by EPA during 1990 and early 1991 under the authority of section 3007 in RCRA. This capacity analysis incorporates data from that section 3007 information request. In addition, the Agency reviewed information provided in response to the ANPR (56 FR 24444).

EPA has identified no K131 wastes or K132 wastewaters currently being land disposed and less than 100 tons of K132 nonwastewaters being land disposed and requiring alternative treatment or recovery. All identified K131 wastes currently generated are sent off site for acid reclamation. EPA identified less than ten tons of K132 nonwastewaters that are steam stripped before being landfilled off-site.

Based on available data and using incineration as the treatment technology (see Table VI.B.1), the Agency believes that sufficient treatment capacity exists for treatment of the methyl bromide wastes; therefore, EPA is not proposing to grant a national capacity variance for K131 and K132 wastewaters or nonwastewaters.

C. Required and Available Capacity for Newly Listed Wastes Mixed With Radioactive Contaminants

EPA has defined a mixed RCRA/radioactive waste as any matrix containing a RCRA hazardous waste and a radioactive waste subject to the Atomic Energy Act (53 FR 37045, 37046, September 23, 1986). Regardless of the type of radioactive constituents that these wastes contain (e.g., high-level, low-level, or transuranic), they are subject to the RCRA hazardous waste regulation, including the land disposal restrictions.

Radioactive wastes that are mixed with spent solvents, dioxins, California list wastes, or First Third, Second Third, and Third Third wastes are subject to the land disposal restrictions already promulgated for those hazardous wastes. EPA granted national capacity variances for all of these wastes because of a lack of national treatment capacity. Today's rule addresses the radioactive wastes that contain newly listed hazardous wastes being restricted in today's rulemaking.

Based on comments received from previous rulemakings and from the ANPR (56 FR 24444), the Department of Energy (DOE) is the primary generator of mixed RCRA/radioactive wastes. A variety of non-DOE facilities also may generate these mixed RCRA/radioactive wastes, including nuclear power plants, academic and medical institutions, and industrial facilities.

After reviewing the data, EPA believes there is uncertainty about exactly how much mixed wastes are produced, although comments indicated in the ANPR that volumes generated are small. Although DOE is in the process of increasing its capacity to treat mixed RCRA/radioactive wastes, data supplied by DOE indicate a significant current capacity shortfall for the treatment of all already generated and stored mixed RCRA/radioactive wastes (i.e., spent solvents, wastes mixed with dioxins, California list wastes, and First,

Second, and Third Third wastes). EPA's review of non-DOE data sources showed a significant lack of commercial treatment capacity as well. In addition, the quantities of mixed radioactive wastes containing newly listed wastes are uncertain. Consequently, the volumes of mixed radioactive wastes requiring commercial treatment cannot be predicted. Although this uncertainty exists, any new commercial capacity that becomes available will be needed for mixed radioactive wastes that were regulated in previous LDR rulemakings and whose variances expire by May 1992. Thus, EPA has determined that sufficient alternative treatment capacity is not available and is proposing to grant a two-year national capacity variance for mixed RCRA/radioactive wastewaters and nonwastewaters contaminate with newly listed wastes whose standards are being proposed today.

D. Required and Available Capacity for Debris Contaminated with Newly Listed Wastes

This capacity analysis focuses on debris contaminated with wastes whose treatment standards are proposed herein.[38] An estimated 80 percent of all debris contaminated with previously regulated wastes is presently disposed in hazardous waste landfills without prior treatment and will require treatment after May 8, 1992.[39] In order to determine the available capacity to treat debris with wastes covered by this rule, EPA has assumed that any new commercial capacity that becomes available will be needed for debris that is contaminated with wastes regulated in previous LDR rulemakings and whose variances expire by May 1992.

EPA used several data sources to estimate the total volume of land-disposed contaminated debris. These sources include: responses to the ANPR for the newly listed and identified wastes (56 FR 24444); information provided during a series of roundtable meetings held by the Agency in May and June of 1991 with representatives of companies involved in the management and disposal of contaminated debris; Records of Decision (RODs) of Superfund sites; the National Survey of Treatment, Storage, Disposal and Recycling Facilities (TSDR Survey); and the National Survey of Hazardous Waste Generators (Generator Survey).[40]

In general, EPA found severe limitations in estimating the total volume of contaminated debris because the available data are incomplete and poorly defined. The reason for this lack of comprehensive data is several-fold: First, the regulated community reported that their data generally are not classified by debris but rather by waste code and waste description; second, the data from the TSDR and Generator Surveys were not collected and categorized specifically for debris; and debris were often mixed with soils,[41] and were frequently contaminated with more than one waste, thereby making the contaminated debris matrix and volume determinations difficult; third, TSDR and Generator Surveys do not include data on debris contaminated with newly listed and identified wastes because they were not considered hazardous wastes in 1986; and fourth, debris that have been cleaned [decontaminated] are generally not reported as hazardous wastes because they are no longer considered contaminated debris.

1. Waste Generation

The capacity analysis in today's proposed rule is based on data received in response to the ANPR for wastes covered in this proposal, the industry roundtable meetings, and the TSDR and Generator Surveys. For the total of currently land-disposed debris contaminated with RCRA hazardous wastes, EPA's most likely estimate is approximately one million tons per year based on the reported percentage of the total of all hazardous waste land disposed. EPA solicits comment on its estimate of the quantity of contaminated debris that is land disposed. Comments from the roundtable meetings indicate that decommissioning of large chemical plants and increasing remediation activities can significantly increase the estimated volume of contaminated debris.

The largest volume of debris generated from routine operations and contaminated with wastes covered in this proposal results from debris contaminated with F037 and F038 petroleum refining wastes. EPA's estimate for this volume is 8000 tons per year. In addition, industry response to the ANPR indicates that additional volumes of debris contaminated with F037 and F038 wastes may be generated from modernization of petroleum refinery sewer and wastewater systems. EPA's estimate for debris contaminated with the remainder of wastes covered in this proposal is less than 2,000 tons per year.

2. Current Management Practices

Waste generators and TSDFs report that most of the contaminated debris volumes are currently landfilled without prior treatment. Stabilization or incineration are the reported treatment technologies for the small amounts of contaminated debris that are treated prior to landfilling. However, EPA has received information that materials-handling problems may limit the quantity of contaminated debris that currently can be treated by stabilization and incineration. Specifically, the size of many types of debris must be reduced before they can be treated (e.g., by shredding or grinding). However, heavy duty equipment such as shredders and grinders are generally not part of the treatment process at hazardous waste treatment facilities and could be difficult to install prior to the effective date of this rule, although EPA is exploring options that will expedite the permitting process for such equipment. Consequently, the available capacity to treat contaminated debris may initially be limited. In addition, large volumes of materials that are currently cleaned (decontaminated) and then managed as nonhazardous wastes may require additional management as contaminated debris.

3. Available Capacity and Capacity Implications

EPA is proposing that contaminated debris be treated prior to land disposal using one or more of the following families of debris treatment: Extraction, destruction, or immobilization. While materials-handling problems may limit the available destruction (e.g., incineration) and immobilization (e.g., stabilization) capacities, inadequate capacity exists for many of the proposed technologies in the extraction family. Much of the capacity of extraction technologies currently used to decontaminate debris, such as water washing and steam cleaning, will not be permitted prior to the effective date of

[38] UDMH (K107–K110), dinitrotoluene (K111), toluene diamine (K112), ortho and para toluidine, ethylene dibromide, methyl bromide, 2-ethoxy ethanol (U359), ethylene bis-dithiocarbamic acid, and F307 and F038 petroleum refining wastes.

[39] Previously regulated wastes include solvents and dioxin wastes, California list wastes, and First Third, Second Third, and Third Third wastes. EPA has granted national capacity variances to soil and debris contaminated with First Third, Second Third, and Third Third wastes. The variances for debris contaminated with Third Third wastes will expire on May 8, 1992.

[40] EPA conducted the surveys during 1987 and 1988 to obtain comprehensive data on the nation's capacity for managing hazardous waste and the volumes of hazardous waste being land disposed as well as data on waste generation, waste characterization, and hazardous waste treatment capacity in units exempt from RCRA permitting.

[41] Data submitted by TSDFs in roundtable meetings sometimes combine contaminated debris with soil. Furthermore, TSDFs have stated that historical waste data are generally not kept by debris classifications.

this rule, although EPA is exploring options to expedite the permitting of these technologies. In conclusion, EPA anticipates that the capacity available to treat contaminated debris at the time this rule becomes effective will be limited.

EPA is proposing to grant a two-year national capacity variance for debris contaminated with newly listed wastes. The treatment capacity available for contaminated debris will be very limited due to the very large quantities of debris contaminated with previously listed wastes requiring treatment at the same time this rule becomes effective. This variance would allow sufficient time for the installation and permitting of the treatment systems necessary to handle the quantities of contaminated debris affected by this rule.

As discussed above, by May 8, 1992, all the capacity variances will expire for as much as 800,000 tons of debris contaminated with previously regulated wastes. This date is coincidental to the effective date of standards proposed for these newly listed and identified wastes. Any new commercial capacity will be needed for debris that is contaminated with wastes regulated in previous LDR rulemakings and whose variances expire by May 1992. This, as well as the condition that required materials handling equipment (such as grinding) has not come on-line or may be delayed, is the basis of our qualitative argument. The Agency solicits comments on this approach and on estimates of available treatment capacity.

E. Capacity Determination for Underground Injected Wastes

As explained in previous preambles concerning land disposal restrictions (see, e.g., 52 FR 32450, August 27, 1987; 53 FR 30912, August 16, 1988; 55 FR 22520, June 1, 1990), EPA is allocating available capacity first to those wastes disposed in surface units, next to wastes resulting from CERCLA and RCRA clean ups, and finally to underground injected wastes. Based on this approach, the Agency is proposing the following effective dates for injected wastes.

1. Newly Listed Wastes With Proposed Treatment Standards Which Current Data Indicate Are Not Being Injected

The wastes K107, K108, K109, K110, K111, K112, K123, K124, K125, K126, K136, U328, U353 and U359 are the newly listed wastes, for which numerical standards or specified methods are being proposed, and which current data indicate are not being underground injected. Therefore, EPA is proposing that these wastes be prohibited from underground injection upon the date of final promulgation of this rule. The Agency requests comment on whether any of these wastes are being injected; comment is also requested on what quantities of wastes are being injected, and on the characteristics of these wastes.

2. Newly Listed Wastes With Proposed Treatment Standards Which Current Data Indicate Are Being Injected

The wastes F037, F038, K117, K118, K131, and K132 are the newly listed wastes for which current data indicate are being underground injected by UIC Class I hazardous waste injection wells. The treatment standards for F037 and F038, petroleum refining wastes, are based upon transfer of the performance of technologies previously established for K048–K052 wastes. Based on the Hazardous Wastes Injection Wells Inventory data base, EPA believes that F037 and F038 wastes are being underground injected yearly by permitted injection wells. Although the amount of F037 and F038 so disposed is uncertain, EPA believes that it is relatively small and therefore, the Agency believes that there is adequate alternative treatment capacity for these wastes. Based on preliminary evaluation of data received during the comment period of the ANPR, and the Agency believes that there is adequate available alternative treatment capacity for the currently injected volumes of K117, K118, K131, and K132 wastes assuming segregation of K117, K118, K131, and K132 source wastewaters from the other process waters.

Therefore, the Agency is not proposing to grant any national capacity variances for any underground injected F037, F038, K117, K118, K131, and K132 wastes, and is proposing that these wastes be prohibited from underground injection upon the date of final promulgation of this rule. The Agency specifically requests comments on volumes and characteristics of these wastes being injected, and current and planned management.

VII. State Authority

A. Applicability of Rules in Authorized States

Under section 3006 of RCRA, EPA may authorize qualified States to administer and enforce the RCRA program within the State. Following authorization, EPA retains enforcement authority under sections 3008, 3013, and 7003 of RCRA, although authorized States have primary enforcement responsibility. The standards and requirements for authorization are found in 40 CFR part 271.

Prior to the Hazardous and Solid Waste Amendments of 1984 (HSWA), a State with final authorization administered its hazardous waste program in lieu of EPA administering the Federal program in that State. The Federal requirements no longer applied in the authorized State, and EPA could not issue permits for any facilities that the State was authorized to permit. When new, more stringent Federal requirements was promulgated or enacted, the State was obliged to enact equivalent authority within specified time frames. New Federal requirements did not take effect in an authorized State until the State adopted the requirements as State law.

In contrast, under RCRA section 3006(g) (42 U.S.C. 6926(g)), new requirements and prohibitions imposed by HSWA take effect in authorized States at the same time that they take effect in nonauthorized States. EPA is directed to carry out these requirements and prohibitions in authorized States, including the issuance of permits, until the State is granted authorization to do so. While States must still adopt HSWA-related provisions as State law to retain final authorization, HSWA applies in authorized States in the interim.

Today's rule is being proposed pursuant to sections 3004 (d) through (k), and (m), of RCRA (42 U.S.C. 6924 (d) through (k), and (m)). It is proposed to be added to Table 1 in 40 CFR 271.1(j), which identifies the Federal program requirements that are promulgated pursuant to HSWA and that take effect in all States, regardless of their authorization status. States may apply for either interim or final authorization for the HSWA provisions in Table 1, as discussed in the following section of this preamble. Table 2 in 40 CFR 271.1(j) is also proposed to be modified to indicate that this rule is a self-implementing provision of HSWA.

EPA is also proposing the new management unit, containment buildings, which involves redefinition of the term "pile," pursuant to HSWA. This proposed provision would assure adequate means of implementing the treatment standards, either by providing a means that treatment can occur without constituting impermissible land disposal, or by providing a safe staging area that would not constitute land disposal before best treatment. Cf. 56 FR at 41175 (August 19, 1991) (portion of rule assuring availability of capacity adopted pursuant to HSWA). Thus, this portion of the rule would also be adopted pursuant to HSWA and take effect immediately in authorized States.

B. Effect on State Authorization

As noted above, EPA is today proposing a rule that, when final, will be implemented in authorized States until their programs are modified to adopt these rules and the modification is approved by EPA. Because the rule is proposed pursuant to HSWA, a State submitting a program modification may apply to receive either interim or final authorization under RCRA section 3006(g)(2) or 3006(b), respectively, on the basis of requirements that are substantially equivalent or equivalent to EPA's. The procedures and schedule for State program modifications for either interim or final authorization are described in 40 CFR 271.21. It should be noted that HSWA interim authorization will expire on January 1, 1993 (see 40 CFR 271.24(c)).

Section 271.21(e)(2) requires that States that have final authorization must modify their programs to reflect Federal program changes and must subsequently submit the modification to EPA for approval. The deadline by which the State would have to modify its program to adopt these regulations is specified in § 271.21(e). The deadline would be July 1, 1993 if this rulemaking is finalized before June 30, 1992. This deadline can be extended in certain cases (see § 271.21(e)(3)). Once EPA approves the modification, the State requirements become Subtitle C RCRA requirements.

States with authorized RCRA programs may already have requirements similar to those in today's proposed rule. These State regulations have not been assessed against the Federal regulations being proposed today to determine whether they meet the tests for authorization. Thus, a State is not authorized to implement these requirements in lieu of EPA until the State program modifications are approved. Of course, states with existing standards could continue to administer and enforce their standards as a matter of State law. In implementing the Federal program, EPA will work with States under agreements to minimize duplication of efforts. In many cases, EPA will be able to defer to the States in their efforts to implement their programs rather than take separate actions under Federal authority.

States that submit official applications for final authorization less than 12 months after the effective date of these regulations are not required to include standards equivalent to these regulations in their application. However, the State must modify its program by the deadline set forth in § 271.21(e). States that submit official applications for final authorization 12 months after the effective date of these regulations must include standards equivalent to these regulations in their application. The requirements a state must meet when submitting its final authorization application are set forth in 40 CFR 271.3.

The regulations being proposed today need not affect the State's Underground Injection Control (UIC) primacy status. A State currently authorized to administer the UIC program under the Safe Drinking Water Act (SDWA) could continue to do so without seeking authority to administer the amendments that will be promulgated at a future date. However, a State which wished to implement Part 148 and receive authorization to grant exemptions from the land disposal restrictions would have to demonstrate that it had the requisite authority to administer sections 3004 (f) and (g) of RCRA. The conditions under which such an authorization may take place are summarized below and are discussed in a July 15, 1985 final rule (50 FR 28728).

VIII. Effect of Proposed Rule on Other Environmental Programs

A. Discharges Regulated Under the Clean Water Act

As a result of the LDR program, some generators might switch from land disposal of restricted wastes to discharge of the wastes to publicly-owned treatment works (POTWs) to avoid incurring the costs of alternative treatment. Also as a result of LDRs, additional hazardous waste generators might discharge their wastes to surface waters. Any shift from land disposal to direct or indirect discharge has some potential to impact local ecosystems.

B. Discharges Regulated Under the Marine Protection, Research, and Sanctuaries Act

There could have been a potential demand for some of the hazardous wastes included in today's proposed rulemaking to be shifted from land disposal to ocean dumping and ocean-based incineration. If the cost of ocean-based disposal plus transportation were lower than the cost of land-based treatment, disposal, and transportation, this option could seem to be an attractive alternative. In addition, ocean-based disposal could seem attractive to the regulated community if land-based treatment were not available.

However, the Ocean Dumping Ban Act of 1988 has restricted ocean dumping of sewage sludge and industrial wastes to existing authorized dumpers until December 31, 1991, after which "* * * it shall be unlawful for any person to dump (sewage sludge or industrial wastes) into ocean waters * * *". Therefore, the Ocean Dumping Ban Act has made moot any economic or other incentive to ocean dump industrial hazardous wastes, including the wastes subject to this regulation.

C. Groundwater Protection Principles

In July 1989, EPA Administrator Reilly established a Groundwater Task Force chaired by Deputy Administrator Habicht to develop concrete principles and objectives to ensure effective and consistent decisionmaking in all Agency decisions affecting groundwater. The outcome of this effort is the current EPA Groundwater Protection Strategy, intended to set forth an aggressive approach to protecting the nation's currently used and reasonably expected to be used groundwater resources and direct the course of the Agency's efforts over the coming years. The final strategy was released on May 8, 1991.

The Groundwater Protection Strategy sets forth a statement of EPA groundwater principles that has as its overall goal the prevention of adverse affects to human health and the environmental integrity of the nation's currently used and reasonably expected to be used groundwater resources. The strategy also provides for the Groundwater Regulatory Cluster which will implement the strategy. This proposed rule is part of the Groundwater Regulatory Cluster and will integrate the groundwater principles on prevention, remediation, and federal, state and local responsibilities. For this proposed rule, the applicable principles of the strategy deal with prevention and the appropriate federal and state roles in implementation.

This proposed rule incorporates and is consistent with the groundwater protection principles. This is a source control rule supporting prevention of groundwater contamination. This proposed rule restricts certain wastes and contaminated debris to be disposed of only after treatment, thereby providing protection of groundwater at disposal sites.

With respect to prevention, the strategy specifies that groundwater should be protected to ensure that the nation's currently used and reasonably expected to be used drinking water supplies, both public and private, do not present adverse health effects. Groundwater that is hydrologically connected to surface water should also be protected to the extent that it does not interfere with the attainment of surface water quality standards, which

are designed to protect the integrity of associated ecosystems. Groundwater protection could be achieved through a variety of means including: Pollution prevention programs, source control, siting controls, the designation of wellhead protection areas and future water supply areas, and the protection of aquifer recharge areas.

With respect to federal, state and local responsibilities, the primary responsibility for developing and implementing comprehensive groundwater protection programs continues to and should be vested with the states. Key supporting principles of the strategy which this proposed rule addresses are: (1) The states should retain the primary responsibility for the management and protection of groundwater resources, and (2) EPA should support states in developing adequate groundwater protection programs. In carrying this out, EPA is committed to identifying opportunities for providing deference to state regulations, standards or policies as implementation objectives.

The relation of this proposed rule to wellhead protection as a method of prevention is described below.

D. Wellhead Protection Under the Safe Drinking Water Act (SDWA)

Section 1428 of the SDWA contains requirements for the development and implementation of state Wellhead Protection (WHP) Programs to protect wells and wellfields which are used or may be used to provide drinking water to public systems. Under section 1428, each state must adopt and submit to EPA for approval a WHP program. These state WHP programs are major components of states' comprehensive approach to groundwater protection described in the groundwater protection principles defining federal/state relationships.

SDWA required all states to submit a WHP program to EPA by June 19, 1989 for EPA review and approval. SDWA requires all federal agencies having jurisdiction over any potential source of contaminants identified by a state program to comply with all the requirements of the state program.

Any private or public entity subject to LDR regulations must also be in compliance with the appropriate state's wellhead protection program. The Agency reiterates that the land disposal of hazardous wastes must comply not only with the land disposal restrictions and other RCRA regulations, but with other environmental programs, such as the Wellhead Protection Program under the Safe Drinking Water Act.

E. Air Emissions Regulated Under the Clean Air Act (CAA)

There are two air emission concerns with respect to the land disposal restrictions. The first is a cross-media concern about air emissions that occur as a result of treatment, such as incineration, of metal-bearing waste causing a release of metal emissions to the atmosphere. Another concern is with air emissions from the land disposal of the treatment residual. Air emissions control programs are under development using both the CAA and RCRA to address these concerns.

1. Cross-media Concerns

Specific cross-media air emissions concerns have been identified for certain treatment standards applicable to the newly listed wastes and contaminated debris included in this proposal, but EPA believes that existing Clean Air Act controls adequately address the potential problems. Incineration of debris containing mercury can result in air emissions of elemental mercury and other hazardous air pollutants that may be "contained-in" the debris. The Agency has promulgated a National Emission Standard for Hazardous Air Pollutants (NESHAP) for mercury emissions under section 112 of the CAA (40 CFR part 61, subpart E). There are also regulations for the prevention of significant deterioration (PSD) of air quality that would address any mercury emissions that are not regulated by the NESHAP.

The NESHAP limits mercury emissions to the atmosphere from mercury processing facilities, mercury cell chlor-alkali plants, and plants that incinerate and/or dry wastewater treatment plant sludges. In all these cases, the NESHAP limits mercury emissions across the entire processing facility to the extent necessary to protect human health.

Under the amendments to the CAA, almost all sources of significant air emissions will be required to apply for and obtain a permit. Permits are required for any major source, any source subject to air toxics regulation and all sources subject to new source performance standards. If the mercury emissions from the incineration of the hazardous waste debris were to come from a major source, a source subject to air toxics regulations or a source subject to NSPS, then such emissions would be limited by conditions specified in the permit and be subject to monitoring, recordkeeping, and reporting requirements.

The Agency is also concerned whether incineration of hazardous waste containing brominated organics or organo-nitrogen compounds, including contaminated debris, may adversely affect air quality. The presence of bromine complicates the evaluation of incineration of these contaminated debris wastes.

2. Air Emissions from Land Disposal of Treatment Residuals

There are several general regulatory development programs under RCRA that address treatment technology air emissions. The Agency has initiated a three-phased program under section 3004(n) of RCRA to address air emissions from hazardous waste management units other than incinerators. The first phase addresses organic air emissions as a class from two types of emission sources. The first source category is process equipment (pumps, valves, etc.) that contact hazardous waste that contain greater than 10 percent organic compounds, including units such as distillation columns and incinerators. The second source category is certain vents on various treatment technologies, such as air or steam strippers. These standards were finalized in the **Federal Register** on June 21, 1990 (55 FR 25454).

The second phase of standards development under section 3004(n) of RCRA addresses organic air emissions as a class from tanks, containers, and surface impoundments. Treatment technologies that occur in tanks or containers that are not controlled by the Phase I standards would be controlled by these standards. With respect to surface impoundments, the Agency has also proposed standards to control air emissions from the management of wastes in them (see 56 FR 33490, July 22, 1991). In the third phase of the section 3004(n) standards development, the Agency will develop additional standards for the sources addressed in the first two phases as necessary to address residual risks.

In addition to the section 3004(n) standards, standards to control both organic and metal emissions from the combustion of hazardous waste in incinerators and boilers and industrial furnaces have been promulgated.

In particular, on February 21, 1991 (56 FR 7134), EPA promulgated regulations expanding controls on hazardous waste combustion to regulate air emissions from the burning of hazardous waste in boilers and industrial furnaces. The final rule limits emissions of toxic organic compounds, toxic metals, hydrogen chloride, chlorine gas, and particulate matter from boilers and industrial furnaces burning hazardous waste.

In certain cases, waste treatment may occur using treatment technologies or in units that are not required to obtain RCRA permits. Guidance for the control of air emissions from these sources, such as exempt biological treatment tanks, is being developed under the CAA.

None of the regulatory efforts discussed above specifically address air emissions from the land disposal of treatment residuals in landfills, land treatment units, or waste piles because the Agency presently presumes that these units will only receive wastes that have been treated to meet the BDAT treatment standards and, thus, not present an air emissions problem. However, while the Agency is still evaluating whether such standards are needed for landfills, land treatment units, or waste piles, EPA has proposed new standards and amendments to existing standards that would reduce organic air emissions from certain tanks, surface impoundments, and containers. See 56 FR 33490, July 22, 1991. The Agency is also developing a proposed rule to limit air emissions from land disposal units seeking to land dispose of wastes under a no migration variance.

F. Clean Up Actions Under the Comprehensive Environmental Response, Compensation, and Liability Act

LDRs for contaminated debris may have significant effects on the selection and implementation of response actions that are taken under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). However, it should be noted that EPA's proposed treatment standards for debris will limit that impact, compared to existing standards.

The clean-up standard set at CERCLA sites are risk-based, while LDR treatment standards are technology-based. Therefore, the technology-based treatment standards may be more or less stringent than the risk-based clean-up standards developed based on the CERCLA selection of remedy criteria. However, if the remedial action did not involve "placement" of the waste on the ground, then only the risk-based clean-up standards would be applicable. If "placement" were to occur, then the more stringent standard would apply.

It should be noted that even though the hazardous substances at a CERCLA remediation site may have been disposed prior to the effective date of RCRA, if the action involves removal of wastes subject to RCRA LDRs after the prohibition effective date for those wastes, the land disposal restrictions are legally applicable (51 FR 45077, November 7, 1986). See also *Chemical Waste Management* v. *EPA*, 869 F.2d at 1535–37 (D.C. Cir. 1989). For example, if contaminated debris is excavated from a unit, treated, and redisposed, EPA has indicated that "placement" (see RCRA section 3004(k)) of the waste in a land disposal unit has occurred, and the applicable treatment standards must be met (see 53 FR 51444 and 51445, December 21, 1988). However, if the waste is capped in place, removal or "placement" has not occurred, and the treatment standards are not legally applicable.

G. Applicability of Treatment Standards to Wastes from Pesticides Regulated Under the Federal Insecticide, Fungicide, and Rodenticide Act

A number of pesticide waste generators have been unaware of the LDRs because their industry has not been affected to the same extent as other industries, such as manufacturing. Still these generators might only be regulated under today's proposal to a small extent. Generators of significant quantities of pesticide P and U wastes are farmers and commercial pesticide applicators. The provisions of 40 CFR 262.70 and 268.1 exempt farmers from regulation under the LDR program; however, no such exemption exists for commercial applicators. Such generators of hazardous wastes have traditionally land disposed their pesticide wastes. With the implementation of the Third Third final rule, these generators must comply with LDR requirements when they dispose of a restricted hazardous waste. Under today's proposal, U and P pesticide wastes that contaminate debris would be subject to the new debris treatment standards.

H. Regulatory Overlap of Polychlorinated Biphenyls (PCBs) Under the Toxic Substances Control Act (TSCA) and RCRA

Certain P and U listed wastes contain PCBs. The PCB component of such a waste mixture is regulated primarily under TSCA (although it may also be a California list waste and subject to RCRA regulation), while the listed P or U component of the waste is regulated under RCRA. Such a mixture of listed/PCB waste must meet the applicable requirements under both statutes. If incineration is the specified treatment standard for a contaminated debris, then such a waste must go to an incinerator permitted under both TSCA and RCRA. Any ash residual from incineration must meet the treatment standard for the listed hazardous waste component prior to land disposal. For PCB-containing items, the option to dispose of them in a TSCA landfill would also be an option provided that no RCRA hazardous waste had contaminated the debris.

I. Disposal of Asbestos Regulated Under TSCA

Asbestos is not regulated as a hazardous waste under RCRA, but for today's proposal, asbestos-containing material is an issue. In many instances, asbestos debris will contain hazardous waste. This type of debris can come from a number of sources, including demolition of old manufacturing plants or asbestos abatement activities at hazardous waste management facilities. Generators of asbestos-containing debris would be required to comply with treatment standards specified in section V.K of today's proposal.

IX. Regulatory Requirements

A. Economic Impact Screening Analysis Pursuant to Executive Order 12291

Executive Order No. 12291 requires that regulatory agencies determine whether a new regulation constitutes a major rulemaking and, if so, it requires that the agency conduct a Regulatory Impact Analysis (RIA). An RIA consists of the quantification of the potential benefits, costs, and economic impacts of a major rule. A major rule is defined in Executive Order No. 12291 as a regulation likely to result in:

- An annual effect to the economy of $100 million or more; or
- A major increase in costs or prices for consumers, individuals, industries, Federal, State, and local government agencies, or geographic regions; or
- Significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States based enterprises to compete with foreign based enterprises in domestic or export markets.

The Agency estimated the costs of today's proposed rule to determine if it is a major regulation as defined by the Executive order. The Agency expects today's rule to have an annual incremental effect below $100 million. Also, the Agency does not believe the rule will significantly effect consumers, individuals, industries, Federal, State and local government agencies, or geographic regions, or have significant adverse effects on competition, employment, investment, innovation, or international trade. Therefore, the Agency determines that today's proposed rule is not a major rule.

Because today's proposed rule is not a major rule, the Agency has performed an

Economic Impact Screening Analysis, rather than an RIA, focusing its analyses on the costs and economic impacts of the rule only. The Agency has not assessed the benefits attributable to today's proposed rule.

1. Approach for Petroleum Refining Wastes (F037 and F038)

In the analysis of the petroleum refining wastes, the Agency first reviewed the work completed for the listing of F037 and F038, which EPA promulgated in October 1990, (see 55 FR 46386; subsequently referred to here as the Listing Rule or Listing RIA). [42] At that time, EPA recognized the the listing of F037 and F038 would eventually necessitate treatment of these wastes prior to their disposal, although a slight delay would occur before promulgation of LDR treatment standards for the wastes. Because the composition of F037 and F038 is very similar to that of K048–52 wastes, for which LDRs had been established in the First Third and Third scheduled waste rules, the Listing RIA developed costs, benefits, and economic impacts for the land disposal restrictions for F037 and F038 based on the BDATs previously specified for K048–52.

For the Listing RIA, the Agency assessed the cost and economic impacts by using a compliance scenario that included treatment before land disposal: dewatering of the waste, followed by incineration (either on-site or off-site) or solvent extraction (on-site). EPA estimated that 474,000 tons of F037 and F038 sluges (with an average water content of 55 percent) were generated annually. The costs for the listing and treatment of F037 and F038 were captured for the portion of these wastes not already regulated as hazardous by the Toxicity Characteristic (TC). This portion was estimated to be a volume within the range of 172,000 tons to 330,000 tons annually.

For today's proposed rule, the Agency had updated the volume estimates from the Listing RIA based on additional information obtained on the generation of these wastes as a part of the capacity determination. (See section VI.B for the capacity analysis of F037 and F038). Currently, the Agency projects that the petroleum refining industry generates a total of 173,000 tons of F037 and F038 petroleum sludges annually from routine operations (including F037/38 wastes that also exhibit the toxicity characteristic), of which 117,000 tons are land disposed. EPA has not included aqueous wastes from the dewatering of F037 and F038 in this estimate, because these wastewaters are discharged to POTWs or under provisions of NPDES permits, and thus are not subject to RCRA regulation.

In some cases the Agency used assumptions for waste volumes in the cost analysis which differed from those in the capacity analysis. The capacity analysis estimated 74,000 tons of F037 and F038 would require alternative treatment as a result of today's rule. On-site treatment capacity was expected to be in place for the remaining 99,000 annual tons by the time the rule is final. The cost analysis estimated only 56,000 tons are treated to meet the BDAT standards for this rule in the baseline. This volume is based on a capacity estimate for an earlier point in time, which examined the capacity in use prior to upgrading by facilities to prepare for the final rule's promulgation. The cost analysis therefore includes these facility preparation costs as costs attributed to today's proposed rule, costs that technically need not be considered attributed to this rule. The 56,000 tons per year falls out of the cost analysis because it does not result in any incremental costs for the rule. EPA therefore estimates 117,000 annual tons of F037 and F038 are land-disposed and would require alternative treatment.

The Agency is aware that some additional quantity of petroleum refining wastes is currently managed in surface impoundments, and that these surface impoundments are likely to be replaced, as a result of today's rule, with tank units capable of achieving equivalent wastewater treatment. These surface impoundments were not included in the capacity analysis due to their greater-than-two-year clean out period. Two years is the capacity analysis time window. The Agency does request comments on the potential costs of its proposed requirement that these wastes in unretrofitted surface impoundments be removed and treated annually.

The annual amount of F037 and F038 generated in these replacement units is difficult to predict. The Agency is currently uncertain what the difference in sludge generation rates would be in tanks which are likely to replace the existing surface impoundments. In addition, alterations in the process flow could change both the type and amount of wastes produced at a facility. Furthermore, it is likely that facilities would implement waste minimization practices in conjunction with their switch from surface impoundments to tanks. The Agency specifically solicits information about these wastes and their disposal costs. Late comments on these wastes received in response to the May 31, 1991 ANPR are being considered.

EPA estimates that of the 117,000 annual tons of land disposed F037 and F038, 14 percent is generated and land disposed in California. California has its own LDR program, and under it F037 and F038 waste will be restricted from land disposal as of May 8, 1992 under final standards substantially equivalent to those proposed in today's rule. Therefore, even if federal regulations are not promulgated, F037 and F038 waste would be restricted in this state. As a result, EPA estimates that 100,000 tons annually of F037 and F038 will require treatment prior to land disposal as a result of today's proposed rule.

For the baseline scenario, the Agency estimates that 64 percent of land disposed waste is managed on-site and the remaining 36 percent is sent off-site. Of the waste managed on-site, 95 percent is managed using land treatment and 5 percent is managed using landfilling. Of the waste sent off-site, all is disposed by landfilling.

For the Phase I LDR cost analysis, the Agency made the following assumptions for the off-site post-regulatory compliance scenario: (1) 13 percent of the F037 and F038 volume would be treated off-site, (2) 10 percent of the waste treated off-site would go to incineration at a cost of $1,700 per ton, and the remaining 90 percent would go to cement kilns at a price range from $700 per ton to $1,200 per ton. The post-regulatory scenario assumes disposal of residuals in Subtitle C units.

Estimated volumes of off-site and on-site F037 and F038 wastes provide another example of differing assumptions made for the capacity and economic analyses. The capacity analysis assumes 74,000 tons per year will be treated off-site once the rule is promulgated. The cost analysis assumes approximately 13,000 tons per year is treated off-site in the post-regulatory scenario. This difference in assumptions is due to the separate roles of each analysis. The capacity analysis provides a snapshot of the compliance scenarios directly following the promulgation of the rule in order to determine if there is a need for a national capacity variance. The cost analysis attempts to reflect probable compliance scenarios based on reasonable long-term economic choices. For today's proposed rule, the Agency believes that much of the F037 and F038 waste will have to be treated off-site directly following the rule's

[42] *Regulatory Impact Analysis for the Listing of Primary and Secondary Oil/Water/Solids Separation Sludges from the Treatment of Petroleum Refinery Wastewaters*, prepared for EPA Office of Solid Waste by DPRA, October 1990.

promulgation. However, EPA expects that on-site treatment capacity will be developed as soon as possible due to the high cost of the off-site treatments. Therefore, the Agency believes that the use of different off-site assumptions is valid, and is consistent with the distinct perspectives each analysis embraces.

The Agency assumed that 87% of the F037 and F038 waste would be treated on-site in the post-regulatory scenario. Of this on-site volume, 37 percent would be treated by solvent extraction at $250 per ton, 37 percent would go to incineration at $400 per ton, and 26 percent would go to on-site cokers at $200 per ton. The post-regulatory scenario also assumes disposal of residuals in Subtitle C units. Although the Listing RIA did not include a volume of waste going to on-site cokers, recent information gathered for the capacity analysis indicates that some F037 and F038 wastes would be disposed of in such a manner.

2. Approach for Remaining Wastes

To determine the cost and economic impacts of the proposed rule for wastes other than F037 and F038, EPA first identified the industries that would be affected. The Agency analyzed these industries to determine the amounts of the affected wastes that they generate, how these wastes are currently managed, and how these wastes would have to be managed to comply with LDR treatment standards.

The incremental cost of today's proposed rule for each waste was estimated by comparing resulting Phase I post-regulatory costs with the costs of current, or baseline, conditions. Because of the lack of site-specific data for this screening analysis, the Agency developed costs for the baseline and post-regulatory scenarios assuming off-site commercial treatment for all wastes included in the cost analysis. Off-site treatment is based on prices quoted by vendors, and generally exceeds the costs of on-site treatment.

The following paragraphs explain the approach used to evaluate costs for each of the wastes covered by today's proposed rule.

a. *Newly listed organic wastes.* All newly listed organic wastes included in today's rule are land disposed in relatively small quantities. The baseline for all newly listed wastes is defined as continued land disposal in units meeting minimum technological requirements.

b. *K061, F006, K062.* Today's proposed rule establishes numeric treatment standards for the low zinc subcategory of K061 based on high temperature metals recovery (HTMR). Simply stated, the Agency is proposing to abolish the high and low subcategorization and establish one set of treatment standards for all K061 nonwastewaters. The baseline for the cost analysis assumes compliance with the existing treatment standards for low-zinc K061, which are based on stabilization.

Today's rule establishes numeric treatment standards based on HTMR as alternative treatment standards for K062 and F006. The Agency has not quantified the costs of HTMR for these two wastes. It believes that any operators using HTMR for K062 and F006 will be using the technology only because it is more cost-effective (i.e., less expensive) than current management practices.

c. *Contaminated debris.* The majority of contaminated debris is already regulated under the Solvents and Dioxins, California list, and the First Third, Second Third, and Third Third LDR rules due to the waste code-carry-through principle.[43] A significant volume of contaminated debris is currently under a national capacity variance that expires May 8, 1992. Once this capacity variance expires, under the current regulatory structure all regulated contaminated debris would be required to meet the existing treatment standards for the RCRA waste code which is the source of the contamination.

For this contaminated debris with existing regulations, the standards in today's proposed rule are expected to be simpler and less costly than the existing standards. The cost savings are expected to result from the use of extractive technologies to meet the new standards. If the Agency promulgates today's rule by May 8, 1992 (as is currently scheduled), most contaminated debris would then be subject to these potentially less costly treatment standards. Therefore, no significant cost impacts for debris already regulated by LDRs are expected to be associated with the proposed rule, and may in some cases represent negative costs (i.e., cost savings) from the existing treatments established in the previous regulations covering contaminated debris. EPA requests data and comment from affected parties on cost savings associated with this proposal.

EPA estimates that fewer than 10,000 tons of debris contaminated with Phase I wastes are land disposed annually (the cost analysis is based upon a contaminated debris volume of 8000 tons per year). Because LDR treatment standards have not previously applied to debris contaminated with Phase I wastes, the Agency assumes that in the baseline, contaminated debris is disposed of in subtitle C landfills. In the post-regulatory scenario, EPA projects that 21 percent of debris would be treated using an extraction technology, 63 percent would be treated using an immobilization technology, and the remaining 16 percent would be treated using a destruction technology. Today's rule provides a generic exclusion from hazardous waste regulation for debris treated by extraction and destruction technologies. Therefore, it is assumed that debris treated by extraction technologies will be disposed of in subtitle D landfills. However, the cost analysis conservatively assumes that residuals from destruction technologies may often continue to go to subtitle C landfills. The use of immobilization technologies still requires disposal in a subtitle C landfill (note that EPA is today soliciting comment and data to support the design of performance standards for immobilization technologies that would be sufficient to allow contaminated debris treated by such technologies to be excluded from Subtitle C management).

To simplify its cost analysis, the Agency modeled one treatment technology for each of the three general categories, i.e., washing as the extraction technology, stabilization as the immobilization technology, and incineration as the destruction technology. The unit costs used for washing, stabilization, and incineration of contaminated debris were, respectively, $550 per ton, $800 per ton, and $2,300 per ton. These costs include treatment of residuals.

However, the Agency expects to clarify its cost analysis when it publishes the final rule. Therefore, EPA encourages commenters to provide any information on the costs of the specific treatment technologies EPA is proposing for contaminated debris. EPA also specifically asks for any estimates on the costs of constructing, permitting and conducting treatment inside the proposed containment buildings. EPA also welcomes comments on the differences in contaminated debris treatment costs if EPA excluded immobilized debris from Subtitle C management.

d. *Wastes not considered.* The costs associated with two groups of wastes—F001 through F005 spent solvents and 24 K- and U-wastes with wastewater standards based on scrubber waters—were not quantified by the Agency in this screening analysis. The Agency previously regulated these wastes and is revisiting them in the proposed rule only to modify the basis for concentration

[43] The waste code-carry-through principle states that a material mixed with a listed waste bears the waste code of the listed waste.

standards for the purpose of standardization (i.e., consistency in testing procedures and bases for treatment standards) and clarification (i.e., appropriate placement in the Code of Federal Regulations). These proposed modifications would not significantly change the required management practices for any of these wastes, and therefore the Agency expects such changes to have negligible cost impacts.

3. Results

a. *Total cost estimate.* Altogether, the standards promulgated in the proposed rule are estimated to cost industry between $39 million and $45 million per year.[44] Table IX–1 presents quantities of the wastes affected by today's proposed rule. The estimated cost of compliance with the proposed rule for each waste is presented in Table IX–2. Neither table includes F001 through F005 spent solvents or the 24 K- and U-wastes covered by today's proposed rule, because the effect of the rule on these wastes is very small, as explained above.

b. *Wastestream cost estimates.*

Petroleum Refining Wastes (F037 and F038)

For the Phase I LDRs for F037 and F038, the Agency estimates a total annual incremental cost to range between $30 million and $37 million. This figure is based on an annual F037 and F038 land disposed volume of 100,000 tons per year in states other than California. Also, this figure excludes the costs associated with the quantity of tank-generated F037/F038 that will result after the conversion of surface impoundments.

On the high end of the cost range shown, 35% of the post-regulatory cost are from off-site treatment of petroleum refining wastes. The high cement kiln price used in this analysis, $1200 per ton, may be an overestimate of the long term price for cement kilns. Presently, cement kilns appear to be charging at rates below incinerators; as more cement kilns are able to handle wastes their prices may decrease. Because of the high prices charged by cement kilns, the Agency has analyzed the costs for F037/38 in a range, as shown above.

Newly Identified Organic Wastes

1. Three organic U wastes (U328, U353, U359). The Agency estimated an annual incremental cost of $150,000 for the standards developed for these wastes from the three organic U wastes (U328, U353, and U359). This figure is based on an annual land disposal volume estimate of 100 tons.

The standards for these wastes developed in the proposed rule are chemical oxidation followed by carbon adsorption for the wastewaters, and incineration for the nonwastewaters.

2. Wastes from unsymmetrical dimethlyhydrazine (UDMH) production (K107, K108, K109, K110). The Agency did not calculate costs of treatment standards for wastes from the production of unsymmetrical dimethlhydrazine (UDMH) (K107, K108, K109, and K110). This decision was made based on information that these are no longer generated.

3. Wastes from toluene diisocyanate (TDI) production (K111, K112). The Agency estimated an annual incremental cost of $150,000 for the standards developed for the wastes from the production of TDI (K111 and K112). This figure is based on an annual land disposal estimate of 100 tons for these two waste codes. The Agency has identified no K111 or K112 requiring further treatment.

TABLE IX-1.—SUMMARY OF QUANTITIES OF LDR PHASE I WASTES

Waste	Annual land disposal rate	Waste form	Generation type	Management type
Newly Listed Wastes:				
Petroleum Refining Sludges (F037 and F038).	100,000 tons of routinely generated waste currently land disposed, excluding waste generated in California.[a]	Dewatered Sludge	Routine	Solvent Extraction; Incineration; Cement Kilns.
Three Organic U Wastes (U328, U353, and U359).	Fewer than 100 tons.	Nonwastewater; Wastewater	Routine	Incineration or Thermal Destruction; Chemical Oxidation and Carbon Adsorption or Bio Treatment.
Production Wastes from Unsymmetrical Dimethlhydrazine (K107, K108, K109, and K110).	No longer produced.	Nonwastewater; Wastewater	Routine	Chemical Oxidation and Carbon Adsorption.
Wastes from Toluene Diisocyanate Production (K111 and K112).	Fewer than 100 tons.	Nonwastewater; Wastewater	Routine	Incineration; Incineration or Chemical Oxidation and Carbon Adsorption.
Wastes from Ethylene Dibromide Production (EDB) (K117, K118, and K136).	1,650 tons of K118; no K117 or K136.	Nonwastewater; Wastewater	Routine	Incineration.
Ethylene Bisdithiocarbamic Acid (EBDC) Production Wastes (K123-K126).	Fewer than 100 tons of K125. K123, K124, and K126 no longer land disposed.	Nonwastewater; Wastewater	Routine	Incineration.
Methyl Bromide Wastes (K131 and K132).	100 tons of K132 nonwastewater; K131 no longer land disposed.	Nonwastewater; Wastewater	Routine	Incineration.
Wastes with Existing Treatment Standards:				
Electric Arc Furnace Dust (K061)	67,000 tons of low zinc K061.[b]	Solid	Routine	High Temperature Metals Recovery.
Phase I Contaminated Debris[c]	8,000 tons.	Solid	Routine and Intermittent	Destruction; Immobilization; Extraction.

[a] EPA is aware that this estimate excludes an unknown quantity of F037 and F038 that will be generated as a result of settling operations in tanks after refineries undergo conversion of surface impoundments to tanks.

[b] Of the set of wastes potentially affected by a new BDAT of high temperature metal recovery (including K061, K062, and F006), the Agency is considering cost effects for K061 only. The quantity given for K061 is based on *generation* quantity instead of on quantity land disposed.

[c] The quantity presented here is for newly regulated debris. Debris that already has existing LDR treatment standards will also be affected by the change in treatment standards. Land disposal of a proportion of the newly regulated debris, contaminated with F037 and F038, may be restricted regardless of the enactment of provisions contained in the proposed rule due to the California Land Ban, effective May 8, 1992.

[44] Wastewaters account for only $150,000 per year, or less than one percent, of the cost of the proposed rule. The costs estimated for the quantities of wastewater shown in Table IX–1 are relatively low because most wastewaters are discharged to publicly owned treatment works (POTWs) or to coastal and inland waterways under National Pollution Discharge Elimination System (NPDES) permit provisions. When wastewaters are discharged in this manner, they are not subject to the treatment standards required by the LDRs under RCRA.

TABLE IX-2.—SUMMARY OF ANNUAL COSTS OF LDR PHASE I WASTES

Waste	Annual land disposal rate	Post-regulatory costs	Baseline costs [a]	Incremental costs
Newly Listed Wastes:				
Petroleum Refining Sludges (F037 and F038)	100,000 tons of routinely generated waste currently land disposed, excluding waste generated in California.[b]	$44,100,000 to $50,400,000 [b]	$13,900,000 [b]	$30,200,000 to $36,500,000 [b]
Three Organic U Wastes (U328, U353, and U359)	Less than 500 tons	$230,000	$80,000	$150,000
Production Wastes from Unsymmetrical Dimethlhydrazine (K107, K108, K109, and K110).	No longer produced	$0	$0	$0
Wastes from Toluene Diisocyanate Production (K111 and K112).	Less than 200 tons	$200,000	$50,000	$150,000
Wastes from Ethylene Dibromide Production (EDB) (K117, K118, and K136).	1650 tons K118; K117 treated pre-land disposal; K136 not land disposed.	$2,800,000	$410,000	$2,400,000
Ethylene Bisdithiocarbamic Acid (EBDC) Production Wastes (K123–K126).	Less than 100 tons of K125; K123, K124, and K126 no longer land disposed.	$170,000	$25,000	$150,000
Methyl Bromide Wastes (K131 and K132)	100 tons of K132. K131 no longer land disposed.	$170,000	$25,000	$150,000
Wastes with Existing Treatment Standards:				
Electric Arc Furnace Dust (K061)	67,000 tons of Low Zinc K061.[c]	$20,000,000 [c]	$30,000,000 [c]	($10,000,000)[c]
Newly Regulated Contaminated Debris [d]	8,000 tons	$7,700,000 [d]	$2,000,000 [d]	$5,700,000 [d]
Total		$55,400,000 to $61,700,000 [e]	$16,500,000 [e]	$38,900,000 to $45,200,000 [e]

[a] Baseline for all wastestreams presented in the table assumes all wastes are landfilled.

[b] The range of costs shown represents a unit price for cement kilns of between $700 per ton and $1200 per ton. This range is reflected in the total costs shown for each column as well. EPA is aware that this estimate excludes an unknown quantity of F037 and F038 that will be generated as a result of settling operations in tanks after refineries undergo conversion of surface impoundments to tanks.

[c] Of the wastes in the group that includes K061, K062, and F006, the Agency is developing costs for K061 only. For the baseline management practices for high chromium and high nickel K061, the Agency assumed stabilization is used, while in the post-regulatory management scenario, high temperature metal recovery is used.

[d] The contaminated debris affected by the proposed rule is divisible into two groups: first, debris that already has existing LDR treatment standards from previous rules (costs associated with this category of debris are expected to be negative), and second, debris that would be newly regulated by the LDRs because of its contamination with wastes included in today's proposed rule. Only costs for this second group of debris have been included in the agency's analysis.

[e] These totals do not include the costs for K061, which is currently calculated to have a negative incremental cost.

The standards for TDI wastes developed in the proposed rule are incineration or chemical oxidation followed by carbon adsorption for the wastewaters, and incineration for the nonwastewaters.

4. Wastes from ethylene dibromide (EDB) production (K117, K118, K136). The standards for wastes from ethylene dibromide production (EDB) (K117, K118, and K136) have an estimated annual incremental cost of $2.4 million. This figure is based on annual land disposal estimates of 1,650 tons of K118 nonwastewater residuals.

The Agency has identified no K136 generation. Currently, K117 wastewater streams undergo treatment before disposal, and therefore these wastes will not be affected by the proposed rule. The standards for EDB wastes are concentration-based. The Agency expects that these numerical standards will be met through incineration for the K118 wastes.

5. Wastes from ethylene bisdithiocarbamic acid (EBDC) production (K123–K126). The annual incremental cost estimated for ethylene bisdithiocarbamic acid production wastes (K123–K126) is $150,000. This figure is based on the Agency's determination that less than 100 tons of K125 nonwastewaters are currently land disposed and will require alternative treatment. EPA has identified no quantities of K123, K124, or K126 currently being land disposed. The method of treatment established for the EBDC nonwastewaters is incineration.

6. Wastes from methyl bromide production (K131, K132). The standards for wastes from methyl bromide production (K131, K132) have an estimated annual incremental cost of $150,000. The standards for K131 and K132 in today's proposed rule are concentration-based. The Agency expects that these numerical standards will be met through incineration.

The estimated incremental cost is based on an annual land disposal estimate of 100 tons of K132 nonwastewater. EPA has identified no K131 wastewaters or nonwastewaters being land disposed and requiring alternative treatment or recovery.

7. K061, F006, K062. The only wastes in this group for which the Agency developed cost estimates is K061 low-zinc wastes. The standards for these wastes are based on high temperature metals recovery. These standards, as applied to K061, have an estimated annual decremental cost of $10 million, i.e., the new standards are less costly than the existing standards. This figure is based on an annual generation estimate of 67,000 tons. The Agency has used a generation estimate rather than a land disposal estimate for this waste because of uncertainty regarding the quantity of low zinc K061 that is currently land disposed.

Contaminated Debris

There are two groups of contaminated debris in this rule. The first group includes all previously regulated debris. This group includes contaminated debris regulated under the HSWA land disposal restriction scheduled waste rules (i.e., Solvents and Dioxins, California List Wastes, First Thirds, Second Thirds, Third Thirds), and is estimated to be approximately 1 million tons per year. The second group includes all debris contaminated with wastes regulated in today's proposed rule;[45] the Agency estimates that less than 10,000 tons per year of debris is contaminated with these wastes (the cost analysis is based on a volume of 8000 tons annually). (See section VI.B for the capacity analysis of contaminated debris.)

The Agency has proposed three technology categories for the treatment of debris in order to handle the diverse composition of contaminated debris. These three categories of treatment are immobilization, extraction, and destruction. Under each treatment category there exist many technologies which may be used for compliance with the debris standards. For the cost analysis of contaminated debris, the following technologies were selected to correspond with each treatment category: For immobilization, stabilization was selected; for extraction, washing was selected; and for destruction, incineration was used.

On May 8, 1992, all of the national capacity variances for the debris regulated in the HSWA land disposal restriction scheduled waste rules will have expired. All contaminated debris in the first group would then be required to meet the existing standards for debris established in the scheduled waste rules. Since the management standards proposed today are expected to be no more costly, and in some cases less costly than the treatment standards currently required for contaminated debris under the waste code carry-through principle, today's proposed rule is estimated to have no cost impact for this group of debris.

Based on preliminary data submitted by several large commercial facilities as part of the capacity analysis being conducted for this rule, the Agency was able to estimate the percentage of debris contaminated with newly regulated wastes which would be treated under each treatment category. For the cost analysis the Agency estimated that approximately 1,700 tons will be treated with extraction technologies, 5,000 tons will be treated by immobilization, and 1,300 tons will be treated by incineration. Based on these figures, the total incremental cost of treated debris contaminated with newly regulated wastes is estimated to be $6 million annually.

c. *Economic impacts.* Because this analysis is limited to a screening analysis, a full economic impacts analysis was not performed. The Agency, however, did qualitatively assess the economic impacts attributable to today's rule.

1. Petroleum Refining Wastes (F037 and F038)

The Listing RIA considered the economic impact of the F037 and F038 listing in light of anticipated land disposal restrictions on these wastes. The impacts estimated in the Listing RIA were driven by facility costs and the economic viability of facility owners. The results of the Listing RIA's economic impacts analysis are summarized below.

In the Listing RIA, four to eight refineries (depending on the cost scenario) had cost impacts greater than one percent of sales (cost impacts exceeding one percent of sales can be viewed as an indicator of potentially significant economic impact). Three refineries exceeded two percent under a high-cost scenario (indicating more severe economic impacts). Nine out of ten affected refineries in a high-cost scenario had costs below 0.5 percent of sales, and over three-quarters of the refineries fell below 0.25 percent, indicating no significant impacts.

The analysis of small entities presented in the Listing RIA indicated that there were potentially seven non-integrated refineries (i.e., refineries that did not produce their own crude and market their own products) with cost-to-sales ratios greater than one percent under the high-cost scenario. A further analysis of employment effects and potential closures was not possible due to insufficient fiancial data for individual refineries.

Therefore, drawing the comparison for economic impacts between the Listing RIA and today's proposed rule, the Agency estimates that today's rule will have annual incremental compliance cost for F037 and F038 waste of between

[45] A third group of contaminated debris, debris considered hazardous because of contamination with waste without current or proposed LDR treatment standards, is unaffected by this rule.

$30 million and $37 million, while the F037/38 Listing RIA estimated an annual cost of $37 million to $71 million.[46] Therefore, the Agency believes that the economic impacts of today's rule, qualitatively, will be less than the impacts estimated by the Listing Rule RIA.

2. Remaining Wastes

Considering the economic impacts of LDRs for the newly listed organic wastes other than F037 and F038, the Agency estimates the costs associated with all wastes to be insignificant. The only newly listed waste having an annual incremental cost above $150,000 is ethylene dibromide (EDB) production wastes at $2.4 million. The major producers of EDB are Dow Chemical, Ethyl Corporation, Great Lakes Chemical, and PPG Industries. Of these firms, only Great Lakes Chemical land disposes waste from EDB production. Based on the financial viability of Great Lakes Chemical, it is unlikely that it would be significantly affected by regulation of EDB wastes.

A quantitative assessment of the economic impacts associated with the contaminated debris standards was not possible due to data limitations. The Agency has no site-specific information on the volumes of either the previously regulated or the newly listed contaminated debris by waste code or SIC code.

The Agency expects that the impacts for the previously regulated debris will not be significant since today's proposed standards are likely to be no more costly, and in some cases less costly than the standards which currently exist. The impacts of the newly listed debris standards are uncertain. The estimated incremental cost for these standards is $6 million annually. If a relatively large number of facilities bear the burden of this cost, it is likely that these standards will not have a significant impact.

B. Paperwork Reduction Act

The information collection requirements in this proposal were promulgated in previous land disposal restriction rulemakings and approved by the Office of Management and Budget (OMB) under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* and have been assigned OMB control number 2050–0085. No new information collection requirements are being proposed today.

It should be noted that today's proposal seeks to reduce the paperwork burden on the regulated community by proposing to minimize reporting for wastes that are no longer hazardous.

Send comments regarding any aspect of this collection of information to Chief, Information Policy Branch, PM–223Y, U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503, marked "Attention: Desk Officer for EPA."

List of Subjects in 40 CFR Parts 148, 260, 261, 262, 264, 265, 268, 270 and 271

Administrative practice and procedure, Designated facility, Environmental protection, Hazardous materials, Hazardous materials transportation, Hazardous waste, Intergovernmental relations, Labeling, Packaging and containers, Penalties, Recycling, Reporting and recordkeeping requirements, Waste treatment and disposal.

Dated: December 18, 1991.

William K. Reilly,

Administrator.

For the reasons set out in preamble, title 40, chapter I, of the Code of Federal Regulations is proposed to be amended as follows:

PART 148—HAZARDOUS WASTE INJECTION RESTRICTIONS

1. The authority citation for part 148 continues to read as follows:

Authority: Section 3004, Resource Conservation and Recovery Act, 42 U.S.C. 6901 et seq.

2. Section 148.17 is added to subpart B to read as follows:

§ 148.17 Waste specific prohibitions—newly listed wastes.

(a) Effective (insert effective date of regulations), the wastes specified in 40 CFR 261 as EPA hazardous waste numbers F037, F038, K107, K109, K110, K111, K112, K117, K118, K123, K124, K125, K126, K131, K136, U328, U353, and U359 are prohibited from underground injection.

(b) The requirements of paragraph (a) of this section do not apply:

(1) If the wastes meet or are treated to meet the applicable standards specified in subpart D of part 268; or

(2) If an exemption from a prohibition has been granted in response to a petition under subpart C of this part; or

(3) During the period of extension of the applicable effective date, if an extension has been granted under § 148.4 of this part.

PART 260—HAZARDOUS WASTE MANAGEMENT SYSTEM: GENERAL

3. The authority citation for part 260 continues to read as follows:

Authority: 42 U.S.C. 6905, 6912(a), 6921 through 6927, 6930, 6934, 6935, 6937, 6938, 6939, and 6974.

4. In § 260.10 a definition for "containment building" is added in alphabetical order and the definition of "pile" is revised to read as follows:

§ 260.10 Definitions.

* * * * *

Containment building means a hazardous waste management unit that is used to store or treat hazardous waste under the provisions of subpart DD of parts 264 or 265 of this chapter.

* * * * *

Pile means any non-containerized accumulation of solid, nonflowing hazardous waste that is used for treatment or storage and that is not a containment building.

* * * * *

PART 261—IDENTIFICATION AND LISTING OF HAZARDOUS WASTE

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

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

6. In § 261.3 paragraphs (a)(2)(iii) and (c)(2)(ii)(C) are revised and paragraph (e) is added to read as follows:

§ 261.3 Definition of hazardous waste.

* * * * *

(a) * * *

(2) * * *

(iii) It is a mixture of a solid waste and a hazardous waste that is listed in subpart D of this part solely because it exhibits one or more of the characteristics of hazardous waste identified in subpart C of this part, unless the resultant mixture no longer exhibits any characteristic of hazardous waste identified in subpart C of this part, or unless the solid waste is excluded from regulation under § 261.4(b)(7) and the resultant mixture no longer exhibits any characteristic of hazardous waste identified in subpart C of this part for which the hazardous waste listed in subpart D of this part was listed. (However, such mixtures are still subject to the requirements of part 268 of this chapter, even if they no

[46] The Listing RIA provided a range of $53 to $102 million. The revised range shown reflects the following two changes: (a) subtraction of baseline Subtitle C landfill costs, and (b) conversion of the 1989 dollars used in the Listing RIA to 1991 dollars.

longer exhibit a characteristic at the point of land disposal.)

* * * * *

(c) * * *

(2) * * *

(ii) * * *

(C) Nonwastewater residues, such as slag, resulting from high temperature metals recovery (HTMR) processing of K061, K062 or F006 waste, in units identified as rotary kilns, flame reactors, electric furnaces, plasma arc furnaces, slag reactors, rotary hearth furnace/electric furnace combinations or industrial furnaces (as defined in 40 CFR 260.10 (6), (7), and (12)), that are disposed in Subtitle D units, provided that these residues meet the generic exclusion levels identified below for all constituents, and exhibit no characteristics of hazardous waste. Testing requirements must be incorporated in a facility's waste analysis plan or a generator's self-implementing waste analysis plan; at a minimum, composite samples of residues must be collected and analyzed quarterly and/or when the process or operation generating the waste changes.

Constituent	Maximum for any single composite sample
	TCLP (mg/l)
Generic exclusion levels for K061 and K062 nonwastewater HTMR residues	
Antimony	0.063
Arsenic	0.055
Barium	6.3
Beryllium	0.0063
Cadmium	0.032
Chromium (total)	0.33
Lead	0.095
Mercury	0.009
Nickel	0.63
Selenium	0.16
Silver	0.30
Thallium	0.013
Vanadium	0.23
Zinc	44.0
Generic exclusion levels for F006 nonwastewater HTMR residues	
Antimony	0.063
Arsenic	0.055
Barium	6.3
Beryllium	0.0063
Cadmium	0.032
Chromium (total)	0.33
Cyanide (total) (mg/kg)	1.8
Lead	0.095
Mercury	0.009
Nickel	0.63
Selenium	0.16
Silver	0.30
Thallium	0.013
Vanadium	0.23
Zinc	44.0

A one-time notification and certification must be placed in the facility's files for K061, K062 or F006 HTMR residues that meet the generic exclusion levels for all constituents and do not exhibit any characteristics that are sent to subtitle D units; however, the one-time notification and certification must be updated if the process or operation generating the waste changes and/or if the Subtitle D unit receiving the waste changes. The notification must include the following information: (*1*) The name and address of the Subtitle D unit receiving the waste shipments; (*2*) the EPA Hazardous Waste Number(s) and treatability group(s) at the initial point of generation; and (*3*) the treatment standards applicable to the waste at the initial point of generation. The certification must be signed by an authorized representative and must state as follows: "I certify under penalty of law that the generic exclusion levels for all constituents have been met without impermissible dilution and that no characteristics of hazardous waste is exhibited. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

* * * * *

(e) Notwithstanding paragraphs (a) through (d) of this section and provided the debris as defined in part 268 of this chapter does not exhibit a characteristic identified at subpart C of this part, the following materials are not subject to regulation under 40 CFR parts 260, 261 to 266, 268, or 270:

(1) Contaminated debris as defined in part 268 that has been treated using one of the required extraction or destruction technologies specified in table 2 of § 268.45 of this chapter; or

(2) Debris as defined in part 268 that the Regional Administrator, considering the extent of contamination, has determined is no longer contaminated with hazardous waste.

7. Appendix VIII of part 261 is amended by adding the following inorganic compound in alphabetical order to read as follows:

APPENDIX VIII.—HAZARDOUS CONSTITUENTS

Common name	Chemical abstracts name	Chemical abstracts no.	Hazardous waste no.
*	*	*	*
Vanadium.	Same	7440-62-2	
*	*	*	*

PART 262—STANDARDS APPLICABLE TO GENERATORS OF HAZARDOUS WASTE

8. The authority citation for part 262 continues to read as follows:

Authority: 42 U.S.C. 6906, 6912, 6922, 6923, 6924, 6925, and 6937.

9. In § 262.34 paragraphs (a)(3) through (a)(4) are redesignated as (a)(4) through (a)(5) and a new paragraph (a)(3) is added to read as follows:

§ 262.34 Accumulation time.

(a) * * *

(3) The waste is placed in containment buildings and the generator complies with subpart DD of 40 CFR part 265 and maintains the following records at the facility:

(i) A description of procedures that will be followed to ensure that all wastes are removed from the containment building at least once every 90 days; and

(ii) Documentation of each waste removal, including the quantity of waste removed from the containment building and the date and time of removal.

In addition, such a generator is exempt from all the requirements in subparts G and H of 40 CFR part 265, except for §§ 265.111 and 265.114.

* * * * *

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

10. The authority citation for part 264 continues to read as follows:

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

11. Subpart DD is added to read as follows:

Subpart DD—Containment Buildings

§ 264.1100 Applicability.

The requirements of this subpart apply to owners or operators who store or treat hazardous waste that contains no or only very small quantities of free liquids in units designed and operated under § 264.1101 of this subpart.

§ 264.1101 Design and operating standards.

(a) The containment building must be completely enclosed with a floor, walls, and a roof to prevent exposure to the elements, e.g., precipitation, wind, and to prevent run-on or infiltration of precipitation.

(b) The floor and walls of the unit, including the secondary containment

system, if required under paragraph (d)(1) of this section, must be designed and constructed of man-made materials of sufficient strength and thickness to prevent failure due to pressure gradients, settlement, compression, or uplift, physical contact with the hazardous wastes to which they are exposed, climatic conditions, and the stresses of daily operation, including the movement of heavy equipment within the unit. The unit must be designed so that it has sufficient structural strength to prevent collapse or other failure.

(c) Incompatible hazardous wastes or treatment reagents must not be placed in the unit or its secondary containment system if they could cause the unit or secondary containment system to leak, corrode, or otherwise fail.

(d) The owner or operator must use controls and practices to ensure containment of the hazardous waste within the unit and at a minimum, must:

(1) For a containment building that is used to store hazardous wastes containing very small quantities of free liquids or to treat hazardous wastes when the treatment involves liquids:

(i) Ensure that any surface that will be in contact with liquid is constructed of a material or otherwise sealed or coated so that it will prevent the migration of liquid into or out of the supporting structure;

(ii) Provide a liquid collection system to prevent the accumulation of liquid on the floor of the containment building; and

(iii) Provide a secondary containment system that prevents any migration of hazardous waste or liquid out of the system to the soil, ground water, or surface water at any time during the use of the unit and is capable of detecting and collecting accumulated hazardous wastes and liquids at the earliest practicable time. Liquids must be collected and removed at the earliest practicable time that protects human health and the environment to minimize the hydraulic head on the containment system.

(2) Maintain the level of the stored/treated hazardous waste within the walls of the unit intended to come in contact with the hazardous waste so that the height of any wall is not exceeded.

(3) Take measures to prevent the tracking of hazardous waste out of the unit by personnel or by equipment used in handling the waste.

(4) Take measures to control fugitive dust emissions by maintaining a negative pressure within the unit and a particulate collection system. This system must function effectively at all times, including when vehicles and personnel are entering and exiting the unit.

(e) Liquid residuals from debris treatment in a containment building that are to be land disposed must be treated to meet F039 treatment standards.

(f) Inspect and record in the facility's operating log, at least once each operating day, data gathered from monitoring equipment and leak detection equipment as well as the containment building and the area immediately surrounding the containment building to detect signs of releases of hazardous waste.

§§ 264.1102-264.1110 [Reserved]

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

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

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

13. Subpart DD is added to read as follows:

Subpart DD—Containment Buildings

§ 265.1100 Applicability.

The requirements of this subpart apply to owners or operators who store or treat hazardous waste that contains no or only very small quantities of free liquids in units designed and operated under § 265.1101 of this subpart.

§ 265.1101 Design and operating standards.

(a) The containment building must be completely enclosed with a floor, walls, and a roof to prevent exposure to the elements, e.g., precipitation, wind and to prevent run-on or infiltration of precipitation.

(b) The floor and walls of the unit, including the secondary containment system, if required under paragraph (d)(1) of this section, must be designed and constructed of man-made materials of sufficient strength and thickness to prevent failure due to pressure gradients, settlement, compression, or uplift, physical contact with the hazardous wastes to which they are exposed, climatic conditions, and the stresses of daily operation, including the movement of heavy equipment within the unit. The unit must be designed so that it has sufficient structural strength to prevent collapse or other failure.

(c) Incompatible hazardous wastes or treatment reagents must not be placed in the unit or its secondary containment system if they could cause the unit or secondary containment system to leak, corrode, or otherwise fail.

(d) The owner or operator must use controls and practices to ensure containment of the hazardous waste within the unit and, at a minimum, must:

(1) For a containment building that is used to store hazardous wastes containing very small quantities of free liquids or to treat hazardous wastes when the treatment involves liquids:

(i) Ensure that any surface that will be in contact with liquid is constructed of a material or otherwise sealed or coated so that it will prevent the migration of liquid into or out of the supporting structure:

(ii) Provide a liquid collection system to prevent the accumulation of liquid on the floor of the containment building; and

(iii) Provide a secondary containment system that prevents any migration of hazardous waste or liquid out of the system to the soil, ground water, or surface water at any time during the use of the unit and is capable of detecting and collecting accumulated hazardous waste and liquids at the earliest practicable time. Liquids must be collected and removed at the earliest practicable time that protects human health and the environment to minimize the hydraulic head on the containment system.

(2) Maintain the level of the stored/treated hazardous waste within the walls of the unit intended to come in contact with the hazardous waste so that the height of any wall is not exceeded.

(3) Take measures to prevent the tracking of hazardous waste out of the unit by personnel or by equipment used in handling the waste.

(4) Take measures to control fugitive dust emissions by maintaining a negative pressure within the unit and a particulate collection system. This system must function effectively at all times, including when vehicles and personnel are entering and exiting the unit.

(e) Liquid residuals from debris treatment in a containment building that are to be land disposed must be treated to meet F039 standards.

(f) Inspect and record in the facility's operating log, at least once each operating day, data gathered from monitoring equipment and leak detection equipment as well as the containment building and the area immediately surrounding the containment building to detect signs of releases of hazardous waste.

§§ 265.1102-265.1110 [Reserved]

PART 268—LAND DISPOSAL RESTRICTIONS

14. The authority citation for part 268 continues to read as follows:

Authority: 42 U.S.C. 6905, 6912(a), 6921, and 6924.

15. In § 268.2 paragraph (g) is revised and paragraph (h) added to read as follows:

§ 268.2 Definitions applicable in this part.

* * * * *

(g) Debris means solid material that:

(1) Has been originally manufactured or processed, except for solids that are listed wastes or can be identified as being residuals from treatment of wastes and/or wastewaters, or air pollution control devices; or

(2) Is plant or animal matter; or

(3) Is natural geologic material exceeding a 9.5 mm sieve size including gravel, cobbles, and boulders (sizes as classified by the U.S. Soil Conservation Service), or is an inseparable mixture of such materials with soil, liquid, sludge, or other solid waste materials (i.e., inseparable by simple mechanical removal processes).

(h) Contaminated Debris means debris that contains a hazardous waste listed in subpart D of part 261 that is subject to the land disposal restrictions of this part, or that exhibits a characteristic of hazardous waste identified in subpart C of part 261 that is subject to the land disposal restrictions of this part.

* * * * *

16. In § 268.7 paragraph (a) is revised and paragraph (d) is added to read as follows:

§ 268.7 Waste analysis.

(a) Except as specified in §§ 268.32, 268.40(d), or 268.43 of this part, the generator must test his waste, or test an extract developed using the test method described in appendix I of part 261, or use knowledge of the waste, to determine if the waste is restricted from land disposal under this part.

* * * * *

(d) For contaminated debris that is no longer considered hazardous, a one-time notification and certification must be placed in the facility's files for each combination of the debris and contaminant categories; however, the one-time notification and certification must be updated if the facility receiving the waste changes.

(1) The notification must include the following information:

(i) The name and address of the Subtitle D facility receiving the waste shipment:

(ii) A description of the waste as initially generated, including applicable EPA Hazardous Waste Numbers and treatability groups;

(iii) The treatment standards applicable to the waste at the point of generation.

(2) The certification must be signed by an authorized representative and must state the language found in § 268.7(b)(5).

17. In § 268.9 paragraph (d) is revised to read as follows:

§ 268.9 Special rules regarding wastes that exhibit a characteristic.

* * * * *

(d) Wastes that exhibit a characteristic are also subject to § 268.7 requirements, except that once the waste is no longer hazardous, a one-time notification and certification must be placed in the facility's files; however, the one-time notification and certification must be updated if the process or operation generating the waste changes and/or if the subtitle D facility receiving the waste changes.

(1) The notification must include the following information:

(i) The name and address of the subtitle D facility receiving the waste shipment;

(ii) A description of the waste as initially generated, including the applicable EPA Hazardous Waste Number(s) and treatability group(s);

(iii) The treatment standards applicable to the waste at the point of generation.

(2) The certification must be signed by an authorized representative and must state the language found in § 268.7(b)(5).

18. In subpart C § 268.36 is added to read as follows:

§ 268.36 Waste specific prohibitions—newly listed wastes.

(a) Effective (insert effective date), the following wastes specified in 40 CFR 261.31 as EPA Hazardous Waste Numbers F037 and F038 (that is not generated in a surface impoundment); the wastes specified in 40 CFR 261.32 as EPA Hazardous Waste Numbers K107, K108, K109, K110, K111, K112, K117, K118, K123, K124, K125, K126, K131, K132, and K136; and the wastes specified in 40 CFR 261.33 as EPA Hazardous Waste numbers U328, U353, and U359 are prohibited from land disposal.

(b) Effective (insert date two years from effective date), the wastes specified in 40 CFR 261.31 as EPA Hazardous Waste Numbers F037 and F038 that are generated in surface impoundments are prohibited from land disposal.

(c) Effective (insert date two years from effective date), radioactive wastes that are mixed with hazardous wastes specified in 40 CFR 261.31 and EPA Hazardous Waste Numbers F037 and F038; the wastes specified in 40 CFR 261.32 as EPA Hazardous Waste Numbers K107, K108, K109, K110, K111, K112, K117, K118, K123, K124, K125, K126, K131, K132, and K136; or the wastes specified in 40 CFR 261.33(f) as EPA Hazardous Waste Numbers U328, U353, and U359 are prohibited from land disposal.

(d) Effective (insert date two years from effective date), debris contaminated with hazardous wastes specified in 40 CFR 261.31 as EPA Hazardous Waste Numbers F037 and F038; the wastes specified in 40 CFR 261.32 as EPA Hazardous Waste Numbers K107, K108, K109, K110, K111, K112, K117, K118, K123, K124, K125, K126, K131, K132, and K136; or the wastes specified in 40 CFR 261.33(f) as EPA Hazardous Waste Numbers U328, U353, and U359; and which is not contaminated with any other waste already subject to a prohibition are prohibited from land disposal.

(e) Between (insert effective date) and (insert date two years from effective date), the wastes included in paragraphs (b), (c), and (d) of this section may be disposed of in a landfill or surface impoundment only if such unit is in compliance with the requirements specified in § 268.5(h)(2), except that F037 and F038 are wastes generated in a surface impoundment. Such impoundments must comply with the requirements relating to removal under § 268.4(a)(2)(ii).

(f) The requirements of paragraphs (a), (b), (c), and (d) of this section do not apply if:

(1) The wastes meet the applicable standards specified in Subpart D of this part;

(2) Persons have been granted an exemption from a prohibition pursuant to a petition under § 268.6, with respect to those wastes and units covered by the petition;

(3) The wastes meet the applicable alternate standards established pursuant to a petition granted under § 268.44;

(4) Persons have been granted an extension to the effective date of a prohibition pursuant to § 268.5, with respect to the wastes covered by the extension.

(g) To determine whether a hazardous waste identified in this section exceeds the applicable treatment standards specified in § 268.41 and 268.43, the initial generator must test a

representative sample of the waste extract or the entire waste, depending on whether the treatment standards are expressed as concentrations in the waste extract or the waste, or the generator may use knowledge of the waste. If the waste contains constituents in excess of the applicable subpart D levels, the waste is prohibited from land disposal, and all requirements of part 268 are applicable, except as otherwise specified.

19. In § 268.40 paragraph (b) is revised and paragraph (d) is added to read as follows:

§ 268.40 Applicability of treatment standards

* * * * *

(b) A restricted waste for which a treatment technology is specified under § 268.42(a) or contaminated debris for which a treatment technology is specified under § 268.45 may be land disposed after it is treated using that specified technology or an equivalent treatment method approved by the Administrator under the procedures set forth in § 268.42(b).

* * * * *

(d) If a treatment standard has been established in §§ 268.41 through 268.43 for a hazardous waste that is itself contaminated debris, the waste is subject to those standards rather than the standards for contaminated debris under § 268.45.

20. In § 268.41(a) Table CCWE is amended by removing the entries for F001–F005 and K061 (Low Zinc Subcategory—less than 15% total zinc), revising the entry for K061 High Zinc Subcategory, and by adding entries for F037 and F038 to read as follows:

§ 268.41 Treatment standards expressed as concentrations in waste extract.

(a) * * *

TABLE CCWE.—CONSTITUENT CONCENTRATIONS IN WASTE EXTRACT

Waste Code	See also	Regulated hazardous constituent	CAS No. for regulated hazardous constituent	Wastewater concentration (mg/l)	Non-wastewater concentration (mg/l)
*	* *	*	*	*	
F037	Table CCW in 268.43	Chromium (Total)	7440-47-32	NA	1 7
		Nickel	7440-02-0	NA	0.20
F038	Table CCW in 268.43	Chromium (Total)	7440-47-32	NA	1 7
		Nickel	7440-02-0	NA	0.20
*	* *	*	*	*	
K061	Table CCW in 268.43	Antimony	7440-36-0	NA	2.1
		Arsenic	7440-38-2	NA	0.055
		Barium	7440-39-3	NA	7.6
		Beryllium	7440-41-7	NA	0.014
		Cadmium	7440-43-9	NA	0.19
		Chromium (Total)	7440-47-32	NA	0.33
		Lead	7439-92-1	NA	0.37
		Mercury	7439-97-6	NA	0.009
		Nickel	7440-02-0	NA	5
		Selenium	7782-49-2	NA	0.16
		Silver	7440-22-4	NA	0.3
		Thallium		NA	0.078
		Vanadium	7440-62-2	NA	0.23
		Zinc	7440-66-6	NA	5.3
*	* *	*	*	*	

NA=Not applicable.

21. In § 268.42 paragraphs (b) and (d) are revised to read as follows:

§ 268.42 Treatment standards expressed as specified technologies.

* * * * *

(b) Any person may submit an application to the Administrator demonstrating that an alternative treatment method can achieve a measure of performance equivalent to that achieved by methods specified in paragraphs (a), (c), and (d) of this section for wastes or specified in § 268.45 for contaminated debris. The applicant must submit information demonstrating that his treatment method is in compliance with federal, state, and local requirements and is protective of human health and the environment. On the basis of such information and any other available information, the Administrator may approve the use of the alternative treatment method if he finds that the alternative treatment method provides a measure of performance equivalent to that achieved by methods specified in paragraphs (a), (c), and (d) of this section for wastes or in § 268.45 for contaminated debris. Any approval must be stated in writing and may contain such provisions and conditions as the Administrator deems appropriate. The person to whom such approval is issued must comply with all limitations contained in such a determination.

* * * * *

(d) Radioactive hazardous mixed wastes with treatment standards specified in table 3 of this section are not subject to any treatment standards specified in §§ 268.41 or 268.43, or table 2 of this section. Radioactive hazardous mixed wastes not subject to treatment standards in table 3 of this section remain subject to all applicable treatment standards specified in §§ 268.41, 268.43, and table 2 of this section. Contaminated debris containing radioactive waste is not subject to the treatment standards specified in table 3 of this section but is subject to the treatment standards specified in § 268.45.

22. In § 268.42(a)(2) table 2 is amended by adding entries for K107, K108, K109, K110, K111, K112, K123, K124, K125, K126, U328, U353, and U359 in alphanumerical order to read as follows:

§ 268.42 Treatment standards expressed as specified technologies.

* * * * *

TABLE 2.—TECHNOLOGY-BASED STANDARDS BY RCRA WASTE CODE

Waste code	See also	Waste descriptions and/or treatment subcategory	CAS No. for regulated hazardous constituents	Technology code	
				Wastewaters	Nonwastewaters
*	*	* * *		* *	*
K107		Column bottoms from product separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazines.	NA	INCIN; or CHOXD fb CARBN	INCIN
K108		Condensed column overheads from product separation and condensed reactor vent gases from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazines.	NA	INCIN; or CHOXD fb CARBN	INCIN
K109		Spent filler cartridges from product purification from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazines.	NA	INCIN; or CHOXD fb CARBN	INCIN
K110		Condensed column overheads from intermediate separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazines.	NA	INCIN; or CHOXD fb CARBN	INCIN
K111		Product wastewaters from the production of dinitrotoluene via nitration of toluene.	NA	INCIN; or CHOXD fb CARBN	INCIN
K112		Reaction by-product water from the drying column in the production of toluenediamine via hydrogenation of dinitrotoluene.	NA	INCIN; or CHOXD fb CARBN	INCIN
*	*	* * *		* *	*
K123		Process wastewater (including supernates, filtrates, and washwaters) from the production of ethylenebisdithiocarbamic acid and its salts.	NA	INCIN; or CHOXD fb (BIODG or CARBN).	INCIN
K124		Reactor vent scrubber water from the production of ethylenebisdithiocarbamic acid and its salts.	NA	INCIN; or CHOXD fb (BIODG or CARBN).	INCIN
K125		Filtration, evaporation, and centrifugation solids from the production of ethylenebisdithiocarbamic acid and its salts.	NA	INCIN; or CHOXD fb (BIODG or CARBN).	INCIN
K126		Baghouse dust and floor sweepings in milling and packaging operations from the production or formulation of ethylene bisdithiocarbamic acid and its salts.	NA	INCIN; or CHOXD fb (BIODG or CARBN).	INCIN
*	*	* * *		* *	*
U328		2-methyl-benzenamine	95-53-4	CHOXD fb (BIODG or CARBN)	INCIN; or Thermal Destruction
U353		4-methyl-benzenamine	106-49-0	CHOXD fb (BIODG or CARBN)	INCIN; or Thermal Destruction
U359		2-ethoxy-ethanol	110-80-5	INCIN; or CHOXD fb (BIODG or CARBN).	INCIN

NA—Not applicable.

* * * * *

23. In § 268.43(a) Table CCW is amended by revising the entries for F001–F005, K015, K016, K018, K019, K020, K023, K024, K028, K030, K043, K048, K049, K050, K051, K052, K087, K093, K094, U028, U069, U088, U102, U107, and U190, by removing the entry for U042, and by adding the entries for F037, F038, K117, K118, K131, K132, and K136 in alphanumerical order to read as follows:

(a) * * *

TABLE CCW.—CONSTITUENT CONCENTRATIONS IN WASTES

Waste code	Commercial chemical name	See also	Regulated hazardous constituent	CAS No. for regulated hazardous constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
*	*	*	* * *		*	*	*	
F001–F005 spent solvents.	NA		Acetone	67-64-1	0.28		160	
			Benzene	71-43-2	0.070		3.7	1
			n-Butyl alcohol	71-36-3	5.6		2.6	
			Carbon disulfide	75-15-0	0.014		NA	
			Carbon tetrachloride	56-23-5	0.057		5.6	
			Chlorobenzene	108-90-7	0.057		5.7	
			Cresol (m- and p-isomers)		0.77		3.2	
			o-cresol		0.11		5.6	
			Cyclohexanone	108-94-1	0.36		NA	
			o-Dichlorobenzene	95-50-1	0.088		6.2	
			Ethyl acetate	141-7-6	0.34		33	
			Ethyl benzene	100-41-4	0.057		6.0	

TABLE CCW.—CONSTITUENT CONCENTRATIONS IN WASTES—Continued

Waste code	Commercial chemical name	See also	Regulated hazardous constituent	CAS No. for regulated hazardous constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
			Ethyl ether	60-29-7	0.12		160	
			Isobutyl alcohol	78-83-1	5.6		170	
			Methanol	67-56-1	5.6		NA	
			Methylene chloride	75-9-2	0.089		33	
			Methyl ethylketone	78-93-3	0.28		36	
			Methyl isobutylketone	108-10-1	0.14		33	
			Nitrobenzene	98-95-3	0.068		14	
			Pyridine	110-86-1	0.014		16	
			Tetrachloroethylene	127-18-4	0.056		5.6	
			Toluene	108-88-3	0.08		28	
			1,1,1-Trichloroethane	71-55-6	0.054		5.6	
			1,1,2-Trichloroethane	79-00-5	0.030		7.6	(1)
			Trichloroethylene	79-01-6	0.054		5.6	
			1,1,2-Trichlor1,2,2-trifluoromethane.	76-13-1	0.057		28	
			Trichloromono-fluoromethane	75-69-4	0.02		33	
*	*	*	*	*	*		*	
			Xylenes (total)		0.32		28	
F037	NA	Table CCWE in 268.41.	Acenaphthene	208-96-8	0.059		NA	
			Anthracene	120-12-7	0.059		28	(1)
			Benzene	71-43-2	0.14		14	(1)
			Benzo (a) anthracene	50-32-8	0.059		20	(1)
			Benzo (a) pyrene	117-81-7	0.061		12	(1)
			Bis (2-ethylhexyl) phthalate	75-15-0	0.28		7.3	(1)
			Chrysene	218-01-9	0.059		15	(1)
			Di-n-butyl phthalate	105-67-9	0.057		3.6	(1)
			Ethylbenzene	100-41-4	0.057		14	(1)
			Fluorene	86-73-7	0.059		NA	
			Naphthalene	91-20-3	0.059		42	(1)
			Phenanthrene	85-01-8	0.059		34	(1)
			Phenol	108-95-2	0.039		3.6	(1)
			Pyrene	129-00-0	0.067		36	(1)
			Toluene	108-88-3	0.08		14	(1)
			Xylene(s)		0.32		22	(1)
			Cyanides (Total)	57-12-5	0.028	(1)	1.8	(1)
			Chromium (Total)	7440-47-32	0.2		NA	
			Lead	7439-92-1	0.037		NA	
F038	NA	Table CCWE in 268.41.	Benzene	71-43-2	0.14		14	(1)
			Benzo(a)pyrene	50-32-8	0.061		12	(1)
			Bis (2-ethylhexyl) phthalate	117-81-7	0.28		7.3	(1)
			Chrysene	218-01-9	0.059		15	(1)
			Di-n-butyl phthalate	84-74-2	0.057		3.6	(1)
			Etylbenzene	100-41-4	0.057		14	(1)
			Fluorene	86-73-7	0.059		NA	
			Naphthalene	91-20-3	0.059		42	(1)
			Phenanthrene	85-01-8	0.059		34	(1)
			Phenol	108-95-2	0.039		3.6	(1)
			Pyrene	129-00-0	0.067		36	(1)
			Toluene	108-88-3	0.080		14	(1)
			Xylene(s)		0.32		22	(1)
			Cyanides (Total)	57-12-5	0.028	(1)	1.8	(1)
			Chromium (Total)	7440-47-32	0.2		NA	
			Lead	7439-92-1	0.037		NA	
*	*	*	*	*	*		*	
K015	NA	Table CCWE in 268.41.	Anthracene	120-12-7	0.059		3.4	(1)
			Benzal Chloride	98-87-3	0.28		6.2	(1)
			Sum of Benzo(b) fluoranthene and Benzo(k) fluoranthene.	205-99-2 207-08-9	0.055		3.4	
			Phenanthrene	85-01-8	0.059		3.4	(1)
			Toluene	108-88-3	0.08		6.0	(1)
			Chromium (Total)	7440-47-32	0.32		NA	
			Nickel	7440-02-0	0.44		NA	
K016	NA		Hexachlorobenzene	118-74-1	0.055		28	(1)
			Hexachlorobutadiene	87-68-3	0.055		5.6	(1)
			Hexachlorocyclopentadiene	77-47-4	0.057		5.6	(1)
			Hexachloroethane	67-72-1	0.055		28	(1)
			Tetrachloroethene	127-18-4	0.056		6.0	(1)
*	*	*	*	*	*		*	

TABLE CCW.—CONSTITUENT CONCENTRATIONS IN WASTES—Continued

Waste code	Commercial chemical name	See also	Regulated hazardous constituent	CAS No. for regulated hazardous constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
K018	NA		Chloroethane	76-00-3	0.27		6.0	(1)
			Chloromethane	74-87-3	0.19		NA	
			1,1-Dichloroethane	75-34-3	0.059		6.0	(1)
			1,2-Dichloroethane	107-06-2	0.21		6.0	(1)
			Hexachlorobenzene	118-74-1	0.055		28	(1)
			Hexachlorobutadiene	87-68-3	0.055		5.6	(1)
			Pentachloroethane	76-01-7	NA		5.6	(1)
			1,1,1-Trichloroethane	71-55-6	0.054		6.0	(1)
			Hexachloroethane	67-72-1	0.055		28	(1)
K019	NA		Bis (2-chloroethyl) ether	111-44-4	0.033		5.6	(1)
			Chlorobenzene	108-90-7	0.057		6.0	(1)
			Chloroform	67-66-3	0.046		6.0	(1)
			p-Dichlorobenzene	106-46-7	0.09		NA	
			1,2-Dichloroethane	107-06-2	0.21		6.0	(1)
			Fluorene	86-73-7	0.059		NA	
			Hexachloroethane	67-72-1	0.055		28	(1)
			Naphthalene	91-20-3	0.059		5.6	(1)
			Phenanthrene	85-01-8	0.059		5.6	(1)
			1,2,4,5-Tetrachlorobenzene	95-94-3	0.055		NA	
			Tetrachloroethene	127-18-4	0.056		6.0	(1)
			1,2,4-Trichlorobenzene	120-82-1	0.055		19	(1)
			1,1,1-Trichloroethane	71-55-6	0.054		6.0	(1)
K020	NA		1,2-Dichloroethane	106-93-4	0.21		6.0	(1)
			1,1,2,2-Tetrachloroethane	79-34-6	0.057		5.6	(1)
			Tetrachloroethene	127-18-4	0.056		6.0	(1)
*	*	*	*	*	*			
K023	NA		Phthalic anhydride (measured as Phthalic acid).	85-44-9	0.069		28	(1)
K024	NA		Phthalic anhydride (measured as Phthalic acid).	85-44-9	0.069		28	(1)
*	*	*	*	*	*			
K028	NA	Table CCWE in 268.41.	1,1-Dichloroethane	75-34-3	0.059		6.0	(1)
			trans-1,2-Dichloroethane		0.054		6.0	(1)
			Hexachlorobutadiene	87-68-3	0.055		5.6	(1)
			Hexachloroethane	67-72-1	0.055		28	(1)
			Pentachloroethane	76-01-7	NA		5.6	(1)
			1,1,1,2-Tetrachloroethane	630-20-6	0.057		5.6	(1)
			1,1,2,2,-Tetrachloroethane	79-34-6	0.057		5.6	(1)
			1,1,1,-Trichloroethane	71-55-6	0.054		6.0	(1)
			1,1,2-Trichloroethane	79-00-5	0.054		6.0	(1)
			Tetrachloroethylene	127-18-4	0.056		6.0	(1)
			Cadmium	7440-43-9	6.4		NA	
			Chromium (Total)	7440-47-32	0.35		NA	
			Lead	7439-92-1	0.037		NA	
			Nickel	7440-02-0	0.47		NA	
*	*	*	*	*	*			
K030	NA		o-Dichlorobenzene	95-50-1	0.088		NA	
			p-Dichlorobenzene	106-46-7	0.09		NA	
			Hexachlorobutadiene	87-68-3	0.055		5.6	(1)
			Hexachloroethane	67-72-1	0.055		28	(1)
			Hexachloropropene	1888-71-7	NA		19	(1)
			Pentachlorobenzene	608-93-5	NA		28	(1)
			Pentachloroethane	76-01-7	NA		5.6	(1)
			1,2,4,5-Tetrachlorobenzene	95-94-3	0.055		14	(1)
			Tetrachloroethene	127-18-4	0.056		6.0	(1)
			1,2,4,-Trichlorobenzene	120-82-1	0.055		19	(1)
*	*	*	*	*	*			
K043	NA		2,4-Dichlorophenol	120-83-2	0.044		0.38	(1)
			2,6-Dichlorophenol	187-65-0	0.044		0.34	(1)
			2,4,5-Trichlorophenol	95-95-4	0.18		8.2	(1)
			2,4,6-Trichlorophenol	88-06-2	0.035		7.6	(1)
			Tetrachlorophenols (Total)		NA		0.68	(1)
			Pentachlorophenol	87-86-5	0.089		1.9	(1)
			Tetrachloroethene	79-01-6	0.056		1.7	(1)
			Hexachlorodibenzo-p-dioxins		0.000063		0.001	(1)
			Hexachlorodibenzofurans		0.000063		0.001	(1)
			Pentachlorodibenzo p-dioxins		0.000063		0.001	(1)
			Pentachlorodibenzo furans		0.000063		0.001	(1)
			Tetrachlorodibenzo-p-dioxins		0.000063		0.001	(1)
			Tetrachlorodibenzofurans		0.000063		0.001	(1)
*	*	*	*	*	*		*	
K048	NA	Table CCWE, in 268.41.	Benzene	71-43-2	0.14		14	(1)
			Benzo(a)pyrene	50-32-8	0.061		12	(1)
			Bis (2-etnylhexyl) phthalate	117-81-7	0.28		7.3	(1)
			Chrysene	218-01-9	0.059		15	(1)

TABLE CCW.—CONSTITUENT CONCENTRATIONS IN WASTES—Continued

Waste code	Commercial chemical name	See also	Regulated hazardous constituent	CAS No. for regulated hazardous constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
			Di-n-butyl phthalate	84-74-2	0.057		3.6	(1)
			Ethylbenzene	100-41-4	0.057		14	(1)
			Fluorene	86-73-7	0.059		NA	(1)
			Naphthalene	91-20-3	0.059		42	(1)
			Phenanthrene	85-01-8	0.059		34	(1)
			Phenol	108-95-2	0.039		3.6	(1)
			Pyrene	129-00-0	0.067		36	(1)
			Toluene	108-88-3	0.080		14	(1)
			Xylene(s)		0.32		22	(1)
			Cyanides (Total)	57-12-5	0.028	(1)	1.8	(1)
			Chromium (Total)	7440-47-32	0.2		NA	
			Lead	7439-92-1	0.037		NA	
K049	NA	Table CCWE in 268.41.	Anthracene	120-12-7	0.059		28	(1)
			Benzene	71-43-2	0.14		14	(1)
			Benzo(a)pyrene	117-81-7	0.061		12	(1)
			Bis (2-ethylhexyl) phthalate	75-150-0	0.28		7.3	(1)
			Carbon disulfide	75-15-0	0.014		NA	
			Chrysene	2218-01-9	0.059		15	(1)
			2,4-Dimethyl phenol	105-67-9	0.036		NA	
			Ethylbenzene	100-41-4	0.057		14	(1)
			Naphthalene	91-20-3	0.059		42	(1)
			Phenanthrene	85-01-8	0.059		34	(1)
			Phenol	108-95-2	0.039		3.6	(1)
			Pyrene	129-00-0	0.067		36	(1)
			Toluene	108-88-3	0.08		14	(1)
			Xylene(s)		0.32		22	(1)
			Cyanides (Total)	56-12-5	0.028	(1)	1.8	(1)
			Chromium (Total)	7440-47-32	0.2		NA	
			Lead	7439-92-1	0.037		NA	
K050	NA	Table CCWE in 268.41.	Benzo (a) pyrene	50-32-8	0.061		12	(1)
			Phenol	108-95-2	0.039		3.6	(1)
			Cyanides (Total)	57-12-5	0.028	(1)	1.8	(1)
			Chromium (Total)	7440-47-32	02		NA	
			Lead	7439-92-1	0.037		NA	
K051	NA	Table CCWE in 268.41.	Acenaphthene	83-32-9	0.059		NA	
			Anthracene	120-12-7	0.059		28	(1)
			Benzene	71-43-2	0.14		14	(1)
			Benzo (a) anthracene	50-32-8	0.059		20	(1)
			Benzo (a) pyrene	117-81-7	0.061		12	(1)
			Bis (2-ethylhexyl) phthalate	75-15-0	0.28		7.3	(1)
			Chrysene	2218-01-9	0.059		15	(1)
			Di-n-butyl phthalate	105-67-9	0.057		3.6	(1)
			Ethylbenzene	100-41-4	0.057		14	(1)
			Fluorene	86-73-7	0.059		NA	
			Naphthalene	91-20-3	0.059		42	(1)
			Phenanthrene	85-01-8	0.059		34	(1)
			Phenol	108-95-2	0.039		3.6	(1)
			Pyrene	129-00-0	0.067		36	(1)
			Tolune	108-88-3	0.08		14	(1)
			Xylene(s)		0.32		22	(1)
			Cyanides Total)	57-12-5	0.028	(1)	1.8	(1)
			Chromium (Total)	7440-47-32	0.2		NA	
			Lead	7439-92-1	0.037		NA	
K052	NA	Table CCWE in 268.41.	Benzene	71-43-2	0.14		14	(1)
			Benzo (a) pyrene	50-32-8	0.061		12	(1)
			o-Cresol	95-48-7	0.11		6.2	(1)
			p-Cresol	106-44-5	0.77		6.2	(1)
			2,4-Dimethylphenol	105-67-9	0.036		NA	
			Ethylbenzene	100-41-4	0.057		14	(1)
			Naphthalene	91-20-3	0.059		42	(1)
			Phenanthrene	85-01-8	0.059		34	(1)
			Phenol	108-95-2	0.039		3.6	(1)
			Toluene	108-88-3	0.08		14	(1)
			Xylenes		0.32		22	(1)
			Cyanides (Total)	56-12-5	0.028	(1)	1.8	(1)
			Chromium (Total)	7440-47-32	0.2		NA	
			Lead	7439-92-1	0.037		NA	
*	*	*	*	*	*	*	*	*
K087	NA	Table CCWE in 268.41.	Acenaphthalene	208-96-8	0.059		3.4	
			Benzene	71-43-2	0.14		0.071	(1)
			Chrysene	218-01-9	0.059		3.4	(1)
			Fluoranthene	206-44-0	0.068		3.4	(1)

TABLE CCW.—CONSTITUENT CONCENTRATIONS IN WASTES—Continued

Waste code	Commercial chemical name	See also	Regulated hazardous constituent	CAS No. for regulated hazardous constituent	Wastewaters		Nonwastewaters	
					Concentration (mg/l)	Notes	Concentration (mg/kg)	Notes
			Indeno (1,2,3-cd) pyrene	193-39-5	0.0055		3.4	[1]
			Naphthalene	91-20-3	0.059		3.4	[1]
			Phenanthrene	85-01-8	0.059		3.4	[1]
			Toluene	108-88-3	0.08		0.65	[1]
			Xylenes		0.32		0.07	[1]
			Lead	7439-92-1	0.037		NA	
K093	NA		Phthalic anhydride (measured as Phthalic acid).	85-44-9	0.069		28	[1]
K094	NA		Phthalic anhydride (measured as Phthalic acid).	85-44-9	0.069		28	[1]
*	*	*	*	*	*		*	
K117	NA		Ethylene dibromide		0.028		15	
			Methyl bromide		0.11		15	
			Chloroform		0.046		5.6	
			1,1,2-Tribromoethane		0.63		15	
K118	NA		Ethylene dibromide		0.028		15	
			Methyl bromide		0.11		15	
			Chloroform		0.046		5.6	
			1,1,2-Tribromoethane		0.63		15	
K131	NA		Methyl bromide		0.11		15	
K132	NA		Methyl bromide		0.11		15	
K136	NA		Ethylene dibromide		0.028		15	
			Methyl bromide		0.11		15	
			Chloroform		0.046		5.6	
			1,1,2-Tribromoethane		0.63		15	
*	*	*	*	*	*		*	
U028	Bis(2-ethylhexyl) phthalate.		Bis(2-ethylhexyl) phthalate	117-81-7	0.28		28	[1]
*	*	*	*	*	*		*	
U069	Di-n-butyl phthalate.		Di-n-butyl phthalate	84-74-2	0.057		28	[1]
*	*	*	*	*	*		*	
U088	Diethyl phthalate.		Diethyl phthalate	84-66-2	0.2		28	[1]
*	*	*	*	*	*		*	
U102	Dimethyl phthalate.		Dimethyl phthalate	131-11-3	0.047		28	[1]
*	*	*	*	*	*		*	
U107	Di-n-octyl phthalate.		Di-n-octyl phthalate	117-84-0	0.017		28	[1]
*	*	*	*	*	*		*	
U190	Phthalate anhydride (measured as Phthalic acid).		Phthalate anhydride (measured as Phthalic acid).	85-44-9	0.069		28	[1]

[1] Treatment standards for this organic constituent were established based upon incineration in units operated in accordance with the technical requirements of 40 CFR 264 Subpart O or Part 265 Subpart O, or based upon combustion in fuel substitution units operating in accordance with applicable technical requirements. A facility may certify compliance with these treatment standards according to provisions in 40 CFR Section 268.7.

Note: NA means not applicable.

* * * * *

24. In subpart D § 268.45 with tables 1 and 2 is added to read as follows:

§ 268.45 Treatment standards for contaminated debris.

(a) Treatment standards. Contaminated debris must be treated prior to land disposal as follows unless EPA determines under § 261.3(e)(2) of this chapter that the debris is no longer contaminated with hazardous waste:

(1) General. Contaminated debris that is contaminated with a "contaminant subject to treatment" defined by paragraph (b) of this section must be treated using the technology or technologies identified in appendix IX to this part 268, as specified in table 1 of this section for each contaminant category represented by a "contaminant subject to treatment". Table 2 of this section assigns each potential contaminant to a contaminant category for determining the required treatment technology. The acceptable treatment technologies for each combination of debris category and contaminant category are identified by a "YES" in table 1.

(2) Characteristic debris. Contaminated debris that exhibits the characteristic of ignitability or reactivity identified under §§ 261.21 and 261.23 of this chapter, respectively, must be treated to deactivate the ignitability or reactivity characteristic.

(3) Mixtures of debris types. If a mixture of debris types is not separated according to the debris categories identified in table 1 of this section for subsequent treatment of each category, each debris type in the mixture must be treated by technologies identified with a YES in table 1 of this section. If table 1 does not allow use of the same treatment technology for all debris categories (and contaminant categories) in the mixture, a treatment train of sequential treatment technologies must be used. If an immobilization technology is used in a treatment train, it must be the last treatment technology in the train.

(4) Mixtures of Contaminant Types. Debris that is contaminated with contaminants subject to treatment identified under paragraph (b) of this section that are assigned to two or more contaminant categories provided in table 2 of this section must be treated

for each contaminant category by a technology identified with a YES in table 1 of this section. If table 1 does not allow use of the same treatment technology for all contaminant categories (and debris categories) in the debris, a treatment train of sequential treatment technologies must be used. If an immobilization technology is used in a treatment train, it must be the last treatment technology in the train.

(5) Waste PCBs. Contaminated debris that is also a waste PCB under 40 CFR part 761 is subject to the requirements of either 40 CFR part 761 or the requirements of this section, whichever are more stringent.

(b) Contaminants subject to treatment. Contaminated debris must be treated for each "contaminant subject to treatment." Except as provided by paragraph (b)(4) of this section, the contaminants subject to treatment must be determined as follows:

(1) Toxicity characteristic debris. The contaminants subject to treatment for debris that exhibits the Toxicity Characteristic (TC) by § 261.24 of this chapter, and also would exhibit the Extraction Procedure (EP) toxicity characteristic under old § 261.24 are those constituents for which the debris exhibits the TC and EP toxicity characteristic.

(2) Debris contaminated with listed waste. The contaminants subject to treatment for debris that is contaminated with a prohibited listed hazardous waste are those constituents for which BDAT standards are established for the waste under §§ 268.41 and 268.43, and all toxic constituents on appendix VIII, part 261 of this chapter, that the owner or operator could have reason to know may contaminate the debris at detectable levels using procedures prescribed by Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW–846, incorporated by reference SW–846. When reasonably available, information from generators must be used to identify appendix VIII constitutents that may contaminate the debris at detectable levels; sampling and analysis is not required.

(3) Cyanide reactive debris. Contaminated debris that is reactive because of cyanide must be treated for cyanide.

(4) Generic treatment technologies. The owner or operator of a treatment facility need not make determinations regarding the presence of contaminants subject to treatment if the debris is treated with a generic treatment technology that will effectively treat all contaminants. Generic treatment technologies for particular debris categories are identified in appendix XI to this part 268.

(5) Inherently contaminated debris. (i) Debris that is fabricated from metals identified as D004–D011 and that exhibits as fabricated the toxicity characteristic under both the Toxicity Characteristic Leaching Procedure and the Extraction Procedure is considered to be inherently contaminated debris.

(ii) Inherently contaminated debris must be treated in compliance with paragraph (a)(1) of this section for other contaminants subject to treatment. Following such treatment, if the debris continues to exhibit the toxicity characteristic under both the Toxicity Characteristic Leaching Procedure and the Extraction Procedure due to its inherent content, it must be either immobilized prior to land disposal in a RCRA subtitle C facility or recycled as provided in § 261.6(a)(3)(iv) of this chapter. Inherently hazardous debris that is not contaminated with other contaminants subject to treatment may be recycled as provided in § 261.6(a)(3)(iv) of this chapter without treatment under paragraph (a)(1) of this section, or immobilized and disposed in a RCRA subtitle C facility.

(c) Requirements to ensure effective treatment. Owners and operators of contaminated debris treatment units must comply with the performance standards specified in appendix IX to this part 268, in order for the debris to be considered to meet the treatment standards of this section.

(d) Conditioned exclusion of treated debris. Contaminated debris that has been treated using one of the required extraction or destruction technologies in table 1 of this section and that does not exhibit a characteristic of hazardous waste identified under subpart C, part 261, of this chapter after treatment is not a hazardous waste. Contaminated debris contaminated with listed waste that is treated by an immobilization technology specified in table 1 is a hazardous waste and may be managed in a subtitle C facility only. Contaminated debris that exhibits a characteristic identified in 40 CFR part 261 subpart C that exhibits a characteristic after being treated by such immobilization technology is a hazardous waste and may be managed in a subtitle C facility only.

(e) Treatment residuals. (1) General requirements. Except as provided by paragraphs (e)(2) and (e)(4) of this section:

(i) Residue from the treatment of contaminated debris is subject to the F039 nonwastewater and wastewater treatment standards under § 268.43 for all contaminants subject to treatment defined by paragraph (b) of this section and for all constituents in appendix VIII, part 261 of this chapter, that are added to the debris or residue during treatment; and

(ii) Residue from the deactivation of contaminated debris that exhibits the ignitability or reactivity characteristic of §§ 261.21 or 261.23 of this chapter, respectively, must be deactivated prior to land disposal.

(2) Nontoxic debris. Residue from the deactivation of ignitable or reactive characteristic contaminated debris that is not contaminated with a contaminant subject to treatment defined by paragraph (b) of this section, must be deactivated prior to land disposal and is not subject to the F039 nonwastewater and wastewater treatment standards under § 268.43.

(3) Cyanide-reactive debris. Residue from the treatment of debris that is reactive because of cyanide must meet the F039 standards for D003 under § 268.43.

(4) Ignitable nonwastewater residue. Ignitable nonwastewater residue containing equal to or greater than 10% total organic carbon is subject to the technology-based standards for D001: "Ignitable Liquids based on 261.21(a)(1)" under § 268.42.

(5) Residue from spalling. Layers of debris removed by spalling are contaminated debris that remain subject to the treatment standards of this section.

(6) Residue from thermal destruction. Inert debris separated from the residue resulting from the thermal destruction of contaminated debris that is not contaminated with a metal contaminant subject to treatment identified by paragraph (b) of this section is excluded from regulation as hazardous waste under § 261.3(e)(1) of this chapter.

TABLE 1.—DEBRIS TREATMENT STANDARDS

Contaminant category and treatment technology [1]	Debris category					
	Metal objects	Brick, concrete, rock, pavement	Glass	Wood	Paper, cloth	Rubber, plastic
Halogenated Pesticides and Aromatics CCO1:						
Extraction (EXTRC) [2]						
Abrasive blasting	YES	YES	YES	YES	NO	NO
Acid washing	YES	YES	YES	YES	YES	YES
Electropolishing	YES	NO	NO	NO	NO	NO
Liquid phase solvent extraction	YES	YES	YES	YES	YES	YES
Scarification and grinding	NO	YES	NO	YES	NO	NO
Spalling	NO	YES	YES	NO	NO	NO
Thermal desorption	YES	YES	YES	YES	YES	YES
Vibratory finishing	YES	YES	YES	YES	NO	YES
Vapor phase solvent extraction	YES	YES	YES	YES	YES	YES
Water washing and spraying	YES	YES	YES	YES	YES	YES
Destruction (DSTRC):						
Biodegradation	YES	YES	YES	YES	YES	YES
Chemical oxidation	YES	YES	YES	NO	NO	YES
Chemical reduction	YES	YES	YES	NO	NO	YES
Photochemical treatment	YES	YES	YES	NO	NO	YES
Thermal destruction	YES	YES	YES	YES	YES	YES
Immobilization (IMMBL):						
Macroencapsulation	NO	NO	NO	NO	NO	NO
Microencapsulation	NO	NO	NO	NO	NO	NO
Sealing	YES	YES	YES	NO	NO	NO
Dioxins, Furans, and Their Precursors CCO2:						
Extraction (EXTRC):						
Abrasive blasting	YES	YES	YES	YES	NO	NO
Acid washing	YES	YES	YES	YES	YES	YES
Electropolishing	YES	NO	NO	NO	NO	NO
Liquid phase solvent extraction	YES	YES	YES	YES	YES	YES
Scarification and grinding	NO	YES	NO	YES	NO	NO
Spalling	NO	YES	YES	NO	NO	NO
Thermal desorption	YES	YES	YES	YES	YES	YES
Vibratory finishing	YES	YES	YES	YES	NO	YES
Vapor phase solvent extraction	YES	YES	YES	YES	YES	YES
Water washing and spraying	YES	YES	YES	YES	YES	YES
Destruction (DSTRC):						
Biodegradation	NO	NO	NO	NO	NO	NO
Chemical oxidation	YES	YES	YES	NO	NO	YES
Chemical reduction	YES	YES	YES	NO	NO	YES
Photochemical treatment	YES	YES	YES	NO	NO	YES
Thermal destruction	YES	YES	YES	YES	YES	YES
Immobilization (IMMBL):						
Macroencapsulation	NO	NO	NO	NO	NO	NO
Microencapsulation	NO	NO	NO	NO	NO	NO
Sealing	YES	YES	YES	NO	NO	NO
Halogenated Aliphatic Compounds CCO3:						
Extraction (EXTRC):						
Abrasive blasting	YES	YES	YES	YES	NO	NO
Acid washing	YES	YES	YES	YES	YES	YES
Electropolishing	YES	NO	NO	NO	NO	NO
Liquid phase solvent extraction	YES	YES	YES	YES	YES	YES
Scarification and grinding	NO	YES	NO	YES	NO	NO
Spalling	NO	YES	YES	NO	NO	NO
Thermal desorption	YES	YES	YES	YES	YES	YES
Vibratory finishing	YES	YES	YES	YES	NO	YES
Vapor phase solvent extraction	YES	YES	YES	YES	YES	YES
Water washing and spraying	YES	YES	YES	YES	YES	YES
Destruction (DSTRC):						
Biodegradation	YES	YES	YES	YES	YES	YES
Chemical oxidation	YES	YES	YES	NO	NO	YES
Chemical reduction	NO	NO	NO	NO	NO	NO
Photochemical treatment	NO	NO	NO	NO	NO	NO
Thermal destruction	YES	YES	YES	YES	YES	YES
Immobilization (IMMBL):						
Macroencapsulation	NO	NO	NO	NO	NO	NO
Microencapsulation	NO	NO	NO	NO	NO	NO
Sealing	YES	YES	YES	NO	NO	NO
Nitrated Aromatic and Aliphatic Compounds CCO4:						
Extraction (EXTRC):						
Abrasive blasting	YES	YES	YES	YES	NO	NO
Acid washing	YES	YES	YES	YES	YES	YES
Electropolishing	YES	NO	NO	NO	NO	NO
Liquid phase solvent extraction	YES	YES	YES	YES	YES	YES
Scarification and grinding	NO	YES	NO	YES	NO	NO
Spalling	NO	YES	YES	NO	NO	NO
Thermal desorption	YES	YES	YES	YES	YES	YES

TABLE 1.—DEBRIS TREATMENT STANDARDS—Continued

Contaminant category and treatment technology [1]	Debris category					
	Metal objects	Brick, concrete, rock, pavement	Glass	Wood	Paper, cloth	Rubber, plastic
Vibratory finishing	YES	YES	YES	YES	NO	YES
Vapor phase solvent extraction	YES	YES	YES	YES	YES	YES
Water washing and spraying	YES	YES	YES	YES	YES	YES
Destruction (DSTRC):						
(Biodegradation	YES	YES	YES	YES	YES	YES
Chemical oxidation	YES	YES	YES	NO	NO	YES
Chemical reduction	NO	NO	NO	NO	NO	NO
Photochemical treatment	NO	NO	NO	NO	NO	NO
Thermal destruction	YES	YES	YES	YES	YES	YES
Immobilization (IMMBL):						
Macroencapsulation	NO	NO	NO	NO	NO	NO
Microencapsulation	NO	NO	NO	NO	NO	NO
Sealing	YES	YES	YES	NO	NO	NO
Non-Polar Aromatics, Heterocycles, and Other Organic Compounds CC05:						
Extraction (EXTRC):						
Abrasive blasting	YES	YES	YES	YES	NO	NO
Acid washing [5]	YES	YES	YES	YES	YES	YES
Electropolishing	YES	NO	NO	NO	NO	NO
Liquid phase solvent extraction	YES	YES	YES	YES	YES	YES
Scarification and grinding	NO	YES	NO	YES	NO	NO
Spalling	NO	YES	YES	NO	NO	NO
Thermal desorption	YES	YES	YES	YES	YES	YES
Vibratory finishing	YES	YES	YES	YES	NO	YES
Vapor phase solvent extraction	YES	YES	YES	YES	YES	YES
Water washing and spraying	YES	YES	YES	YES	YES	YES
Destruction (DSTRC):						
Biodegradation	YES	YES	YES	YES	YES	YES
Chemical oxidation	YES	YES	YES	NO	NO	YES
Chemical reduction	NO	NO	NO	NO	NO	NO
Photochemical treatment	NO	NO	NO	NO	NO	NO
Thermal destruction	YES	YES	YES	YES	YES	YES
Immobilization (IMMBL):						
Macroencapsulation	NO	NO	NO	NO	NO	NO
Microencapsulation	NO	NO	NO	NO	NO	NO
Sealing	YES	YES	YES	NO	NO	NO
Polynuclear Aromatics CC06:						
Extraction (EXTRC):						
Abrasive blasting	YES	YES	YES	YES	NO	NO
Acid washing	YES	YES	YES	YES	YES	YES
Electropolishing	YES	NO	NO	NO	NO	NO
Liquid phase solvent extraction	YES	YES	YES	YES	YES	YES
Scarification and grinding	NO	YES	NO	YES	NO	NO
Spalling	NO	YES	YES	NO	NO	NO
Thermal desorption	YES	YES	YES	YES	YES	YES
Vibratory finishing	YES	YES	YES	YES	NO	YES
Vapor phase solvent extraction	YES	YES	YES	YES	YES	YES
Water washing and spraying	YES	YES	YES	YES	YES	YES
Destruction (DSTRC):						
Biodegradation	YES	YES	YES	YES	YES	YES
Chemical oxidation	YES	YES	YES	NO	NO	YES
Chemical reduction	NO	NO	NO	NO	NO	NO
Photochemical treatment	NO	NO	NO	NO	NO	NO
Thermal destruction	YES	YES	YES	YES	YES	YES
Immobilization (IMMBL):						
Macroencapsulation	NO	NO	NO	NO	NO	NO
Microencapsulation	NO	NO	NO	NO	NO	NO
Sealing	YES	YES	YES	NO	NO	NO
Other Non-Halogenated Polar Organic Compounds CC07:						
Extraction (EXTRC):						
Abrasive blasting	YES	YES	YES	YES	NO	NO
Acid washing	NO	NO	NO	NO	NO	NO
Electropolishing	YES	NO	NO	NO	NO	NO
Liquid phase solvent extraction	YES	YES	YES	YES	YES	YES
Scarification and grinding	NO	YES	NO	YES	NO	NO
Spalling	NO	YES	YES	NO	NO	NO
Thermal desorption	YES	YES	YES	YES	YES	YES
Vibratory finishing	YES	YES	YES	YES	NO	YES
Vapor phase solvent extraction	YES	YES	YES	YES	YES	YES
Water washing and spraying	YES	YES	YES	YES	YES	YES
Destruction (DSTRC):						
Biodegradation	YES	YES	YES	YES	YES	YES
Chemical oxidation	YES	YES	YES	NO	NO	YES
Chemical reduction	NO	NO	NO	NO	NO	NO
Photochemical treatment	NO	NO	NO	NO	NO	NO
Thermal destruction	YES	YES	YES	YES	YES	YES

TABLE 1.—DEBRIS TREATMENT STANDARDS—Continued

Contaminant category and treatment technology [1]	Debris category					
	Metal objects	Brick, concrete, rock, pavement	Glass	Wood	Paper, cloth	Rubber, plastic
Immobilization (IMMBL):						
Macroencapsulation	NO	NO	NO	NO	NO	NO
Microencapsulation	NO	NO	NO	NO	NO	NO
Sealing	YES	YES	YES	NO	NO	NO
Non-Volatile Metals CC08:						
Extraction (EXTRC):						
Abrasive blasting	YES	YES	YES	YES	NO	NO
Acid washing	YES	YES	YES	YES	YES	YES
Electropolishing	YES	NO	NO	NO	NO	NO
Liquid phase solvent extraction	YES	YES	YES	YES	YES	YES
Scarification and grinding	NO	YES	NO	YES	NO	NO
Spalling	NO	YES	YES	NO	NO	NO
Thermal desorption	NO	NO	NO	NO	NO	NO
Vibratory finishing	YES	YES	YES	YES	NO	YES
Vapor phase solvent extraction	NO	NO	NO	NO	NO	NO
Water washing and spraying	YES	YES	YES	YES	YES	YES
Destruction (DSTRC):						
Biodegradation	NO	NO	NO	NO	NO	NO
Chemical oxidation	NO	NO	NO	NO	NO	NO
Chemical reduction [4]	NO	NO	NO	NO	NO	NO
Photochemical treatment	NO	NO	NO	NO	NO	NO
Thermal destruction	NO	NO	NO	YES	YES	YES
Immobilization (IMMBL):						
Macroencapsulation	YES	YES	YES	NO	NO	NO
Microencapsulation	YES	YES	YES	NO	NO	NO
Sealing	YES	YES	YES	NO	NO	NO
Volatile Metals CC09:						
Extraction (EXTRC):						
Abrasive blasting	YES	YES	YES	YES	NO	NO
Acid washing [5]	YES	YES	YES	YES	YES	YES
Electropolishing	YES	NO	NO	NO	NO	NO
Liquid phase solvent extraction	YES	YES	YES	YES	YES	YES
Scarification and grinding	NO	YES	NO	YES	NO	NO
Spalling	NO	YES	YES	NO	NO	NO
Thermal desorption	NO	NO	NO	NO	NO	NO
Vibratory finishing	YES	YES	YES	YES	NO	YES
Vapor phase solvent extraction	NO	NO	NO	NO	NO	NO
Water washing and spraying	YES	YES	YES	YES	YES	YES
Destruction (DSTRC):						
Biodegradation	NO	NO	NO	NO	NO	NO
Chemical oxidation	NO	NO	NO	NO	NO	NO
Chemical reduction	NO	NO	NO	NO	NO	NO
Photochemical treatment	NO	NO	NO	NO	NO	NO
Thermal destruction	NO	NO	NO	YES	YES	YES
Immobilization (IMMBL):						
Macroencapsulation	YES	YES	YES	NO	NO	NO
Microencapsulation [6]	YES	YES	YES	NO	NO	NO
Sealing	YES	YES	YES	NO	NO	NO
Non-Metal Inorganics CC10:						
Extraction (EXTRC):						
Abrasive blasting	YES	YES	YES	YES	NO	NO
Acid washing	NO	NO	NO	NO	NO	NO
Electropolishing	YES	NO	NO	NO	NO	NO
Liquid phase solvent extraction	YES	YES	YES	YES	YES	YES
Scarification and grinding	NO	YES	NO	YES	NO	NO
Spalling	NO	YES	YES	NO	NO	NO
Thermal desorption	NO	NO	NO	NO	NO	NO
Vibratory finishing	YES	YES	YES	YES	NO	YES
Vapor phase solvent extraction	NO	NO	NO	NO	NO	NO
Water washing and spraying	YES	YES	YES	YES	YES	YES
Destruction (DSTRC):						
Biodegradation	NO	NO	NO	NO	NO	NO
Chemical oxidation	YES	YES	YES	NO	NO	YES
Chemical reduction	NO	NO	NO	NO	NO	NO
Photochemical treatment	NO	NO	NO	NO	NO	NO
Thermal destruction	YES	YES	YES	YES	YES	YES
Immobilization (IMMBL):						
Macroencapsulation	NO	NO	NO	NO	NO	NO
Microencapsulation	NO	NO	NO	NO	NO	NO
Sealing	NO	NO	NO	NO	NO	NO

Key: YES-Technology is BDAT for specific debris/contaminant combination table; NO-Technology is not BDAT for specific debris/contaminant combination.

[1] Treatment technologies are defined in Table 1 of 40 CFR 268.45. Non-wastewater, and wastewater residuals from treatment of debris are subject to numerical standards for F039.

[2] Contaminated surfaces layers that have been removed by spalling are contaminated debris and must be treated to meet the debris standard.

[3] Acid washing is BDAT for heterocycles but is not BDAT for simple, non-polar aromatics.

[4] Chemical reduction of hexavalent chromium contaminated debris is BDAT.
[5] Acid washing is not BDAT for arsenic contaminated debris.
[6] Microencapsulation is not BDAT for arsenic and mercury contaminated debris.

TABLE 2.—SPECIFIC CONSTITUENTS FOR EACH CONTAMINANT CATEGORY

Contaminant category	Description of contaminant category	
	Constituent	CAS No.
Halogenated Pesticides and Aromatics, CC01:		
Halogenated Non-Polar Aromatic Compounds:		
	Chlorinated benzenes, N.O.S.*	—
	Chlorobenzene	108-90-7
	Chlorobenzilate	510-15-6
	beta-Chloronaphthalene	91-58-7
	o-Dichlorobenzene	95-50-1
	m-Dichlorobenzene	541-73-1
	p-Dichlorobenzene	106-46-7
	Dichlorobenzene, N.O.S.*	25321-22-6
	Dichlorophenylarsine	696-28-6
	Hexachlorobenzene	118-74-1
	Hexachlorophene	70-30-4
	Chlorinated napthalene, N.O.S.*	—
	Pentachlorobenzene	608-93-5
	1,2,4,5-Tetrachlorobenzene	95-94-3
	1,2,4-Trichlorobenzene	120-82-1
	Benzal chloride	98-87-3
	p,p'-DDD	72-54-8
	p,p'-DDE	72-55-9
	p,p'-DDT	50-29-3
	Hexachlorocyclopentadiene	77-47-4
	1-(o-Chlorophenyl)thiourea	5344-82-1
	Benzotrichloride	98-07-7
	Benzyl chloride	100-44-7
	Heptachlor	76-44-8
Halogenated Phenols, Cresols, and Other Polar Aromatics:		
	Chlorinated phenol, N.O.S.*	—
	p-Chloroaniline	106-47-8
	o-Chlorophenol	95-57-8
	3,3'-Dichlorobenzidine	91-94-1
	2,4-Dichlorophenol	120-83-2
	2,6-Dichlorophenol	87-65-0
	4,4'-Methylenebis(2-chloroaniline)	101-14-4
	Pentachlorophenol	87-86-5
	2,3,4,6-Tetrachlorophenol	58-90-2
	2,4,5-Trichlorophenol	95-95-4
	2,4,6-Trichlorophenol	88-06-2
	p-Chloro-m-cresol	59-50-7
	Methoxychlor	72-43-5
	4-Bromophenyl phenyl ether	101-55-3
	Pentachloronitrobenzene	82-68-8
	3-Chloropropionitrile	542-76-7
	Acetyl chloride	75-36-5
	Allyl chloride	107-05-1
	Bromoacetone	598-31-2
	Chloral	75-87-6
	Chlorambucil	305-03-3
	Chloroacetaldehyde	107-20-0
	Chloromethyl methyl ether	107-30-2
	Chloroprene	126-99-8
	Dialiate	2303-16-4
	Endosulfan	115-29-7
	Epichlorohydrin	106-89-8
	Fluoroacetamide	640-19-7
	Fluoroacetic acid, sodium salt	62-74-8
	Melphalan	148-82-3
	Methyl chlorocarbonate	79-22-1
	Methyl iodide	74-88-4
	Mustard gas	505-60-2
	Nitrogen mustard	51-75-2
	Nitrogen mustard N-oxide	126-85-2
	Nitrogen mustard, hydrochloride salt	—
	Nitrogen mustard, N-Oxide, hydro-chloride salt	—
	Propylene dichloride	78-87-5
	Uracil mustard	66-75-1
Halogenated Cyclic Aliphatics, Ethers, Esters, and Ketones:		
	Aramite	140-57-8
	Aldrin	309-00-2
	Lindane	58-89-9
	Chlordane	57-74-9
	Chloroalkyl ethers, N.O.S.*	—
	Dieldrin	60-57-1
	Endrin	72-20-8

TABLE 2.—SPECIFIC CONSTITUENTS FOR EACH CONTAMINANT CATEGORY—Continued

Contaminant category	Description of contaminant category	
	Constituent	CAS No.
	Endrin metabolites	—
	Heptachlor epoxide	1024-57-3
	Isodrin	465-73-6
	Kepone	143-50-0
	Toxaphene	8001-35-2
	2-Chloroethyl vinyl ether	110-75-8
	Bis(2-chloroethoxyl)methane	111-91-1
	Bis(2-chloroethyl)ether	111-44-4
	Bis(2-Chloroisopropyl)ether	108-60-1
	Dichloromethyl ether	542-88-1
	2-Picoline	109-06-8
	4-Aminopyridine	504-24-5
	Aflatoxins	1402-68-2
	Amitrole	61-82-5
	Benzidine	92-87-5
	Brucine	357-57-3
	Cyclophosphamide	50-18-0
	Dihydrosafrole	94-58-6
	Mitomycin C	50-07-7
	N-Nitrosonornicotine	16543-55-8
	N-Nitrosopyrrolidine	930-55-2
	N-Nitrososarcosine	13256-22-9
	Nicotine	54-11-5
	Nicotine salts	—
	O,O-Diethyl O-pyrazinyl phosphorothioate	297-97-2
	o-Toluidine	95-53-4
	o-Toluidine hydrochloride	636-21-5
	p-Toluidine	106-49-0
	Phenylthiourea	103-85-5
	Saccharin	81-07-2
	Saccharin salts	—
	Strychnine	57-24-9
	Strychnine salts	—
	Trypan blue	72-57-1
	Warfarin (<0.3%)	81-81-2
	Warfarin (>0.3%)	81-81-2
	Warfarin salts (<0.3%)	—
	Warfarin salts (>0.3%)	—
Dioxins, Furans, and Their Precursors, CC02: Dioxins/Furans, and Their Precursors:		
	Hexachlorodibenzo-p-dioxins	—
	Hexachlorodibenzofurans	—
	Pentachlorodibenzo-p-dioxins	—
	Pentachlorodibenzofurans	—
	Tetrachlorodibenzo-p-dioxins	—
	Tetrachlorodibenzofurans	—
	2,3,7,8-Tetrachlorodibenzo-p-dioxin	1746-01-6
	2,4-Dichlorophenoxyacetic acid	94-75-7
	2,4, D salts and esters	—
	Silvex (2,4,5-TP)	93-72-1
	2,4,5-Trichiorophenoxyacetic acid	93-76-5
	Trichloromethanethiol	75-70-7
Halogenated Aliphatic Compounds, CC03: Halogenated Aliphatic Compounds:		
	Halomethanes, N.O.S.*	—
	Methyl bromide	74-83-9
	Carbon tetrachloride	56-23-5
	Chlorinated ethane, N.O.S.*	—
	Chlorinated fluorocarbons, N.O.S.*	—
	Chloroform	67-66-3
	Methyl chloride	74-87-3
	1,2-Dibromo-3-chloropropane	96-12-8
	Ethylene dibromide	106-93-4
	Methylene bromide	74-95-3
	Dichlorodifluoromethane	75-71-8
	1,1-Dichloroethane	75-34-3
	Ethylene dichloride	107-06-2
	1,1-Dichloroethylene	75-35-4
	1,2-Dichloroethylene	156-60-5
	1,3-Dichloropropene	542-75-6
	1,4-Dichloro-2-butene	764-41-0
	Dichloroethylene, N.O.S.*	—
	Dichloropropane, N.O.S.*	26638-19-7
	Dichloropropanol, N.O.S.*	26545-73-3
	Dichloropropene, N.O.S.*	26952-23-8
	Methylene chloride	75-09-2
	Tetrachloroethane, N.O.S.*	—
	1,1,1,2-Tetrachloroethane	630-20-6

TABLE 2.—SPECIFIC CONSTITUENTS FOR EACH CONTAMINANT CATEGORY—Continued

Contaminant category	Description of contaminant category	
	Constituent	CAS No.
	1,1,2,2-Tetrachloroethane	79-34-5
	Tetrachloroethene	127-18-4
	Bromoform	75-25-2
	Methyl chloroform	71-55-6
	1,1,2-Trichloroethane	79-00-5
	Trichloroethylene	79-01-6
	Trichloromonofluoromethane	75-69-4
	Trichloropropane, N.O.S.*	—
	1,2,3-Trichloropropane	96-18-4
	Vinyl chloride	75-01-4
	Hexachlorobutadiene	87-68-3
	Hexachloroethane	67-72-1
	Hexachloropropene	1888-71-7
	Pentachloroethane	76-01-7
	Tris(2,3-dibromopropyl)phosphate	126-72-7
	1,3,5-Trinitrobenzene	99-35-4
	2-Cyclohexyl-4,6-dinitrophenol	131-89-5
	2-Nitropropane	79-46-9
	Diethyl-p-nitrophenyl phosphate	311-45-5
	Dimethylcarbamoyl chloride	79-44-7
	MNNG	70-25-7
	Nitroglycerin	55-63-0
	Tetranitromethane	509-14-8
Nitrated Aromatic and Aliphatic Compounds, CC04:		
Nitrated Aromatic and Aliphatic Compounds:		
	Cyanogen	460-19-5
	Cyanogen bromide	506-68-3
	Cyanogen chloride	506-77-4
	Dinoseb	88-85-7
	4,6-Dinitro-o-cresol	534-52-1
	2,4-Dinitrophenol	51-28-5
	2,4-Dinitrotoluene	121-14-2
	2,6-Dinitrotoluene	606-20-2
	5-Nitro-o-toluidine	99-55-8
	Methyl parathion	298-00-0
	Parathion	56-38-2
	Dinitrobenzene, N.O.S.*	25154-54-5
	p-Nitroaniline	100-01-6
	Nitrobenzene	98-95-3
	p-Nitrophenol	100-02-7
	[Deleted: 2-Nitropropane]	79-46-9
	7,12-Dimethylbenz(a)anthracene	57-97-6
	Benzo[j]fluoranthene	205-82-3
	Citrus red No. 2	6358-53-8
	Dibenzo(a,h)pyrene	189-64-0
	Dibenzo(a,i)pyrene	189-55-9
	Chlornaphazin	494-03-01
	7H-Dibenzo(c,g)carbazole	194-59-2
	Benz[c]acridine	225-51-4
	Dibenz(a,h)acridine	226-36-8
	Dibenz(a,j)acridine	224-42-0
	Nitrosamines, N.O.S.*	35576-91-10
Non-Polar Aromatics, Heterocycles, and Other Organic Compounds, CC05:		
Non-Polar Aromatics, Heterocycles, and Other Organic Compounds:		
	Coal tar creosote	8007-42-2
	Toluene	108-88-3
	Isosafrole	120-58-1
	Safrole	94-59-7
	Pyridine	110-86-1
	Benzene	71-43-2
	1,1-Dimethylhydrazine	57-14-7
	1,2:3,4-Diepoxybutane	1464-53-5
	1,2-Dimethylhydrazine	540-73-8
	1,2-Propylenimine	75-55-8
	1-Acetyl-2-thiourea	591-08-2
	2-Methyllactonitrile	75-86-5
	Aldicarb	116-06-3
	alpha,alpha-Dimethylphenethylamine	122-09-8
	alpha-Naphthylthiourea	86-88-4
	4,6-Dinitro-o-cresol salts	—
	Azaserine	115-02-6
	Creosote	—
	Cresols (Cresylic acid)	1319-77-3
	Crotonaldehyde	4170-30-3
	Cycasin	14901-08-7
	Diethylstilbesterol	56-53-1

TABLE 2.—SPECIFIC CONSTITUENTS FOR EACH CONTAMINANT CATEGORY—Continued

Contaminant category	Description of contaminant category	
	Constituent	CAS No.
	Diisopropylfluorophosphate (DFP)	55-91-4
	Dimethoate	60-51-5
	Dimethyl sulfate	77-78-1
	Dithiobiuret	541-53-7
	Endothal	145-73-3
	Epinephrine	51-43-4
	Ethyl carbamate (urethane)	51-79-6
	Ethyl methanesulfonate	62-50-0
	Ethylene glycol monoethyl ether	110-80-5
	Ethylenebisdithiocarbamic acid	111-54-6
	Ethylenebisdithiocarbamic acid, salts and esters	—
	Ethyleneimine	151-56-4
	Ethylenethiourea	96-45-7
	Formaldehyde	50-00-0
	Formic acid	64-18-6
	Glycidylaldehyde	765-34-4
	Hexaethyl tetraphosphate	757-58-4
	Maleic anhydride	108-31-6
	Maleic hydrazide	123-33-1
	Malononitrile	109-77-3
	Methomyl	16752-77-5
	Methyl ethyl ketone peroxide	1338-23-4
	Methyl hydrazine	60-34-4
	Methyl isocyanate	624-83-9
	Methylthiouracil	56-04-2
	N,N'-Diethylhydrazine	1615-80-1
	N-Nitroso-N-ethylurea	759-73-9
	N-Nitroso-N-methylurea	684-93-5
	N-Nitroso-N-methylurethane	615-53-2
	N-Nitrosodiethanolamine	1116-54-7
	N-Nitrosomethylvinylamine	4549-40-0
	n-Propylamine	107-10-8
	O,O,O-Triethyl phosphorothioate	126-68-1
	O,O-Diethyl S-methyldithiophosphate	3288-58-2
	Octamethylpyrophosphoramide	152-16-9
	Paraldehyde	123-63-7
	Phenylenediamine	25265-76-3
	Propargyl alcohol	107-19-7
	Propylthiouracil	51-52-5
	Reserpine	50-55-5
	Streptozotocin	18883-66-4
	Tetraethyl pyrophosphate	107-49-3
	Tetraethyldithiopyrophosphate	3689-24-5
	Thioacetamide	62-55-5
	Thiomethanol	74-93-1
	Thiosemicarbazide	79-19-6
	Thiourea	62-56-6
	Thiram	137-26-8
	Toluene diisocyanate	26471-62-5
	2,4-Toluenediamine	95-80-7
	2,6-Toluenediamine	823-40-5
	3,4-Toluenediamine	496-72-0
	Toluenediamine	25376-45-8
	Tris(1-aziridinyl)phosphine sulfide	52-24-4
	1,3-Propane sultone	1120-71-4
	5-(Aminomethyl)-3-isoxazolol	2763-96-4
	Auramine	492-80-8
	Daunomycin	20830-81-3
	Lasiocarpine	303-34-1
	Phosgene	75-44-5
	Selenourea	630-10-4
	Thiofanox	39196-18-4
Polynuclear Aromatics, CC06: Polynuclear Aromatics:		
	Benz(a)anthracene	56-55-3
	Benzo(b)fluoranthene	205-99-2
	Benzo(a)pyrene	50-32-8
	Chrysene	218-01-9
	Dibenz(a,h)anthracene	53-70-3
	Dibenzo(a,e)pyrene	192-65-4
	Fluoranthene	206-44-0
	Indeno(1,2,3-cd)pyrene	193-39-5
	Methapyrilene	91-80-5
	3-Methycholanthrene	56-49-5
	Naphthalene	91-20-3
	Dichlorophenylarsine	696-28-6
	Aluminum phosphide	20859-73-8
	Ammonium vanadate	7803-55-6

TABLE 2.—SPECIFIC CONSTITUENTS FOR EACH CONTAMINANT CATEGORY—Continued

Contaminant category	Description of contaminant category	
	Constituent	CAS No.
	Benzenearsonic acid	98-05-5
	Cacodylic acid	75-60-5
	Diethylarsine	692-42-2
	Osmium tetroxide	20816-12-0
	Tetraethyl lead	78-00-2
Other Nonhalogenated Polar Organic Compounds, CC07: Other Nonhalogenated Polar Organic Compounds:		
	2-Acetylaminofluorene	53-96-3
	Acrylamide	79-06-1
	4-Aminobiphenyl	92-67-1
	Allyl alcohol	107-18-6
	Aniline	62-53-3
	3,3'-Dimethoxybenzidine	119-90-4
	p-Dimethylaminoazobenzene	60-11-7
	3,3'-Dimethylbenzidine	119-93-7
	Di-n-propylnitrosamine	621-64-7
	Diphenylamine	122-39-4
	1,2-Diphenylhydrazine	122-66-7
	alpha-Naphthylamine	134-32-7
	beta-Naphthylamine	91-59-8
	N-Nitrosodi-n-butylamine	924-16-3
	N-Nitrosodiethylamine	55-18-5
	*N-Nitrosodimethylamine	62-75-9
	N-Nitrosomethylethylamine	10595-95-6
	N-Nitrosomorpholine	59-89-2
	N-Nitrosopiperidine	100-75-4
	Phenacetin	62-44-2
	2,4-Dimethylphenol	105-67-9
	Phenol	108-95-2
	Resorcinol	108-46-3
	Acrolein	107-02-8
	Carbon disulfide	75-15-0
	Ethyl methacrylate	97-63-2
	Isobutyl alcohol	78-83-1
	Ethylene oxide	75-21-8
	Thiophenol	108-98-5
	Metnyl ethyl ketone	78-93-3
	Methyl methacrylate	80-62-6
	Methyl methanesulfonate	66-27-3
	Acetophenone	98-86-2
	p-Benzoquinone	106-51-4
	Bis(2-ethylhexyl)phthalate	117-81-7
	Butylbenzyl phthalate	85-68-7
	Phthalic acid esters, N.O.S.*	—
	Diethyl phthalate	84-66-2
	Dimethyl phthalate	131-11-3
	Di-n-butyl phthalate	84-74-2
	Di-n-octyl phthalate	117-84-0
	1,4-Naphthoquinone	130-15-4
	Acetonitrile	75-05-8
	Acrylonitrile	107-13-1
	Ethyl cyanide	107-12-0
	Methacrylonitrile	126-98-7
	Disulfoton	298-04-4
	Famphur	52-85-7
	Phorate	298-02-2
	Phthalic anhydride	85-44-9
	1,4-Diethyleneoxide	123-91-1
	Pronamide	23950-58-5
	Phenylmercury acetate	62-38-4
Non-Volatile Metals, CC08: Non-Volatile Metals:		
	Barium	7440-39-3
	Barium compounds, N.O.S.*	—
	Barium cyanide	542-62-1
	Beryllium	7440-41-7
	Beryllium compounds, N.O.S.*	—
	Calcium chromate	—
	Chromium compounds, N.O.S.*	—
	Chromium (total)	7440-47-3
	Cobalt	7440-48-4
	Copper	7440-50-8
	Copper cyanide	544-92-3
	Manganese	7439-96-5
	Nickel	7440-02-0
	Nickel compounds, N.O.S.*	—
	Silver	7440-22-4
	Silver compounds, N.O.S.*	—

TABLE 2.—SPECIFIC CONSTITUENTS FOR EACH CONTAMINANT CATEGORY—Continued

Contaminant category	Description of contaminant category	
	Constituent	CAS No.
	Carbon oxyfluoride	353-50-4
	Vanadium	7440-6-2
	Nickel carbonyl	13463-39-3
	Nickel cyanide	557-19-7
	Silver cyanide	506-64-9
	Vanadium pentoxide	1314-62-1
Volatile Metals, CC09:		
Volatile Metals:		
	Antimony	7440-36-0
	Antimony compounds, N.O.S.*	—
	Arsenic	7440-38-2
	Arsenic compounds, N.O.S.*	—
	Arsenic acid	7778-39-4
	Arsenic pentoxide	1303-28-2
	Arsenic trioxide	1327-53-3
	Bismuth	7440-69-9
	Cadmium	7440-43-9
	Cadmium compounds, N.O.S.*	—
	Lead	7439-92-1
	Lead compounds, N.O.S.*	——
	Lead acetate	301-04-2
	Lead phosphate	7446-27-7
	Lead subacetate	1335-32-6
	Mercury	7439-97-6
	Mercury compounds, N.O.S.*	—
	Mercury fulminate	628-86-4
	Selenium	7778-49-2
	Selenium compounds, N.O.S.*	—
	Selenium sulfide	7488-56-4
	Selenium dioxide	7783-00-8
	Thallium	7440-28-0
	Thallium oxide	1314-32-5
	Thallium acetate	563-68-8
	Thallium carbonate	6533-73-9
	Thallium chloride	7791-12-0
	Thallium nitrate	10102-45-1
	Thallium selenite	12039-5-0
	Thallium sulfate	7446-18-6
	Thallium compounds, N.O.S.*	—
	Zinc	7440-66-6
	Zinc cyanide	557-21-1
	Zinc phosphide	1314-84-7
Non-Metal Inorganics, CC10:		
Non-Metal Inorganics:		
	Cyanides, N.O.S.*	—
	Hydrazine	57-12-5
	Nitric Oxide	302-01-2
	Nitrogen Dioxide	10102-43-9
	Phosphine	10102-44-0
	Radionuclides	7803-51-2
	Strontium sulfide	1314-96-1
	Sodium cyanide	143-33-9
	Calcium cyanide	592-01-8
	Hydrogen cyanide	74-90-8
	Fluorine	7782-41-4
	Hydrogen fluoride	7664-39-3
	Hydrogen sulfide	7783-06-4
	Potassium cyanide	151-50-8
	Potessium silver cyanide	506-61-6

*The abbreviation N.O.S. (not otherwise specified) signifies those members of a general class not specifically listed by name in this table.

25. In subpart D, § 268.46 is added to read as follows:

§ 268.46 Alternative treatment standards based on HTMR.

(a) Table 1 identifies alternative treatment standards for F006 and K062 nonwastewaters.

TABLE 1.—ALTERNATIVE TREATMENT STANDARDS

Waste code	Regulated hazardous constituent	CAS No. for regulated hazardous constituent	Non-wastewater concentration (mg/l) TCLP
F006; See Also Table CCWE in 268.41 and Table CCW in 268.43	Antimony	7440-36-0	2.1
	Arsenic	7440-38-2	0.055
	Barium	7440-39-3	7.6
	Beryllium	7440-41-7	0.014
	Cadmium	7440-43-9	0.19
	Chromium (Total)	7440-47-32	0.33
	Cyanide (Total) (mg/kg)	57-12-5	1.8
	Lead	7439-92-1	0.37
	Mercury	7439-97-6	0.009
	Nickel	7440-02-0	5.0
	Selenium	7782-49-2	0.16
	Silver	7440-22-4	0.30
	Thallium		0.078
	Vanadium	7440-62-2	0.23
	Zinc	7440-66-6	5.3
K062; See Also Table CCWE in 268.41 and Table CCW in 268.43	Antimony	7440-36-0	2.1
	Arsenic	7440-38-2	0.055
	Barium	7440-39-3	7.6
	Beryllium	7440-41-7	0.014
	Cadmium	7440-43-9	0.19
	Chromium (Total)	7440-47-32	0.33
	Lead	7439-92-1	0.37
	Mercury	7439-97-6	0.009
	Nickel	7440-02-0	5.0
	Selenium	7782-49-2	0.16
	Silver	7440-22-4	0.30
	Thallium		0.078
	Vanadium	7440-62-2	0.23
	Zinc	7440-66-6	5.3

26. In § 268.50 paragraphs (a)(1) and (a)(2) introductory text are revised to read as follows:

§ 268.50 Prohibitions on storage of restricted wastes.

(a) * * *

(1) A generator stores such wastes in tanks, containers, containment buildings or subpart X storage units on-site solely for the purpose of the accumulation of such quantities of hazardous waste as necessary to facilitate proper recovery, treatment, or disposal and the generator complies with the requirements in § 262.34 and parts 264 and 265 of this chapter.

(2) An owner/operator of a hazardous waste treatment, storage, or disposal facility stores such wastes in tanks, containers, containment buildings, or subpart X storage units solely for the purpose of the accumulation of such quantities of hazardous waste as necessary to facilitate proper recovery, treatment, or disposal and:

* * * * *

27. In part 268, appendices IX and X are added to read as follows:

Appendix IX Requirements for Effective Treatment

ABRASIVE BLASTING

Removal of contaminated debris surface layers using water and/or air pressure to propel a solid media (e.g., steel shot, aluminum oxide grit, plastic beads).

Debris type	Performance standard
Metal objects	White metal finish, all paint, surface coatings, rust, visible cracks and crevices, scale, corrosion, and visible staining removed
Glass	All paint, surface coatings, scale, visible cracks and crevices and visible staining removed
Brick, concrete, rock, pavement, wood.	>0.6 centimeter surface layer removed, and all paint, surface coatings, scale, and visible staining removed

Non-Applicable Debris or Application Restriction

Objects with small or narrow surfaces.

Special Safety Precautions

Abrasive blasting frequently causes heat and sparks at the debris surface. This may cause flammable debris or contaminants to ignite and explosive contaminants to explode. Use of nonsparking abrasive or water propelled abrasive may reduce the probability that ignitable and explosive debris and contaminants will ignite or explode during abrasive blasting.

ACID WASHING

Surface treatment of contaminated debris using solutions of low pH, including (1) hydrochloric; (2) sulfuric; (3) nitric; (4) hydrofluoric; (5) chromic; (6) fluoboric; (7) phosphoric; and/or (8) other acids of equivalent efficiency applied to debris surfaces using a spray or bath with sufficient residence time and agitation such that surface contaminants and contaminated surface layers are removed.

Debris type	Performance standard
Metal objects	White metal finish, all paint, surface coatings, rust, scale, corrosion, visible cracks and crevices, and visible staining removed
Glass	All paint, surface coatings, scale, and visible staining removed
Brick, concrete, rock, pavement, wood washing quality.	Remove all paint, coatings, scale, visible staining, and visible cracks and crevices
Paper, cloth, rubber, plastic, washing quality.	Remove all visible staining

Non-Applicable Debris or Application Restrictions

Objects with small or narrow surface.*

Special Safety Precautions

Acids may react with some debris and contaminants to form hazardous compounds. For example, acid washing of cyanide contaminated debris could result in the formation of hydrogen cyanide (HCN).

Some acids may also react violently with some debris and contaminants, depending on the concentration of the acid and the type of debris and contaminants. Debris treaters should refer to the safety precautions specified in Material Safety Data Sheets for various acids to avoid incompatible debris/contaminant combinations. For example, concentrated sulfuric acid may react violently with certain organic compounds, such as acrylonitrile.

ELECTROPOLISHING

Surface treatment of electrically conductive debris by passing electricity of sufficient current density through an electrolytic solution in which the debris has been submerged, with sufficient residence time, temperature, and agitation such that surface contaminants and contaminated surface layers are removed.

Debris type	Performance standard
Metal objects	White metal finish, all paint, coatings, rust, scale, corrosion, visible staining, and visible cracks and crevices removed

Non-Applicable Debris or Application Restriction

Metal objects that do not conduct electricity.

Special Safety Precautions

Some electrolytes employed for electropolishing may react with debris or contaminants to form toxic or hazardous compounds. For example, acidic electrolytes may react with cyanide to form toxic hydrogen cyanide (HCN) gas. Also, some electrolytes may react violently with some debris and contaminant types, depending on the electrolyte concentration and the type of debris and contaminants.

LIQUID PHASE SOLVENT EXTRACTION

Removal of hazardous contaminants from debris surfaces and surface pores by applying an organic liquid or organic liquid solution which causes the hazardous components to enter the liquid phase and be flushed away from the debris along with the organic liquid or organic liquid solution using appropriate agitation, temperature, and residence time.

Debris type	Performance standard
All debris types	Treatment must be performed in accordance with the design and operating parameters below
Design and Operating Parameters	
Contaminant solubility in solvent.	Double to at least 5% by weight
Enclosure type	Fully enclosed solvent bath or fully enclosed solvent application room
Enclosure pressure	Negative
Solvent contact	All debris surfaces during entire treatment time
Solvent contact with debris surface.	> 15 minutes
Solvent extraction quality.	Removal of all paint, coatings, and visible staining

Non-Applicable Debris or Application Restriction

Solvent selection should be based on a case-by-case determination of the permeability of the debris and the nature of the contaminant.

Special Safety Precautions

Some solvents may react violently with debris or contaminants, or they may react to form toxic or corrosive compounds. For example, acidic solvents, such as acetic acid solutions, may react with cyanides to form hydrogen cyanide (HCN) gas.

SCARIFICATION AND GRINDING

Process utilizing striking piston heads or rotating grinding wheels such that contaminated surface layers are removed and dust and airborne contaminant emissions are contained in an enclosure or captured by application of a vacuum at the point of scarification or grinding.

Debris type	Performance requirement
Brick, concrete, rock, pavement, wood.	>0.6 centimeter surface layer removed, and all paint, surface coatings, scale, visible cracks and crevices, and visible staining removed.

Non-Applicable debris or Application Restriction

Objects with small or narrow surfaces.

Special Safety Precautions

Scarification and grinding may cause heat and sparks at the debris surface, which may cause ignitable or explosive debris or contaminants to ignite or explode. Equipment that employs a water spray at the point of scarification or grinding, or wetting of the debris surface prior to treatment, may reduce the probability that ignitable or explosive debris or contaminants will ignite or explode.

SPALLING

Drilling holes at appropriate locations and depth in the debris surface and applying a tool which exerts a force on the sides of those holes such that contaminated debris surface layers are removed from the debris. The surface layer that is removed is still considered to be contaminated debris and is subject to further treatment to meet the debris standard.

Debris type	Performance standard
Brick, concrete, rock, pavement, glass.	>0.6 centimeter surface layer removed, and all paint, surface coatings, scale, visible staining and visible cracks and crevices removed

Non-Applicable Debris or Application Restrictions

Objects with small or narrow surfaces.

Special Safety Considerations

Spalling may cause heat and sparks at the debris surface, which may cause ignitable or explosive debris and contaminants to ignite or explode. Wetting the debris surface prior to treatment may reduce the probability that heat and sparks will be produced by drilling and spalling.

THERMAL DESORPTION

Heating in an enclosed chamber under either oxidizing or non-oxidizing atmospheres at sufficient operating temperature and residence time such that hazardous organic compounds are vaporized and removed from the heating chamber in a gaseous exhaust stream.

Debris type	Performance standard
All debris types	Treatment must be performed in accordance with the design and operating parameters specified below
Design and operating parameters	
Heating chamber type.	Fully enclosed
Heating chamber residence time.	≥ 60 minutes
Debris feed particle size.	< 10 cm *
Debris temperature at heating chamber exit.	≥ 200°C

* Applicable only to thermal desorption of debris other than metal or glass.

Non-Applicable Debris or Application Restrictions

None.

* Applicable to Acid Spray techniques.

Special Safety Precautions

Thermal desorption debris treatment requires that debris be heated, which may cause ignitable or explosive debris or contaminants to ignite or explode. Maintaining an inert, non-oxidizing atmosphere (e.g., nitrogen) in the heating chamber may reduce the probability that ignitable or explosive debris or contaminants will ignite or explode.

VIBRATORY FINISHING

Process utilizing scrubbing media, flushing fluid, oscillating energy, and residence time such that surface contaminants and contaminated surface layers are removed from debris.

Debris type	Performance standard
Metal objects	White metal finish, all paint, surface coatings, rust, scale, corrosion, visible cracks and crevices, and visible staining removed
Brick, concrete, rock, pavement, wood, rubber, plastic.	All paint, surface coatings, scale, visible cracks and crevices, and visible staining removed
Glass	All paint, surface coatings, scale, visible cracks and crevices, and visible staining removed

Non-Applicable Debris Type or Application Restriction

None.

Special Safety Considerations

Some flushing compounds may react violently with debris or contaminants, or they may react to form toxic or corrosive compounds. For example, acidic solvents, such as acetic or hydrochloric acid, may reach with cyanides to form hydrogen cyanide (HCN).

VAPOR PHASE SOLVENT EXTRACTION

Application to debris of an organic vapor which causes hazardous components to enter the vapor phase using sufficient agitation, residence time, and temperature such that hazardous contaminants are removed from debris surfaces and surface pores and are flushed away with the organic vapor.

Debris type	Performance standard
All debris types	Treatment must be performed in accordance with the design and operating parameters specified below
Design and operating parameters	
Solvent	Vapor phase
Contaminant solubility in solvent.	Soluble to at least 5% by weight
Treatment enclosure.	Fully enclosed
Solvent treatment system pressure.	Negative
Solvent temperature.	≥ Solvent boiling point at system pressure
Debris surface exposure to solvent.	All debris surfaces ≥ 60 minutes
Solvent extraction quality.	Removal of all paint, coatings, and visible staining

Non-Applicable Debris or Application Restriction

Solvent selection should be based on a case-by-case determination of the permeability of the debris and the nature of the contaminant.

Special Safety Considerations

Some solvents may react violently with debris or contaminants, or they may react to form toxic or corrosive compounds. For example, acidic solvents, may react with cyanides to form toxic hydrogen cyanide (HCN) gas.

WATER WASHING AND SPRAYING

Application of water or steam sprays or water baths of sufficient temperature, pressure, residence time, agitation, surfactants, and detergents to remove hazardous constituents from debris surfaces or to remove contaminated debris surface layers.

Water Baths

Debris type	Performance standard
All debris types	Treatment must be performed in accordance with the design and operating parameters below
Design and operating parameters	
Contaminant solubility.	Soluble to at least 5% by weight in water solution
Treatment quality	All visible staining removed

Non-Applicable Debris or Application Restrictions

None.

Special Safety Requirements

None.

High Pressure Steam Sprays

Debris type	Performance standard
All debris types	Treatment must be performed in accordance with the design and operating parameters below
Design and operating parameters	
Pump power	≥0.75 kilowatts
Boiler power	≥5 kilowatts
Pump flow rate	≥7 kilograms per hour
Treatment enclosure.	Fully enclosed chamber or vacuum nozzle
Treatment enclosure pressure.	Negative
Steam spray pressure.	≥275 kilopascals
Temperature	≥100°C
Spray pattern width.	<25 cm
Treatment rate	<140 square meters per hour per nozzle
Treatment quality	All visible staining removed

Non-Applicable Debris or Application Restrictions

Objects with small or narrow surfaces.

Special Safety Requirements

None.

High Pressure Water Sprays

Debris type	Performance standard
All debris types.	Treatment must be performed in accordance with the design and operating parameters below
Design and operating parameters	
Pump power	≥0.75 kilowatts
Pump flow rate.	≥7.5 liters per minute
Treatment enclosure.	Fully enclosed or vacuum nozzle
Treatment enclosure pressure.	Negative
Water spray pressure.	≥700 kilopascals
Spray pattern width.	<25 cm
Treatment rate.	<140 square meters per hour per nozzle
Treatment quality.	All visible staining removed

Non-Applicable Debris or Application Restrictions

Objects with small or narrow surfaces.

Special Safety Requirements

None.

BIODEGRADATION

Biodegradation of organics or non-metallic inorganics (i.e., degradable inorganics that contain elements of phosphorus, nitrogen, or sulfur) in units operated under either aerobic or anaerobic conditions such that a surrogate compound or indicator parameter has been

substantially reduced in concentration in the residuals (e.g., total organic carbon can often be used as an indicator parameter for the biodegradation of many organic constituents that cannot be directly analyzed in wastewater residues).

Debris type	Performance standard
All debris types.	Treatment must be performed in accordance with the design and operating parameters specified below

Design and operating parameters

Treatment enclosure.	Fully enclosed
Treatment enclosure pressure.	Negative
Oxygen concentration.	≥2 milligrams per liter
Moisture level	≥2 % of saturation
Temperature	20–35°C
pH	4.5–8

Non-Applicable Debris or Application Restriction

None.

Special Safety Precautions

None.

CHEMICAL OXIDATION

Chemical or electrolytic oxidation utilizing the following oxidation reagents (or waste reagents) or combinations of reagents: (1) hypochlorite (e.g., bleach); (2) chlorine; (3) chlorine dioxide; (4) ozone or UV (ultraviolet light) assisted ozone; (5) peroxides; (6) persulfates; (7) perchlorates; (8) permanganates; and/or (9) other oxidizing reagents of equal efficiency, performed in units operated such that a surrogate compound or indicator parameter has been substantially reduced in concentration in the residuals. Chemical oxidation specifically includes what is referred to as alkaline chlorination.

Debris type	Performance standard
Metal objects, brick, concrete, rock, pavement, glass.	Treatment must be performed in accordance with the design and operating parameters specified below

Design and operating parameters

Treatment enclosure.	Fully enclosed treatment unit
Treatment enclosure pressure.	Negative
Oxidant	Hypochlorite, chlorine; chlorine dioxide; ozone or ultraviolet assisted ozone; peroxides; persulfates; perchlorates; or permanganates
Treatment quality	All visible staining removed

Non-Applicable Debris or Application Restriction

None.

Special Safety Requirements

None.

CHEMICAL REDUCTION

Chemical reaction utilizing the following reducing reagents (or waste reagents) or combination of reagents: (1) sulfur dioxide; (2) sodium, potassium, or alkali salts of sulfides, bisulfites, and metabisulfites, and polyethylene glycols (e.g., NaPEG and KPEG); (3) sodium hydrosulfide; (4) ferrous salts; and/or (5) other reducing reagents of equivalent efficiency, performed in units operated such that a surrogate compound or indicator parameter has been substantially reduced in concentration in the residuals (e.g., total organic halides can often be used as an indicator parameter for reduction of many halogenated organic constituents that cannot be directly analyzed in wastewater residues). Chemical reduction is commonly used for the reduction of hexavalent chromium to the trivalent state.

Debris type	Performance standard
Metal objects, brick, concrete, rock, pavement, glass.	Treatment must be performed in accordance with the design and operating parameters specified below

Design and operating parameters

Treatment enclosure.	Fully enclosed treatment unit
Treatment enclosure pressure.	Negative
Residence time	≥ 2 hours
Reducing agent	Sulfur dioxide; sodium, potassium, or alkali salts of sulfides, bisulfates, metabisulfites, and polyethylene glycols; sodium hydroxides; or ferrous salts
Treatment quality	All visible staining removed

Non-Applicable Debris or Application Restriction

None.

Special Safety Requirements

None.

PHOTOCHEMICAL TREATMENT

Treatment of chlorinated organic contaminants utilizing ultraviolet (UV) light from a natural (sunlight) or artificial (UV lamp) source such that halogenated contaminants are substantially degraded on the surface of debris.

Debris type	Performance standard
All debris types	Treatment must be performed in accordance with the design and operating parameters specified below.

Design and operating parameters

UV lamp capacity	≥ 20 microwatts/square centimeter
Treatment time	≥ 24 hours

Non-Applicable Debris or Application Restriction

Objects with cracks, crevices, corrosion, rust, or scale.

Special Safety Requirements

None.

THERMAL DESTRUCTION

Treatment in an incinerator operated in accordance with the technical requirements of 40 CFR Part 264 Subpart O or 40 CFR Part 265 Subpart O, boilers or industrial furnaces operating under either interim status or a RCRA permit, or in other thermal treatment devices, such as pyrolysis units operating under interim status in accordance with the requirements of 40 CFR Part 265, Subpart P.

Debris type	Performance standard
All debris types	Performance standards for thermal destruction of hazardous wastes, including contaminated debris are contained in 40 CFR parts 260, 261, 264, 265, 266, 270 and 271

Non-Applicable Debris or Application Restriction

None.

Special Safety Requirements

None.

MACROENCAPSULATION

Application of surface coating materials such as polymeric organics (e.g., resins and plastics) or with a jacket of inert organic materials to substantially reduce surface exposure to potential leaching media. The use of a tank or container, as defined in 40 CFR 260.10, does not qualify as macroencapsulation.

Debris type	Performance standard
Metal objects, brick, concrete, rock, pavement, glass.	Treatment must be performed in accordance with the design and operating parameters listed below

Debris type	Performance standard
Design and operating parameters	
Encapsulant layer thickness.	≥0.6 cm
Encapsulation quality layer of encapsulant type.	Debris completely encapsulated in unbroken encapsulant
Encapsulant type	Non-biodegradable and impermeable to aqueous solutions and contaminants on debris

Non-Applicable Debris or Application Restriction

Wood, paper, cloth, rubber, plastic.

Special Safety Precautions

None.

MICROENCAPSULATION

Stabilization with the following reagents (or waste reagents) or combinations of reagents: (1) Portland cement; or (2) lime/pozzolans (e.g., fly ash and cement kiln dust)—this does not preclude the addition of reagents (e.g., iron salts, silicates, and clays) designed to enhance the set/cure time and/or compressive strength, or to reduce the leachability of the hazardous constituents.

Debris type	Performance standard
Metal objects, brick, rock, pavement, glass.	Treatment must be performed in accordance with the design and operating parameters below
Design and operating parameters	
Debris feed particle size.	< 10 centimeter
Curing time	≥ 7 days
Microencapsulation quality.	No free liquids present
Unconfined compressive strength of microencapsulation product.	≥ 350 kilopascals

Non-Applicable Debris or Application Restriction

None.

Special Safety Requirements

None.

SEALING

Application of an appropriate material which adheres tightly to debris surface to minimize the surface area exposed to potential leaching media. Sealing entails surface pretreatment of debris to remove contamination and to clean and roughen debris surface where appropriate. Sealing includes use of epoxy, silicone, and urethane compounds, but excludes use of paint.

Debris type	Performance standard
Metal objects, brick, concrete, rock.	Treatment must be performed in accordance with the design and operating parameters below
Design and operating parameters	
Sealant type	Epoxy, urethane, or silicone based, and non-biodegradable and impermeable to aqueous solutions or contaminants on debris
Number of coats of sealant	≥2
Sealant coat integrity	Unbroken sealant coat completely surrounding debris

Non-Applicable Debris or Application Restriction

None

Special Safety Precautions

None

VITRIFICATION

This technology uses heat generated by electrodes or direct flame to melt a mixture of glass formers and waste materials into non-asbestiform glass.

Debris type	Performance standard
All debris types	No visible debris in solid vitrification product [b]

[a] Vitrification is BDAT for contaminated asbestos debris.
[b] With the exception of debris with high melting points, such as refractory materials, which do not melt during vitrification.

Non-Applicable Debris or Application Restriction

None.

Special Safety Precautions

None.

APPENDIX X—GENERIC TREATMENT TECHNOLOGIES FOR CONTAMINATED DEBRIS [a]

Treatment technology	Debris category					
	Metal objects	Brick, concrete, rock, pavement	Glass	Wood	Paper, cloth	Rubber, plastic
Extraction:						
Abrasive blasting [b]	Yes	Yes	Yes	Yes	No	No
Scarification and grinding [b]	No	Yes	No	Yes	No	No
Spalling [b]	No	Yes	Yes	No	No	No
Vibratory finishing	Yes	Yes	Yes	Yes	No	Yes
Water washing and spraying [b,c]	Yes	Yes	Yes	Yes	No	No
Destruction:						
Thermal destruction	No	No	No	Yes	Yes	Yes

[a] Generic treatment technologies are effective on all contaminants of concern for the debris categories shown on this table.
[b] Applicable only to broad, flat surfaces. All visible cracks and crevices must be removed by surface removal technology.
[c] High pressure water sprays applicable to metal objects and glass only. Ultra-high pressure water sprays applicable to metal objects, brick, concrete, rock, pavement, glass, and wood. Water baths not applicable.

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

28. The authority citation for part 270 continues to read as follows:

Authority: 42 U.S.C. 6905, 6912, 6924, 6925, 6927, 6939, and 6974.

29. In § 270.13 paragraph (n) is added to read as follows:

§ 270.13 Contents of part A of the permit application.

* * * * *

(n) For contaminated debris, a description of the debris category(ies) and contaminant category(ies) to be treated, stored, or disposed of at the facility.

30. In § 270.14 paragraph (b)(2) is revised to read as follows:

§ 270.14 Contents of part B: General requirements.

* * * * *

(b) * * *

(2) Chemical and physical analyses of the hazardous waste and contaminated debris to be handled at the facility. At a minimum, these analyses shall contain all the information which must be known to treat, store, or dispose of the wastes properly in accordance with part 264 of this chapter.

* * * * *

31. In § 270.42 paragraph (e)(3)(ii)(B) is revised to read as follows:

§ 270.42 [Revised]

* * * * *

(e) * * *

(3) * * *

(ii) * * *

(B) To allow treatment or storage in tanks or containers, or in containment buildings in accordance with 40 CFR part 268.

32. In § 270.42 Appendix I is amended by adding item 6 to section I, and by adding new section M and items underneath it to read as follows:

Appendix I to Section 270.42—Classification of Permit Modifications

Modifications	Class
* * * * *	
I. Enclosed waste piles	
* * * * *	
6. Conversion of an enclosed waste pile to a containment building unit	2
* * * * *	
M. Containment Buildings:	
1. Modification or additional of containment building units:	
a. Resulting in greater than 25% increase in the facility's containment building storage or treatment capacity	3
b. Resulting in up to 25% increase in the facility's containment building storage or treatment capacity	2
2. Modification of a containment building unit or secondary containment system without increasing the capacity of the unit	2
3. Replacement of a containment building with a containment building that meets the same design standards provided:	
—The unit capacity is not increased	
—The replacement containment building meets the same conditions in the permit	1
4. Modification of a containment building management practice	2
5. Storage or treatment of different wastes in containment buildings:	
a. That require additional or different management practices	3
b. That do not require additional or different management practices	2

33. In § 270.72 paragraph (b)(6) is revised to read as follows:

§ 270.72 Changes during interim status.

* * * * *

(b) * * *

(6) Changes to treat or store, in tanks, containers, or containment buildings, hazardous wastes subject to land disposal restrictions imposed by part 268 or RCRA section 3004, provided that such changes are made solely for the purpose of complying with part 268 or RCRA section 3004.

* * * * *

PART 271—REQUIREMENTS FOR AUTHORIZATION OF STATE HAZARDOUS WASTE PROGRAMS

34. The authority citation for part 271 continues to read as follows:

Authority: 42 U.S.C. 6905, 6912(a), and 6926.

Subpart A—Requirements for Final Authorization

35. Section 271.1(j) is amended by adding the following entry to table 1 in chronological order by date of promulgation in the **Federal Register** and by adding the date of publication and the **Federal Register** page numbers to the following entry in table 2:

§ 271.1 Purpose and scope.

* * * * *

(j) * * *

Table 1.—Regulations Implementing the Hazardous and Solid Waste Amendments of 1984.

Promulgation date	Title of regulation	Federal Register reference	Effective date
*	* *	*	*
(Insert date of publication of final rule in the Federal Register).	Land disposal restrictions for newly listed wastes & contaminated debris & generic exclusion for K062 & F006 non-wastewaters.	(Insert Federal Register page numbers).	
*	* *	*	*

* * * * *

Table 2.—Self Implementing Provisions of the Hazardous and Solid Waste Amendments of 1984

Effective date	Self-implementing provision	RCRA citation	Federal Register reference
*	*	* *	*
	Prohibition on land disposal of newly listed wastes & contaminated debris.	3004(g)(6)(A)	(Insert date of publication) 56 FR (Federal Register page numbers).
*	*	* *	*

* * * * *

Appendix I to the Preamble: Overview of Debris Treatment Technologies

The Agency is today proposing the following eighteen specific treatment technologies for contaminants on six different categories of debris.

1. Extraction Technologies

a. Abrasive Blasting. Abrasive blasting techniques are treatment technologies designed to remove contamination by removing surface layers from debris. These technologies rely on the force of a solid object which impacts against the debris surface to remove the surface of more brittle objects. These techniques are useful for treatment of debris in which contamination has penetrated beyond the debris surface. However, these techniques do not remove contaminants which have diffused well into debris below the surface layer and would not be considered BDAT in these situations. Consequently, the appendix IX performance standards would require for porous debris such as brick, concrete, rock, pavement, and wood, that at least a 0.6 centimeter surface layer be removed, and all paint surface coatings, scale, and visible staining be removed.[47] Thus, if contamination has penetrated beyond the surface, EPA believes that compliance with the performance standard will ensure removal. The performance standard for nonporous debris would also ensure effective removal of contaminants by requiring removal of all paint, surface coatings, scale, visible cracks and crevices, and visible staining.

[47] For permeable debris where contamination may penetrate beyond 0.6 centimeters, the Agency is relying primarily on the requirement that visible staining be removed to ensure effective treatment by surface removal technologies (i.e., abrasive blasting, acid washing, scarification and grinding, spalling, and vibratory finishing). We specifically request comment on whether removal of visible staining is an adequate requirement to ensure effective treatment in all cases (i.e., data or information on situations where the contaminant may not cause visible staining).

Debris surface layers removed are considered residue subject to F039 treatment standards for nonwastewater See section V.G.3 of the preamble. The debris treated with surface removal technologies must be firmly mounted to withstand the forces associated with these techniques, which are generally applicable only to large structural surfaces, such as concrete walls, wooden floors, or steel tanks.

Abrasive blasting involves forcing an abrasive medium (e.g., steel shot, aluminum oxide grit, plastic beads) at the surface of debris at high speeds. The force of impact of the abrasive causes the debris surface to chip, flake, or erode off. The type of abrasive used varies, depending upon the thickness of the debris surface layer which must be removed and the desired smoothness of the post-abrasive blasted surface. Generally, the use of smaller and softer abrasives results in a thinner surface layer removed and a more finely finished debris surface. Commonly used abrasives include sand, typically used to remove thin layers of paint or corrosion from metal surfaces and leave a smooth finish; and steel shot, which has been used to remove concrete, leaving a rough, pitted surface.

The abrasive can be propelled with either air or water pressure, or can use a spinning wheel to hurl abrasive at debris surfaces. Abrasive can be applied with hand-held wands or can be applied in automated systems which pass debris below the abrasive spray. Rotating drums or racks may be used for treating loose debris. Abrasive blasting systems are also frequently operated in conjunction with a vacuum system to reduce dust[48] and to collect spent abrasive and the debris surface layer removed. The spent abrasive can be disposed of with the debris surface layer removed or can be separated and recycled. The debris surface layer that is removed is considered residue subject to the F039 nonwastewater LDR standards. Abrasive blasting systems are currently used in industry to remove surface layers of paint or corrosion from metal and at Superfund sites to remove layers of contaminated concrete. Abrasive blasting systems are available commercially from several manufacturers.

b. Acid Washing. This debris treatment technology uses acid to promote corrosion and removal of the surface layer of contaminated debris. Acid can either be sprayed onto a surface, or the material to be treated can be dipped into an acid bath. This method may be used to remove contaminants entrained on or near the surface of materials such as metal and wood. It may also be effective on concrete, brick, and some plastic materials. The time required for treatment depends on the acid used and the type of debris being treated. Thermal or chemical treatment of the removed material may be required to destroy or remove the contaminant before disposal. Debris surface layers removed and other treatment residues are considered residue subject to the F039 LDR treatment standards.

Various acids can be used for this technique, including hydrochloric acid (HCl), nitric acid (HNO_3), sulfuric acid (H_2SO_4), and hydrofluoric acid (HF). Hydrochloric acid has been used to clean metal parts. Hydrofluoric acid is also commonly used to etch window glass. In addition, mixtures of hydrofluoric and nitric acid have been shown to effectively treat stainless steel contaminated with radioactive contaminants.

Acid washing is applicable mainly to metals and may be suitable to remove surface contamination from glass, wood, and some concrete materials. However, it is not effective on deeply imbedded contamination of debris, and may not meet the performance standards proposed in appendix IX in those situations. If the acid washing performance standards could not be met, another treatment technology specified by proposed table 2 of § 268.45 must be selected. Typical treatment times for this technology range from several minutes to several hours.

Debris treated by acid washing may also require washing to remove residual acid from the debris surface; this residual would also be subject to the F039 treatment standards. The acid washing process often forms insoluble metal oxides and salts in the acid washing solution that may require additional treatment, such as filtration. (Again, all residues are subject to the F039 LDR standards.)

Immersion operations usually require the acid solution to be agitated to maximize contaminant removal. The amount of contaminant that can be removed from the debris is based on the immersion time in the acid solution and on the shape and composition of the debris. Complex shapes require longer times and stronger solutions than simple objects or shapes. After acid washing, the cleaned debris is usually rinsed with a water wash to remove the acid solution. The use of acid washing immersion operations will result in the accumulation of appreciable amounts of hazardous contaminants and metals (when metal debris is treated) as a result of dissolution from the debris and from the holding racks that are recycled through the acid bath. As a result, the acid baths usually have a relatively short operational life, and when they are discharged, large amounts of hazardous materials must be treated or reclaimed. These materials also can enter the treatment facility waste stream as dragout from the acid solutions into rinse waters.

We specifically request comment and supporting data and information on whether additional performance standards are needed (see proposed appendix IX) to ensure effective treatment by addressing parameters including retention time, ratio of acid volume to debris surface area, and solubility of contaminants in acid.

c. Electropolishing. This type of debris treatment technology uses electrochemical energy to remove contamination from metallic debris. It has been used to successfully remove radiological contamination from a variety of metallic materials, including carbon steel, stainless steel, copper, aluminum, and highly-alloyed, corrosion-resistant and heat-resistant materials. A variety of contaminants can be removed including plutonium, uranium, radium, cobalt, strontium, cesium, and americium, as well as other contaminants that are baked on, ground in, or otherwise difficult to remove using more conventional procedures. The surface layer that is removed is considered residue subject to the F039 LDR treatment standards.

Electropolishing is an electrochemical process used to produce a smooth, polished surface on a variety of electrically conductive metals and alloys. The object to be treated serves as the anode in an electrolytic cell. The passage of a high-density electric current results in the anodic dissolution of the surface metal, the establishment of a concentration gradient at the anode surface, and a progressive smoothing of the surface. Any contamination that is present either on the surface or entrapped within surface scratches and other surface imperfections is removed and released into the electrolyte by the surface dissolution process. A simple water wash after electropolishing is usually sufficient to remove the residual electrolyte and leave a contamination-free surface.

Most electropolishing treatment studies have used a phosphoric acid solution as the electrolyte because of its stability, safety, and applicability to a number of alloy systems. The hygroscopic nature of phosphoric acid helps minimize airborne contamination problems, and the complexing characteristics of phosphoric acid for metal ions may be a significant factor in minimizing recontamination from the electrolyte.

In general, electropolishing is limited to treatment of electrically conductive metallic objects of fairly regular geometry and size and does not show applicability to other types of debris. Electropolishing has been used primarily as a metal finishing technique and in the removal of radioactive contamination from metal debris.

d. Liquid Phase Solvent Extraction. This method of treatment, also called solvent washing or solvent soaking, uses an organic solvent in the liquid phase to solubilize contaminants for removal. This technique can be used on many solvent-soluble contaminants and with many forms of debris. Solvents can be applied to the surface of large debris or standing buildings, or small pieces of debris can be soaked in baths of solvent. The solvent may be heated or applied at ambient temperatures. A wide variety of wash/soak/rinse cycles can be used to optimize treatment. Water washing or secondary treatment/removal (e.g., heating or vacuum removal) after treatment may be necessary to remove residual solvent from the debris. After treatment, it is sometimes possible to reuse solvent in the treatment system.

A wide variety of organic solvents are commonly used, including trichloroethylene (TCE), methylene chloride, and alcohols. The solvent used depends on the debris contaminant combination being treated and would have to be made on a case-by-case basis by the treater based on the permeability of the debris and the nature of the contaminant. In addition, other chemicals may be added to the solvent to aid in treatment of residuals, or surfactants can be

[48] We note that debris treatment facilities are subject to the applicable requirements of parts 264, 265, and 266 that ensure protection of human health and the environment.

added to prevent solubilized contaminants from migrating further into the surface of porous debris.

e. Thermal Desorption. This type of debris treatment technology relies primarily upon the use of temperatures from 90 °C to 1200 °C to volatilize contaminants. Some contaminants may also degrade to simpler compounds under these temperatures. Data from treatment tests indicate that it has been used to successfully treat concrete and metal contaminated with chemicals similar to constituents of the halogenated aromatics and pesticides group and to remove volatile organics from plastic and rubber. Low temperature desorption systems can be designed to be applied to debris either in-situ or ex-situ.

In-situ low temperature desorption systems are generally employed in the treatment of intact buildings.[49] The building is sealed and insulated to contain heat and volatilized contaminants. A burner or a boiler is used to produce hot gas or steam, respectively, which is drawn through the building by an induction fan or a blower. Exhaust gases from the building are passed through a separation system or an incinerator to remove contaminants. In-situ low temperature desorption systems must be tailor-made for each debris treatment conducted.[50]

Ex-situ systems employ an oven or heating chamber Debris is placed into the oven and heated by convection using heating fuel or electric heating element, or heated by radiation using infrared radiation or microwaves. Ovens may be filled with a nitrogen atmosphere in order to prevent contaminants and debris from combusting or exploding. Volatilized contaminants can be separated from the oven's gas effluent or incinerated. The debris oven can be designed to be run on either batch or continuous mode. Ex-situ low temperature desorption systems for soil treatment are currently available commercially and may be modified to treat contaminated debris.

The primary contaminated treatment residual produced by low temperature desorption is a vapor stream contaminated with volatilized contaminants. This vapor waste stream may be passed through a separation system, such as an activated carbon filter or a packed bed scrubber, or the vapor stream may be incinerated. Residuals from the separation system or incinerator are subject to the F039 LDR treatment standards.

We note that we are not proposing in appendix X separate performance standards for low versus high temperature thermal desorption. We specifically request comment and supporting data and information on whether and how to establish performance standards for low versus high temperature desorption.

f. Scarification and Grinding. This treatment technology utilizes a device, which contains several pistons that are forced rapidly against the surface of debris, or a series of grinding wheels, which grind away debris surfaces. Scarification devices employ the force of impact to cause up to 2.54 centimeters of the debris surface to chip off. Consequently, the appendix IX performance standards would require for debris such as brick, concrete, rock, pavement, and wood, that at least a 0.6 centimeter surface layer be removed, and all paint, surface coatings, scale, visible cracks and crevices, and visible staining be removed. Thus, if contamination has penetrated beyond 2.54 centimeters of the surface layer and visible staining and/or cracks and crevices are visible after treatment, the performance standard has not been met and another treatment must be used to ensure effective treatment of the debris (or treatment by scarification and grinding must continue until the performance standard is met).

Scarification equipment can be used in conjunction with a vacuum system to collect the debris surface layer removed. The scarified surface may also require washing or vacuuming to remove residual dust. Scarification generates several waste streams, including the debris surface removed, airborne dust,[51] and possibly a wash water, which may require additional treatment and disposal. Scarification equipment may be operated by hand or mounted on a backhoe or forklift. Scarification equipment is currently used in the construction industry in the demolition or cleaning of concrete structures and to prepare concrete surfaces for coating.

Grinding systems use the force of a grinding wheel on the debris surface to leave a rough, pitted surface. Grinding equipment may be used in conjunction with a vacuum system to collect the debris surface layer removed.

The debris surface removal techniques are expected to remove surface contamination and surface layers of contaminated debris. Contaminated surface layers of debris and other treatment residuals are considered residue subject to the F039 LDR treatment standards.

g. Spalling. This technology uses a two-step process to remove the surface layer from debris. The first step involves drilling holes into the surface of the contaminated debris. The second step involves inserting the bit of a spalling tool, consisting of two metal feathers, into the holes. Hydraulic pressure is then used to force a push rod between the metal feathers, causing them to push outward against the sides of the hole. This causes up to 50 mm of the debris surface layer to fracture and crack off.

Because spalling does not react with or dissolve contaminants, but rather relies on the removal of debris layers in which the contaminant is contained, contaminants not entrained in the debris layer removed will not be effectively treated by spalling. Consequently, the appendix IX performance standards would require for contaminated brick, concrete, rock, pavement, and glass (the only applicable debris categories), that at least a 0.6 centimeter surface layer removed, and all paint, surface coatings, scale, visible staining and visible cracks and crevices removed. Thus if contamination has penetrated beyond the surface, EPA believes that compliance with the performance standard will ensure removal. Contaminated surface layers that have been removed by spalling are still considered contaminated debris, however, and must be treated to meet the debris standard. (EPA considers debris layers removed by spalling to be contaminated debris rather than residue because spalling can remove deeper layers of debris.) It should be noted that the spalling technique may produce contaminated dust that may settle on the debris.[52] The spalled debris surface must be vacuumed or washed to remove this dust, and the resulting residual dust or wash water is considered residue subject to the F039 LDR treatment standards.

h. Vapor Phase Solvent Extraction. This method of treatment uses an organic solvent in the vapor phase to solubilize contaminants for removal. This technique is similar to the process using solvent mixtures that are used for vapor degreasing in industry. Depending on the choice of solvent, this method has potential to treat many solvent-soluble contaminants and a wide range of debris types.

In this process, a solvent is vaporized and allowed to circulate inside or around the contaminated debris (in a closed chamber). The hot vapors condense on and into the surface of the contaminated material, where they solubilize contaminants and diffuse outward. The contaminant-laden liquid solvent is collected and treated prior to recycling or reusing the solvent. Complete treatment can take several hours or more.

i. Vibratory Finishing. Vibratory finishing is a debris treatment process that combines the use of mechanical energy to scrub the surface of debris with solvent washing to dissolve contaminants and flush away particulates removed by the mechanical scrubbing. Vibratory finishing takes place in a vibrating tub of small particles, or abrasives, through which flows a liquid chemical compound. The energy from the vibrating tub causes the abrasive to vibrate. The vibrating abrasive scrubs the surfaces of debris placed in the tub. A liquid chemical compound which flows through the abrasive dissolves contaminants and flushes away particulates scrubbed from the debris.

The abrasives used in vibratory finishers are usually constructed of ceramic or metal and come in a variety of shapes and sizes. Abrasive shape, size, and material determine the rate at which the debris is scrubbed and the effectiveness of the vibratory finishing process on debris from a particular debris category.

The liquid flushing compound employed in the vibratory finishing process is usually one in which the contaminant is soluble. This enhances the treatment of the debris by dissolving contaminants. The liquid compound is sprayed on top of the abrasive and debris, percolates through the abrasive

[49] A building contaminated with a prohibited waste would be subject to today's proposed rule if it is decontaminated prior to demolition. If, however, the building is decontaminated and continues to be used as a building, the building is not debris and the decontamination is not subject to today's proposed rule.

[50] See footnote 8 in the preamble to today's proposed rule.

[51] See footnote 8 in the preamble to today's proposed rule.

[52] See footnote 8 in the preamble to today's proposed rule.

and debris, where it flushes away contamination and particulates scrubbed off the debris, and flows out of a drain at the bottom of the tub. Spent flushing fluid is usually recycled by passing it through a separation system which removes particulates and dissolved contaminants.

The residuals produced by vibratory finishing techniques include spent flushing compound and particulates scrubbed from the debris surface. The vibratory finishing abrasive usually does not become contaminated because it is treatment by the same scrubbing action which treats the debris. The scrubbed particulates can be removed from the flushing liquid through filtration or settling. All residuals, including the surface layer that is removed, are considered residue subject to the F039 LDR treatment standards.

j. Water Washing and Spraying. This section discusses debris treatment techniques that rely primarily on the use of water or steam. The techniques in this section have been divided into two categories: water washing and spray application techniques.

Water washing techniques rely primarily upon the solubility of contaminants in water and can be conducted by submerging, rinsing, or spraying debris with water. During submersion, the water may be circulated, or the water and/or debris may be agitated to increase the rate at which the contaminants dissolve. A water-soluble detergent is frequently added to the water to enhance contaminant solubility or mobility to remove the contaminant from the surface of the debris by breaking the surface tension.[53] For example, data indicate that benzonitrile, a non-soluble contaminant on 55-gallon drums was effectively lifted off the metal surface through the use of high pressure steam sprays. See Background Document for additional information. In addition, water may be circulated through a separation system such as a filter or distillation column to remove contaminants from the circulating water. Treatment residuals include the treated debris, wastewater, and the treatment residuals produced by any separation systems employed, such as spent filters or sludge. Residuals are subject to the F039 LDR treatment standards.

Spray application techniques rely upon several principles to remove contaminants from debris: (1) The force of impact of a pressurized stream of water or steam to physically remove contaminants; (2) the solubility of contaminants in water to dissolve contaminants; and (3) in the case of steam cleaning, the use of heat to volatilize contaminants.

Spray application techniques generally entail the use of a pump to pressurize the water or steam, a nozzle to direct the flow of the pressurized stream, and a hose or pipe to connect the nozzle to the pump. For steam cleaning systems, a boiler must be added to the system to vaporize the water. Water-soluble detergents are frequently added to the water or steam to enhance contaminant removal. After application to the object to be cleaned, water may be recycled through a wastewater treatment system.

Spray technologies consist of the following processes: (1) High pressure water sprays; (2) steam sprays; and (3) ultra-high pressure water sprays.

High pressure water sprays (usually defined as pressures up to 34,000 kPa) may be used to remove surface contamination from debris. These sprays are generally effective in removing all types of contaminants from debris surfaces. However, they are usually ineffective in removing contaminants which have diffused below the surface of debris. Accordingly, the performance standards would require that all visible staining be removed in addition to design and operation under specified conditions. High pressure water sprays do not apply water to the debris surface for a sufficient time to leach contaminants that have diffused into the debris. For this reason, the use of high pressure water sprays may not meet the performance standards of appendix IX when used on debris categories that are permeable to contaminants, such as wood and paper.

Ultra-high pressure water sprays (21,000 to 241,000 kPa) may be used to remove debris surface layers. Ultra-high pressure water sprays are useful in removing surface layers from debris that is firmly mounted to withstand the force of the water stream. This technique is applicable primarily on structural surfaces, such as concrete walls or steel tanks. We do not anticipate that the performance standards for this technique can be met when used to decontaminate small objects or loose debris, such as paper, cloth, or loose wooden boards.

All pressurized spray application techniques generate a contaminated wastewater stream that must be further treated to remove or reduce contaminant levels to meet the F039 treatment standards. Steam spray techniques generally generate less wastewater than water spray techniques, but also tend to volatilize contaminants, generating an air emission or a contaminated vapor stream. Volatilized contaminants have to be separated from the vapor stream or incinerated.[54] Ultra-high pressure water spray techniques also generate a solid waste stream in the form of the debris surface layer removed which must be treated or disposed. The dislodged debris surface layer and other residuals are subject to the F039 LDR treatment standards.

2. Destruction Technologies.

a. Biodegradation. Biodegradation is a destruction technology that uses the capacity of microorganisms to degrade and transform organic hazardous compounds into compounds of reduced toxicity. Bacteria, fungi, and yeasts are the microorganisms most frequently employed to biodegrade hazardous compounds. Under aerobic conditions (in the presence of oxygen), microorganisms biodegrade organic contaminants to carbon dioxide, water, nitrate, sulfate, and cell protein. Under anaerobic conditions (in the absence of oxygen), microorganisms can biodegrade organic contaminants into methane, carbon dioxide, and cell protein. Biodegradation is applicable to contaminants which are on the surface or contained in the pores of all types of debris.

Microorganisms require nutrients, oxygen, and water to biodegrade contaminants. Two types of biotreatment systems are commonly employed to provide microorganisms with the proper environment to facilitate biodegradation of hazardous contaminants and include solid phase (biofilm) systems, and bioslurry systems.

In solid phase (biofilm) bioremediation systems, contaminated material is placed on a lined treatment bed. A layer of sand and perforated laterals may be placed on the liner, below the contaminated material, to collect leachate. The treatment bed may be covered to conserve water and capture fugitive volatile emissions. An overhead spray irrigation system is used to provide moisture and a means of distributing nutrients and microbial innoculum. Air may be provided by mixing or by pumping air through pipes buried in the material being treated. Contaminated debris may have to be homogenized and preprocessed into small pieces to provide a high surface-to-volume ratio.

Bioslurry treatment entails mixing the contaminated material with water to form a slurry. Nutrients and oxygen are added to the water, and the slurry is mixed to keep the solids in suspension. Bioslurry treatment has the advantages of providing greater process management and control, and increased contact between microorganisms and contaminants. This frequently results in faster biodegradation rates. Debris may have to be preprocessed into very small pieces, to enable it to be suspended in water. For example, contaminated plastic may be preprocessed into pellets. Bioslurry treatment would be most effective on debris which has a density similar to water.

We are concerned that the design and operating requirements for biodegradation proposed in appendix IX may not be comprehensive enough to ensure effective treatment. We therefore, specifically request data or information that would support additional operating conditions addressing retention time, microbial population acclimation period, and other parameters as appropriate.

b. Chemical Oxidation. Chemical oxidation is a treatment process used to chemically oxidize organic compounds, cyanides, and sulfides to yield carbon dioxide, water, salts, simple organic acids, and in the cases of sulfides, sulfates. Chemical oxidation has been used to treat metal debris contaminated with cyanide.

Chemical oxidation processes which treat debris involve the submersion of debris in one or more chemical baths containing chemicals which oxidize hazardous organic compounds, cyanides, and sulfides. The

[53] The proposed performance standards in appendix X, part 268 require the contaminant to be soluble to at least 5 percent by weight in a water solution. We acknowledge that detergents can effectively remove contaminants that have low solubility in water through the use of surfactants. We specifically request data and information that would support a performance standard addressing the use of surfactants for low solubility contaminants.

[54] See footnote 8 in the preamble to today's proposed rule.

principal chemical oxidants used are hypochlorite, chlorine gas, chlorine dioxide, hydrogen peroxide, ozone, and potassium permanganate. Debris is lowered into the chemical baths in wire baskets. Agitation of the wire basket or debris may be conducted to increase chemical contact with debris surfaces. Treated debris may require rinsing in order to remove residual chemicals from the debris. The spent chemical bath solution is considered residue subject to the F039 LDR treatment standards.

c. Chemical Reduction. Chemical reduction is a treatment technology which may be used to treat halogenated organic compounds and hexavalent chromium. The treatment technology dehalogenates halogenated compounds and reduces hexavalent chromium to its less toxic trivalent state.

Chemical reduction techniques include spraying foams or solutions containing reducing agents onto debris surfaces or submerging debris into solutions of reducing agents. Spray techniques require several applications and may require rinsing or steam cleaning after treatment to remove residual reducing agents from debris surfaces. Submersion techniques also require rinsing or steam cleaning after treatment to remove residual reducing agents.

Reducing agents typically used include: Sulfur dioxide; sodium, potassium or alkali salts of sulfides, bisulfides, or metabisulfides and polyethylene glycol (including NaPEG and KPEG); sodium hydrosulfide; and ferrous salts.

Debris containing hexavalent chromium which is reduced to the trivalent state requires additional treatment for trivalent chromium. Spent reducing solutions and post-treatment debris wash water are considered residue subject to the F039 LDR treatment standards.

d. Photochemical Treatment. This type of debris treatment technology uses photochemical energy in the form of ultraviolet (UV) radiation to degrade halogenated contaminants such as polychlorinated biphenyls (PCBs), and polychlorinated dibenzodioxins (PCDDs), and polychlorinated dibenzofurans (PCDFs). These compounds are quite reactive in the presence of UV radiation. The photoreduction mechanism involves the substitution of hydrogen for chlorine, leading to the formation of detoxified substances. Contaminated debris types tested include concrete, vegetation, and glass. In photochemical treatment, the source of the UV radiation is usually artificial, although tests have been performed using natural UV light in conjunction with a solvent.

In photochemical treatment, the material to be treated is exposed to UV radiation, which causes the contaminants (PCBs, PCDDs, or PCDFs) to photodegrade. The presence of a hydrogen donor molecule is thought to be necessary for treatment of PCDDs and PCDFs, but has been found to be not necessary for the treatment of PCBs. However, the presence of an organic solvent such as methanol or hexane can greatly improve the efficiency of the photodegradation.

Photochemical treatment can be used to degrade PCBs, PCDDs, and PCDFs from the surface of materials such as concrete, vegetation, and glass. Photochemical degradation will not work on deeply imbedded contaminants, because UV light cannot penetrate through these surfaces. The presence of dust and dirt will also reduce the effectiveness of this technique.

We are concerned that the proposed performance standards for photochemical treatment may not ensure effective treatment in all cases. We specifically request data or information that would support additional operating conditions addressing use of natural sunlight, presence of adequate hydrogen donor molecules, presence of dust or dirt, and penetration of contaminants below the surface layer of permeable debris types.

e. Thermal Destruction. Thermal destruction includes treatment in an incinerator operated under subpart O, parts 264 or 265, boilers or industrial furnaces operating under subpart H, part 266, or in other thermal treatment devices, such as pyrolysis units, operating under subpart P, part 265, (for interim status facilities) or subpart X, part 264.

Thermal destruction uses heat to cause contaminants to chemically react to form nonhazardous chemicals and/or to cause debris to chemically react to achieve a volume reduction of the debris. Thermal destruction units may use either an oxidizing or a nonoxidizing atmosphere. Units in which an oxidizing atmosphere is employed cause combustible debris and contaminants to oxidize (ideally) to carbon dioxide and water. Units that employ a non-oxidizing atmosphere frequently employ nitrogen. In these units, organic debris and contaminants are reacted to form carbon monoxide and methane gas.

Many incinerators require size-reduction of debris or debris agitation during incineration in order to ensure that all of the debris being treated reaches the operating temperature of the unit. Units can be run under a slightly negative pressure to prevent fugitive emissions of volatilized or incompletely combusted contaminants. Thermal destruction units must also control emissions of metals, particulate matter, acid gases, and products of incomplete combustion.

Thermal destruction units must produce wastewater from air pollution scrubbers and a solid treatment residual, the ash, which consists of the noncombustible portion of debris and contaminants. These residuals would be subject to the F039 treatment standards. Inert debris separated from residue (i.e., ash) would be treated debris excluded from subtitle C if the contaminated debris did not contain a metal contaminant subject to treatment.

3. Immobilization Technologies. EPA considers three immobilization technologies to be BDAT for contaminated debris: macroencapsulation, microencapsulation, and sealing. These technologies are not acceptable, however, for organic debris types—wood, paper and cloth, and rubber and plastic—because the organic material may degrade over time. This could result in the treated material losing its structural stability, which may cause a release of contaminated debris. Further, immobilization technologies are not appropriate for organic contaminants because the organic compounds may degrade the encapsulating coat or diffuse through the encapsulating coat provided by macroecapsulation or sealing or leach from microencapsulated debris.

a. Macroencapsulation. Macroencapsulation is a treatment technology that encases debris to provide a physical barrier that prevents contaminants from leaching from the debris. In this process, debris is placed into sealed containers entombed in concrete, or a jacket of an impermeable substance, such as polyethylene, is placed around the debris. The encapsulating material must be one which is impermeable to both water and the contaminants on the debris. Debris which is macroencapsulated may be shredded or otherwise sized before encapsulation or large pieces of debris may be encapsulated. Macroencapsulation processes must employ coatings able to withstand stresses expected to be applied to the coating in a landfill without rupturing or breaking. Macroencapsulation processes that use jacketing materials do not need to employ materials which adhere tightly to the debris surface. Jacketing materials are typically applied to debris by heating the material to slightly above its melting point to form the jacket to the shape of the debris and then allowing it to cool, or by applying a liquid monomer to the debris surface and then adding heat or a catalyst to the monomer to form an impermeable polymer. The use of a tank or container, as defined in 40 CFR 260.10, does not qualify as macroencapsulation.

b. Microencapsulation. Two types of microencapsulation processes are typically used for treatment of debris. The first involves mixing the waste with cement, lime, and fly ash, silicates, or other pozzolanic-type materials; and second involves mixing the waste with asphalt and/or plastic. In the latter process, the mixture is heated to slightly above the melting point of the plastic or asphalt, which causes the waste or debris particles to be covered with a polymeric or asphalt coating. The mixture is then cooled and allowed to set (cure) prior to disposal.

In order to obtain a uniform stabilized material, the particle size of the material being stabilized should be kept at a fairly small size (i.e., the large masses of material should be reduced in size before being stabilized). This may require shredding, crushing, or grinding of the debris.

Vendors of various microencapsulation processes have different size requirements, but the particle sizes generally range in diameter from 6.35 to 100 mm. Sizing equipment is commercially available to size most debris to meet the requirements for microencapsulation processes. Currently, shredding equipment is used to process debris-like materials such as municipal solid waste and scrap metal for volume reduction and as an initial step in recycling processes. Most shredders are equipped to reject unshreddable objects from the shredder, effectively separating them from shreddable debris. This unshreddable debris, which consists mostly of thick metal, such as

railroad rails, can be treated using an alternative technology (e.g., water washing or sealing).

We note that the proposed rule would not allow microencapsulation of debris where arsenic or mercury are contaminants subject to treatment. See note to proposed table 2, § 268.45. This is because arsenic and mercury may leach from microencapsulated debris.

c. Sealing. Sealing is a process which involves the application of a surface coating which tightly adheres to the debris surface. This surface coating must be an impermeable barrier to both water and the contaminant on the debris. Sealants are generally applied using brushes, rollers, or by dipping debris into the sealant. Several applications of sealant may be required.

Before sealants are applied, debris must be cleaned or otherwise prepared to remove gross contamination and to clean and roughen the debris surface to ensure that the sealant adheres to the debris surface. (We specifically request comment on how to develop a performance standard that ensures that the surface of the debris is properly prepared.)

Typical sealants include epoxy, silicone, and urethane resins. Sealants may be applied as solutions of water or non-polar solvents. The solvents are then allowed to evaporate, which causes the sealant to solidify and adhere to the debris surface.

Appendix II to the Preamble: Asbestos Treatment Standards

Contaminant category	Treatment technology									
	Acid washing	Liquid phase solvent extraction	Vapor phase solvent extraction	Water washing and spraying	Biodegradation	Chemical oxidation	Chemical reduction	Photochemical treatment	Macroencapsulation	Vitrification
CC01	X	X	X	X	X	X	X	X		X
CC02	X	X	X	X		X	X	X		X
CC03	X	X	X	X	X	X				X
CC04	X	X	X	X	X	X				X
CC05	X	X	X	X	X	X				X
CC06	X	X	X	X	X	X				X
CC07		X	X	X	X	X				X
CC08	X	X	X	X					X	X
CC09	X	X		X					X	X
CC10		X		X	X					X

X means the technology is acceptable for the contaminant category.

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Thursday
January 9, 1992

Part III

Department of Agriculture

Rural Electrification Administration

7 CFR Part 1710
General and Pre-Loan Policies and Procedures Common to Insured and Guaranteed Electric Loans; Final Rule

DEPARTMENT OF AGRICULTURE

Rural Electrification Administration

7 CFR Part 1710

RIN 0572-AA43

General and Pre-loan Policies and Procedures Common to Insured and Guaranteed Electric Loans

AGENCY: Rural Electrification Administration, USDA.

ACTION: Final rule.

SUMMARY: The Rural Electrification Administration (REA) hereby amends 7 CFR chapter XVII, by adding a new part 1710, General and Pre-loan Policies and Procedures Common to Insured and Guaranteed Electric Loans. This part consolidates, updates, clarifies and, in some instances, revises the policies and requirements contained in several existing REA Bulletins:

This part contains the provisions and requirements of the Rural Electrification Act (RE Act), as amended, and the administrative policies, requirements, and procedures of the REA electric program for applicants seeking financial assistance from REA for facilities to furnish electric service in rural areas. The primary objective of the rule is to update, consolidate, clarify, and simplify REA policies and procedures common to electric insured and guaranteed loans.

EFFECTIVE DATE: This rule is effective February 10, 1992.

FOR FURTHER INFORMATION CONTACT: Frank W. Bennett, Deputy Assistant Administrator-Electric, U.S. Department of Agriculture, Rural Electrification Administration, Room 4048–S, 14th and Independence Avenue, SW., Washington, DC 20250–1500, Telephone: (202) 382–9547.

SUPPLEMENTARY INFORMATION: This rule is issued in conformance with Executive Order 12291, Federal Regulation. This action will not: (1) Have an annual effect on the economy of $100 million or more; (2) result in a major increase in costs or prices to consumers, individual industries, Federal, state or local government agencies, or geographic regions; (3) result in significant adverse effects on competition, employment, investment or productivity, innovation, or on the ability of United States-based enterprises to compete with foreign-based enterprises in domestic or export markets. Therefore, this rule has been determined to be "not major."

This action does not fall within the scope of the Regulatory Flexibility Act. REA has concluded that promulgation of this rule does not represent a major Federal action significantly affecting the quality of the human environment under the National Environmental Policy Act of 1969, as amended, (42 U.S.C. 4321 *et seq.* (1976)), and therefore, does not require an environmental impact statement or an environmental assessment.

This program is listed in the Catalog of Federal Domestic Assistance under No. 10.850, Rural Electrification Loans and Loan Guarantees. For the reasons set forth in the Final Rule related notice to 7 CFR part 3015, subpart V in 50 FR 47034, November 14, 1985, this program is excluded from the scope of Executive Order 12372 which requires intergovernmental consultation with State and local officials.

The existing reporting and recordkeeping requirements contained in this rule were approved by the Office of Management and Budget (OMB), pursuant to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*), under control numbers 0572–0032 and 0572–0017. The public reporting burden is estimated to average 59 hours per response, including the time for reviewing instructions, searching existing data sources, gathering, completing and reviewing the collection of information and maintaining the data needed. The public recordkeeping burden for this collection of information is estimated to average 67 hours per response, including the time for reviewing instructions, searching existing data sources, gathering, completing and reviewing the collection of information and maintaining the data needed.

Additional reporting requirements contained in this rule have been submitted for approval to the Office of Management and Budget in accordance with the Paperwork Reduction Act of 1980. They will not be effective until approved by OMB. The public reporting burden for this new collection of information is estimated to average 12 hours per response, including the time for reviewing instructions, searching existing data sources, gathering, completing and reviewing the collection of information and maintaining the data needed. There is no additional record keeping burden for this new collection.

Send comments regarding these burden estimates or any other aspect of these collections of information, including suggestions for reducing the burden, to the Office of Information and Regulatory Affairs, Office of Management and Budget, Attention: Desk Officer for USDA, Room 3201, NEOB, Washington, DC 20503.

Background

REA makes loans and loan guarantees to electric systems to provide and improve electric service in rural areas. These loans are limited to the purposes authorized in the Rural Electrification Act of 1936, as amended (7 U.S.C. 901 *et seq.*)

REA policies and requirements covering pre-loan activities are contained in several REA regulations and bulletins. Many of these are out of date and some contain ambiguous or redundant information. It is necessary to consolidate this information and make it available to the public by codifying and publishing it in the **Federal Register**.

This part consolidates, updates, clarifies and, in some instances, revises the policies and requirements contained in the following existing REA bulletins:

20–2 Electric Loan Policies and Application Procedures
20–5 Extensions of Payments of Principal and Interest
20–6 Loans for Generation and Transmission
20–14 Supplemental Financing for Loans Considered Under Section 4 of the Rural Electrification Act
20–20 Deferment of Principal Repayments for Investment in Supplemental Lending Institutions
20–22 Guarantee of Loans for Bulk Power Supply Facilities
20–23 Section 12 Extensions for Energy Resources Conservation Loans
60–10 Construction Work Plans, Electric Distribution Systems
86–3 Headquarters Facilities for Electric Borrowers
105–5 Financial Forecast—Electric Distribution Systems
111–3 Power Supply Surveys
112–3 Area Coverage Service
120–1 Development, Approval, and Use of Power Requirements Studies
145–1 Development, Approval, and Use of Irrigation Studies

When this rule and other related rules are published in final form, the above bulletins will be rescinded, in whole or in part, or revised. In the future, REA bulletins will be used to provide certain procedural information, illustrative examples, and other guidance to assist borrowers in complying with REA's published rules.

The primary purpose of this rule is to consolidate, clarify, update and, in some instances, revise REA general loan policies and pre-loan policies and requirements applicable to electric loans. Most of the provisions of this rule represent policies and requirements that have been in effect for some time, having been implemented through REA bulletins, mortgages, notes or loan contracts, and other agency issuances.

Some provisions are either new, or a revision of existing policies and procedures, or an explicit statement of policies and procedures that formerly were implicit.

Another purpose of this rule is to strengthen the agency's credit policies. During the past few years, a number of electric borrowers have experienced considerable financial stress. By adopting the policies outlined in this rule, the agency hopes to avoid the recurrence of these situations.

This rule sets forth general and pre-loan policies and requirements that are common to insured loans and guaranteed loans. It was published as a proposed rule at 56 FR 8234 on February 27, 1991. Pre-loan policies, requirements and procedures that are specific to guaranteed loans, including 90 percent guaranteed loans recently authorized by the Omnibus Budget Reconciliation Act of 1990, are set forth in 7 CFR part 1712, published August 27, 1991 at 56 FR 42460. Pre-loan policies, requirements and procedures specific to insured loans will be set forth in proposed 7 CFR part 1714 in the near future.

Comments

A total of 88 commentors submitted comments on the proposed rule. They included 76 borrowers, the National Rural Electric Cooperative Association, the National Rural Utilities Cooperative Finance Corporation, the American Public Power Association, four state borrowers associations and five others.

REA considered all comments received. The more significant and the most commonly made comments are addressed individually herein.

Section 1710.1 (c)

It was suggested that the portions of REA bulletins to be rescinded or revised as a result of codifying part 1710 be specifically identified. This will in effect be accomplished as REA codifies the remainder of its regulations. REA's codified rules supersede any bulletins or portions thereof that may be in conflict. Any procedures or requirements that are still relevant and are not included in REA's codified rules will be included in future bulletins. As this process proceeds outdated bulletins will be rescinded.

A technical change has been made to this paragraph by adding REA bulletin 20–23 to the list of bulletins that may contain material that is in conflict with this rule and therefore superseded by it. Bulletin 20–23 was listed in the background section of the preamble to the proposed rule, but was inadvertently left out of the list in § 1710.1(c).

Section 1710.2 Definitions and Rules of Construction

It was suggested that the definition of Administrator be modified to add, "or his or her designee." This has been done.

A technical change was also suggested in the definition of PRR with respect to its use in determining the amount of supplemental financing required of a borrower. REA has considered other criteria that more closely reflect a borrower's ability to pay market rates for supplemental financing. However, appropriation acts for the past several years have prohibited any changes in the criteria and standards used to determine supplemental financing requirements from those that existed on July 15, 1982. Therefore, no changes have been made in the criteria and standards, including the definition of PRR. It should also be mentioned that the use of 1978–1980 data in the definition of APRR stems from the legislative prohibition against changes.

It was also suggested that the formulas for DSC, TIER, and PRR needed to be modified to identify the current year column of Forms 7 and 12. REA does not believe this would be desirable since these terms are sometimes used in reference to years other than the current year.

Finally, a technical change has been made in the definition of loan guarantee by deleting specific reference to sections 306 and 314 of the RE Act. While these two are the most generic authorities, there was no intention to exclude loan guarantees made under the narrower authorities of sections 306A and 311.

Section 1710.4 Exception Authority

Some questions were raised as to whether the Administrator's authority to grant an exception to regulatory requirements applies only to requirements imposed on borrowers and lenders with a loan guaranteed by REA, or also applies to any obligations or requirements imposed on REA. It was also asked whether the exception authority could be used to impose additional or more onerous requirements on borrowers and lenders.

The exception authority applies only to borrowers and lenders participating in REA loan and guarantee programs. It does not apply to any obligations or requirements imposed on REA. The authority could not be used by REA to impose additional or more onerous requirements on borrowers or lenders. The section has been revised to clarify these points. The term "Government's interest" has also been modified to make it clear that the specific interest referred to here is the Government's "financial" interest.

One commentor suggested that the standard for granting an exception should be based on whether application of the regulatory provision would adversely affect the borrower's interests and/or the government's interests, not just the latter. REA disagrees since many regulatory provisions relate to loan feasibility and security, and may be interpreted as adversely affecting the borrower's interests in some sense. Requirements to assure loan feasibility and security, which protect the government's financial interests, may at times appear at odds with a borrower's interests, but generally these provisions cannot be waived or reduced without adversely affecting the government's interests.

Another commentor suggested that the standard for making an exception to the regulations be broadened to include the promotion of the goals and purposes of the RE Act. REA disagrees since such a standard would be too broad and too vague, and would run the risk of inconsistent benefits being offered and decisions being made on an ad hoc basis without the benefit of public comment. REA anticipates that this exception authority will be used only rarely and only when it is clearly necessary to protect the Government's financial interests.

Section 1710.6 Applicability of Certain Provisions to Completed Loan Applications

A new section has been added to make it clear that certain new or revised policies and requirements set forth in this rule will not apply to a pending loan application that has been determined by REA to be complete as of the date the rule is published in final form in the **Federal Register**. This is being done to ensure that the processing of completed loan applications will not be delayed, which could happen if borrowers with already completed applications were required to amend their applications to provide the information needed to demonstrate compliance with certain of the new policies and requirements. The specific policies and requirements that will not apply to already completed applications are identified in the new section.

Section 1710.50 Insured Loans

One commentor suggested that REA authority to grant a deferral of principal and interest payments on insured loans for up to 5 years be added to this section. That authority, since it applies

only to insured loans, will be addressed in a new proposed regulation on post-loan policies and that apply specifically to insured loans.

Section 1710.101 Types of Eligible Borrowers

One commentor suggested that "basic" be dropped from the description of the retail electric service financed by REA, and that all methods of meeting the power supply needs of distribution borrowers be recognized, not just those involving a wholesale power contract. This section has been modified to incorporate these suggestions.

One commentor suggested that, in the case of a former borrower that has paid off all of its outstanding REA loans and reapplies for a loan, that REA should finance RE Act beneficiary loads accruing from the date the former loans were paid off rather than from the date the applicant's new, completed loan application is received by REA. REA disagrees with this suggestion since the loads accruing in the suggested earlier period would have already been served by the applicant, and financing of these loads by REA would constitute refinancing, which is strictly limited under the RE Act. The policy set forth in the rule on this question has been in effect for many years.

A related question is the time frame used for defining a rural area when a former, paid-off borrower applies for a new loan. The section has been modified to make it clear that areas previously designated by REA as rural and served by facilities financed by REA will be classified as rural.

Section 1710.103 Area Coverage

Several commentors expressed concern that the proposed section was intended to make area coverage requirements more stringent and/or to prohibit assessment of contributions in aid of construction. That was not the intention. REA recognizes that consumers in certain situations impose a capital and/or operating cost on the borrower that is substantially out of proportion with the revenues that would be generated at the normal rates and minimum charges assessed the typical consumer. The section has been amended to make it clear that borrowers may continue to assess contributions in aid of construction consistent with the general policy on area coverage set forth in this section.

One commentor suggested that the requirements of paragraph (b) of this section with respect to assessing a contribution in aid of construction should not apply to seasonal consumers. REA agrees and has so revised the paragraph to make it clear that the restrictions on assessing contributions in aid of construction set forth therein do not apply to either seasonal or temporary consumers.

Section 1710.104 Service of Non-RE Act Beneficiaries

One commentor suggested that this section should explicitly permit the sale of power and energy to non-RE Act beneficiaries from REA-financed plants until the entire capacity of the plant is required by RE Act beneficiaries, and that joint power supply and joint transmission arrangements be explicitly allowed. This section does not preclude these activities, which have been authorized in the past, provided that they meet the conditions set forth. REA believes that the section correctly and comprehensively states REA's policy on use of loan funds to serve non-RE Act beneficiaries.

Section 1710.105 State Regulatory Approvals

Several commentors suggested that the section be modified to make it clear that it applies only to borrowers that are required to obtain approval from their state regulatory authority for proposed construction projects and/or the related financing. Paragraph (b) has been revised to make this clear.

It was also suggested that REA should not have the flexibility to require a borrower to obtain such state approvals before REA makes a loan, as opposed to after the loan is made but before loan funds are advanced. REA disagrees and believes that it should be able, on a case by case basis, to require that the state approvals be obtained before a loan is made when the loan requires an Environmental Impact Statement and for loans to finance generation and transmission facilities when the loan request is $25 million or more. These kinds of projects generally involve higher risk than others, and in some cases it may be prudent to obtain the state approval before the loan is made. Also, the process of obtaining state approval often produces additional information valuable in assessing the feasibility and security of the proposed loan.

One commentor asked for clarification of the provision that REA may require a borrower to obtain reaffirmation of a project and its financing from the state authority before additional loan funds are advanced, if the borrower has failed to proceed with the project in a timely manner or if there are cost overruns or other developments that threaten loan feasibility or security. Under such circumstances REA believes it would be only prudent to obtain reaffirmation from the state authority. If a state authority were not willing to reaffirm the project and its financing, serious questions would be raised as to whether the state authority would allow the borrower to collect sufficient revenues to repay the loan, and REA would have to take this into consideration in deciding whether to approve additional advances of loan funds.

Section 1710.106 Uses of Loan Funds

Several commentors requested clarification of paragraph (d) of this section, which provides that the amount lent to any one borrower in a given year may be limited to less than the total amount eligible for REA financing, taking into consideration the amount of loan funds available and the size of REA's loan application inventory. This provision is intended to apply only in years when the loan funds available are substantially less than the eligible requests for loan funds. This has occurred in the past, and in several years REA has approved insured loans equal to only one-half of borrowers' financing requests, and lent the remainder in subsequent years. The paragraph has been revised to make clear that it applies only when there is a substantial shortfall in available funds. It has also been clarified that any reduction would be on an equal proportional basis for all applicants based on the amount of funds for which the applicant is eligible, and that any amount of an eligible request not lent one year would be eligible for a loan in subsequent years, provided that a resolution is submitted to REA by the borrower's board of directors certifying that the funds are still needed to complete purposes contained in the original loan application.

There also appears to be a misconception that paragraph (d) refers to the withholding of advances of loan funds after a loan is made. That is not correct, since paragraph (d) refers specifically to loan approval.

One commentor requested clarification of the statement in paragraph (c)(3) that REA will not finance any facilities that a state regulatory authority having jurisdiction will not approve for inclusion in the borrower's rate base, or will not otherwise allow rates sufficient to repay the debt incurred for the facilities. This is meant to be a general statement of policy of what REA will not finance, in the same vein as the statements in paragraphs (c) (1) and (2) of this section. This policy is consistent with the restriction in section 4 of the RE Act that

"no loan for the construction, operation, or enlargement of any generating plant shall be made unless the consent of the State authority having jurisdiction in the premises is first obtained." REA realizes that it often may not be possible at the time of loan approval to determine that a state regulatory authority will not allow sufficient revenues to repay a loan for certain facilities. Nevertheless, as a matter of basic policy REA will not knowingly lend for such facilities and may deny a loan for certain facilities or in certain circumstances if there is substantial evidence, based on state law, past regulatory practice, or preliminary decisions or statements by the state authority about the facilities in question, that sufficient revenues will not be allowed to repay the related debt.

One commentor suggested that REA explicitly state that costs associated with the decommissioning of nuclear power plants are eligible for REA financing. REA disagrees that such costs should be eligible for REA financing since all utilities that have nuclear power plants are required to establish financial reserves to pay for decommissioning costs. It is intended that these costs be collected from the consumers that benefit from the nuclear facility during its useful life. Suggesting that future REA financing may be required for decommissioning suggests that the reserves in some cases may be too small, and that larger reserves may be needed to ensure loan feasibility. Moreover, such financing would raise issues about loan collateral since the financing would be for the dismantling of facilities rather than their construction.

One commentor suggested that financial hardship be defined and that the criteria be specified regarding those facilities that may be financed by REA under paragraph (b) of this section. REA believes that it is important that the Administrator continue to have flexibility in determining what is a financial hardship with respect to REA financing of headquarters offices, general plant equipment, and working capital. Such flexibility has worked well in the past. Since the facts relating to financial hardship vary substantially from case to case, it is difficult to spell out beforehand all the relevant factors that may need to be considered in a particular case. Nevertheless, in the near future REA will outline in a proposed rule the general factors that should be considered in determining financial hardship.

It was also suggested that the type of load management equipment eligible for REA financing be clarified. This has been done in § 1710.251(c).

Section 1710.107 Amount Lent for Acquisitions

One commentor suggested that REA should finance the purchase, rehabilitation, and integration of facilities resulting from a sale and acquisition between two REA borrowers. REA disagrees that it should finance the purchase of one borrower's facilities by another borrower. This would amount to financing the same facilities twice, if the original REA debt was paid off, or it would constitute refinancing, which is strictly limited under the RE Act. However, applications for REA financing of the rehabilitation or integration of electric facilities in the case of an acquisition of one borrower by another will be treated the same, pursuant to § 1710.106, as other applications for these purposes.

Section 1710.108 Mergers and Consolidations.

A question was raised as to whether the priority consideration to be given to a loan application after a merger or consolidation refers only to moving the application forward in the application queue. The answer is yes, and the section has been modified to make it clear that the priority consideration refers to the order of processing an application as set forth in § 1710.119.

It was suggested that REA financing in connection with mergers and consolidations not be limited to financing the integration and rehabilitation of electric facilities and the extension of electric service in rural areas, but that it also include the costs incurred in effectuating mergers or consolidations, such as legal expenses or feasibility study costs. REA disagrees since such legal and study costs ordinarily are not financed by REA unless they are directly related to the construction or procurement of new facilities and are capitalized in the cost of those facilities. Mergers and consolidations worth pursuing should result in sufficient efficiencies and cost savings to more than offset the legal expenses and study costs associated with their planning and execution. If that is not the case, and the economics of the merger or consolidation depend on obtaining REA financing for these costs, then such costs may be excessive or the benefits of the merger or consolidation may be insufficient.

Section 1710.109 Reimbursement of General Funds and Interim Financing

Several commentors said that the 24 month period allowed for reimbursement of general funds was too short, especially for generation and transmission projects. Some commentors appeared to misunderstand the meaning of the section. They seemed to think that the limitation is meant to apply to all construction and procurement costs incurred prior to the loan period, regardless of whether or not the construction and procurement is completed prior to or during the loan period. That is not the intent. The 24-month reimbursement limit will not apply to equipment and facilities whose procurement and construction is completed during the loan period. Thus if legitimate front-end costs for environmental studies, design, engineering and other necessary functions are incurred for a generation and transmission project four or five years before the start of the loan period, they could be included as part of the cost of the project to be funded and completed during the loan period. The section has been revised to make it clear that the 24 month limitation applies only to reimbursements, including replacement of interim financing, for approved expenditures incurred for equipment and facilities whose procurement and/or construction is completed before the beginning of the loan period.

One commentor requested that loan period be defined. Loan period was defined in § 1710.2 of the proposed rule and its meaning remains unchanged. As defined, the loan period commences with the date shown on page 1 of REA Form 740c, Cost Estimates and Loan Budget for Electric Borrowers. Normally, this date is 60 days or less prior to the time the completed loan application is sent to the REA Washington office.

One commentor suggested that the 24 month reimbursement period be phased in over a period of years. This has been done, and it has been made clear that the new requirement applies only to complete loan applications received after the effective date of this rule.

Some comments were received suggesting that limiting reimbursement to 24 months would result in more frequent applications and could overwhelm REA staff. REA believes that any increase in the frequency of applications will be manageable and will not delay loan processing.

Some concern was expressed that reducing the reimbursement period to 24 months will result in legitimate expenditures for facilities becoming ineligible for reimbursement due to the time required to process a loan. REA does not believe that this will become a problem because the time limit applies

only to equipment and facilities completed before the beginning of the current loan period, while other legitimate expenditures are allowed to be included in the loan for facilities completed during the current loan period. Also, virtually all loans are processed within 12 months of receiving the complete loan application.

One commentor suggested that limiting reimbursement of general funds to 24 months for equipment and facilities completed before the current loan period without placing a similar limit on loans to replace interim financing will cause borrowers to rely more on interim financing. This conclusion apparently derives from a narrower interpretation of reimbursement of general funds than commonly used by REA. As used by REA, reimbursement of general funds includes replacement of interim financing, and the section has been modified to make this clear.

Section 1710.110 Supplemental Financing

One commentor requested clarification as to whether the supplemental financing requirements of this section apply to all REA financing or only to insured loans. The requirements of this section for borrowers to obtain supplemental financing apply only to insured loans. The section has been revised to make this clear.

REA does not require supplemental financing in conjunction with an REA guaranteed loan. However, if a borrower elects to obtain supplemental financing in conjunction with a guaranteed loan, the granting of REA's loan guarantee may be conditioned on the borrower's acquisition of the supplemental financing.

One commentor suggested that the condition, "except in cases of financial hardship," be added to the provision requiring supplemental financing with insured loans to conform this section with proposed § 1710.102(b), which was published on February 20, 1991 at 56 FR 6912. This has been done.

One commentor stated that if REA will continue to require supplemental financing, a lien accommodation should be granted automatically. REA understands that a lien accommodation usually is required for borrowers to obtain supplemental financing. In the case of supplemental financing required with insured loans, a lien accommodation is routinely granted. The section has been amended to clarify that REA will consider a lien accommodation for the supplemental lender.

Some commentors suggested that REA needs to streamline the process of granting a lien accommodation to a supplemental lender or consider modifying its security arrangements to facilitate additional financing from other sources. REA is studying its loan and security documents and related questions. Many of these questions will be addressed in the Agency's post-loan regulations.

Section 1710.111 Refinancing

One commentor stated that REA has much broader authority to refinance borrower debt than set forth in this section. REA disagrees. The language of the RE Act and a long history of interpretation of REA's authority to refinance borrower debt clearly indicate that REA's authority to refinance is very limited. The most commonly occurring circumstances where such authority may be exercised are set forth in this section.

Section 1710.112 Loan Feasibility

Several commentors questioned whether the intent of this section is to raise the threshold for loan feasibility and make it more difficult for borrowers to demonstrate feasibility. That is not the intent. The purpose of this section is to establish explicit and comprehensive criteria for assessing loan feasibility and ensuring that there is reasonable assurance that the loan will be repaid. The criteria set forth have been used routinely by REA either formally or informally in assessing loan feasibility, and are not being codified so that all borrowers will know exactly what factors are considered in determining loan feasibility.

One commentor expressed concern that the criteria are inflexible and do not allow for judgment, and will thus result in some loans being denied as a result of inflexible application of the criteria by REA staff. REA disagrees since the criteria deal mainly with the forecast of financial performance and the factors that are likely to affect that performance, which necessarily involves a substantial amount of judgment. This has always been the case.

Some commentors stated that the requirement that there be a reasonable expectation that consumers will be able to pay the rates required to meet expenses and repay the loan and that borrowers will be reasonably able to compete with other utilities sets too high a standard. REA disagrees with that position, since if consumers cannot pay the rates required to meet expenses and repay the loan and if the borrower cannot compete to prevent serious load loss, then the loan would not be feasible. Section 4 of the RE Act prohibits the Administrator from making a loan unless the Administrator finds and certifies that the loan will be repaid within the time agreed.

One commenter suggested that the problem was not only competition with other utilities, but also competition with other fuels. REA agrees and has so revised the section. Also, it has been made clear that substantial load loss, not any load loss, is the concern with respect to competing with other utilities or fuels, and that substantial impairment of loan feasibility, not any impairment, is likewise the concern.

Several commentors expressed concern that references to "any" risks of load loss from large consumers or from loss of service territory would establish too high a standard. REA intended "any" to convey that there might not be any such risks, but nevertheless "any" has been deleted.

Some commentors suggested that the list of criteria for assessing loan feasibility is exhaustive and that the catchall "other factors" is not needed. REA agrees and has deleted "other factors."

One commentor suggested several procedures and information collections for assessing possible risks of loss of a borrower's service territory from annexation. REA does not believe that suggested reporting burden should be imposed routinely in the case of every loan application. However, when there is a high risk of annexation in an individual case, some of the information suggested would be obtained by REA, and the section has been so revised.

Section 1710.113 Loan Security

One commentor requested clarification of what information would be required in the case of joint projects to demonstrate that the non-REA financed system is financially sound and under capable management. This has been clarified.

One commentor expressed a concern that REA is seeking an unqualified guarantee in paragraph (d) of this section that a jointly owned project will be running continuously at planned capacity. That is not the case. What REA is seeking is adequate assurance from the borrower, in the form of contractual or other security arrangements, that the jointly owned project will be operated on an efficient and continuous basis.

Section 1710.114 TIER and DSC Requirements

Several commentors stated that raising the minimum Times Interest

Earned Ratio (TIER) from 1.0 to 1.05 for power supply borrowers that receive a loan after the effective date of this rule may pose economic hardship for those borrowers operating in financially pressed areas. REA recognizes that this could be a temporary problem in certain limited cases. Therefore a provision has been added to paragraph (b) of this section whereby the Administrator may, on a case by case basis, reduce the TIER level below 1.05 for power supply borrowers, but not below 1.0, if the Administrator determines that a 1.05 TIER require said borrowers to raise the rates they charge for power so high as to substantially reduce the kWh sales and revenues and threaten loan feasibility.

In the longer term, REA anticipates that all power supply borrowers should be able to meet this modest increase in TIER without undue effects on power costs to their member systems. Ten of the 61 power supply borrowers already are required to meet a minimum TIER of 1.05 on an annual basis. Other power supply borrowers have routinely achieved a TIER of 1.05 or greater. Over the past three years, 1987–89, 36 power supply borrowers, out of the 55 for which data were available, achieved an average TIER of at least 1.05, and 28 achieved an average TIER of greater than 1.1.

One commentor suggested that the new 1.05 TIER requirement ought to be phased in. This requirement, like all other requirements in this section, applies only to borrowers that receive a loan after the effective date of this rule. REA has no problem with the suggestion and has revised the section to phase in the requirement as follows: 1.0 in calendar year (CY) 1991, 1.03 in CY 1992, and 1.05 in CY 1993.

Several commentors expressed concerns about the requirement in paragraph (d) of this section that rates must be designed to achieve the required TIER and Debt Service Coverage (DSC) levels on an annual basis. Concerns were raised that unforeseen events such as ice storms, hurricanes or tornadoes could reduce anticipated revenues and margins in a given year and result in defaults. It was also argued that it is unnecessary or unreasonable to routinely require all borrowers to design rates so that such unforeseen events in a single year will not result in a default with respect to TIER or DSC.

In light of these concerns, paragraph (d) has been revised. The design of rates requirement has been divided into two parts: a prospective requirement and a retrospective requirement. As in the proposed rule, borrowers will be required prospectively to design and implement rates so as to meet the required TIER and DSC levels on an annual basis. However, it has been made clear that average weather conditions in the borrower's service territory may be assumed in designing rates. Average weather is interpreted as including the average occurrence of system damage and outages due to storms, but not the rare extreme outages. Retrospectively, the average TIER and DSC levels actually achieved by a borrower in the two best years out of the three most recent calendar years must meet the required levels. This is similar to the current mortgage requirement. To summarize, REA will expect borrowers to design and implement rates to meet TIER and DSC each year, but recognizes that unusual unforeseen events may prevent TIER and DSC from being met in a given year.

Concerns were also raised about the provision in paragraph (b) of this section that the Administrator, in his or her sole discretion, could raise TIER or DSC requirements to ensure loan feasibility and security and improve the credit worthiness of borrowers. The commentors felt that this authority was too broad and that general increases in TIER or DSC requirements should be made through rulemaking. Given these concerns, this provision has been dropped.

Concerns were also expressed about paragraph (e)(1) regarding TIER and DSC requirements for the advance of funds. This paragraph deals with conditions that will be imposed on the advance of funds for a new loan if the borrower has failed to achieve the required TIER and DSC levels during the calendar year or latest 12 month period immediately preceding approval of the loan, or if the borrower's average TIER or DSC for the 2 best years of the most recent 3 years was below the required level. The latter test has been used by REA for many years, but the latest calendar year or 12 month period provision was a new proposal. Some commentors felt that there was unnecessary overlap between the latest calendar year and the latest 12 month period, and that this would cause confusion as to what standard a borrower would have to meet. Given these concerns, the latest calendar year has been dropped.

Some commentors suggested that if failure to meet the TIER or DSC requirements of paragraph (e)(1) were due to unusual events beyond the borrower's control, such as unusual weather, system outage due to a storm, or regulatory delay in approving rate increases, then remedial action by the borrower should not necessarily be required. REA agrees and has revised paragraph (e)(1) to provide for a waiver under such circumstances, at the Administrator's discretion. This paragraph has also been amended to make it clear that, in addition to demonstrating that TIER and DSC will be met, it must also be demonstrated that the loan will be repaid within the time agreed.

With respect to paragraph (e)(2), some commentors expressed the view that, once a loan is approved, REA should not impose any new conditions on the advance of funds. REA disagrees since it is required by law to ensure that all loans are feasible and will be repaid. If a borrower's circumstances change after a loan is made or if new information becomes available indicating that the borrower may not achieve the required TIER and DSC levels, then REA must have the authority to withhold loan fund advances until the borrower has taken satisfactory remedial action. Paragraph (e)(2) does not provide that REA will automatically withhold loan advances until the borrower takes remedial action, only that it may do so.

One commentor asked for clarification as to whether borrowers currently subject to a blended TIER requirement because they provide both power supply and distribution functions will continue to be subject to such requirement. The answer is, Yes. Paragraph (b) has been amended to explicitly provide for a blended TIER.

Section 1710.115 Loan Maturity

A question was asked whether a deferral of loan payments under section 12 of the RE Act would extend the maturity of a loan beyond its original maturity. REA has followed a policy of not extending loan maturity for loan payment deferrals made under section 12 of the Act. That section was redesignated section 12(a) by an amendment to the Act in 1990 (104 Stat. 3979), and a new paragraph (b) was added on loan payment deferrals for rural development. The existing REA policy not to extend loan maturities will continue for deferrals made under the amended section 12(a) of the Act. Deferrals made under the new section 12(b) of the Act for rural development purposes will be addressed in forthcoming regulations.

Section 1710.116 Equity Development Plan

Several comments were received on this section. Several commentors supported the need to develop adequate equity levels; some others questioned this. Most commentors suggested that

greater specificity was needed as to what will be expected of borrowers.

Several commentors pointed out that borrowers with relatively low equity could not be expected to achieve the target levels in a short time. REA understands this and has revised the section to place the emphasis on achieving progress during a 10-year planning cycle toward meeting the equity target.

A borrower's 10-year equity development plan will be expected to show reasonable progress toward achieving the equity target without raising power costs or retail rates for electricity unreasonably, placing an unreasonable burden on rate payers, or substantially reducing the borrower's ability to compete with neighboring utilities or other power sources. The amount of progress to be made during each 10-year plan will be determined individually for each borrower based on the economic strength of the borrower's service territory, the inherent cost of providing service to the territory, the disparity in rates between the borrower and neighboring utilities, the intensity of competition faced by the borrower from neighboring utilities and other energy sources, and the relative amount of new capital investment required to serve existing or new loads. REA will determine the improvement to be made under each plan, case by case, based on these factors and the information and recommendations provided by the borrower. It is recognized that more than one 10-year cycle may be required to achieve the equity target.

Several commentors suggested that different equity levels be set for power supply borrowers than for distribution borrowers. REA agrees that equity targets ought to be different for power supply borrowers since most of them would be starting from a much lower equity level than the typical distribution borrower. About 60 percent of power supply borrowers currently have less than 10 percent equity, while nearly two-thirds of distribution borrowers have 35 percent or more equity.

The section has been revised to require power supply borrowers to make reasonable progress toward increasing their equity if it is below 20 percent of total assets. Once that level is reached, a power supply borrower would be required to either maintain equity of 20 percent or continue to increase equity, depending on the borrower's particular financial circumstances and needs.

The proposed 40 percent target for distribution borrowers has not been changed. However, a provision has been added to this section whereby the Administrator may set a lower target for individual borrowers, on a case by case basis, if the higher standard target would unreasonably increase power costs or retail rates for electricity.

Several commentors expressed concerns that raising equity too fast would cause power costs and retail rates to rise unreasonably. REA recognizes that this is a potential problem and has revised the section to make it clear that the schedule selected for increasing equity must be reasonable and not unreasonably raise power costs or retail rates or substantially reduce a borrower's ability to compete for sales.

Some commentors questioned the basis for setting 40 percent as the minimum equity target. This level for distribution borrowers is based on the experience of REA borrowers, typical industry standards, and the long established threshold in the REA mortgage for determining whether REA approval is required for borrowers to retire capital credits. Forty-eight percent of distribution borrowers already have an equity of 40 percent or more, and 31 percent have between 30 and 40 percent equity. For investor-owned utilities, where power supply and distribution typically are integrated, about one-third have an equity of 40 percent or more of total assets, and around 40 percent have between 30 and 40 percent equity. Of the municipal systems, many of which have integrated power supply and distribution systems, about three-fourths have an equity of 40 percent or more, and some 5 percent have equity of between 30 and 40 percent.

Finally, definitions of the terms "equity" and "total assets" have been added to § 1710.2. The standard definitions used traditionally by REA for these terms have been adopted.

Section 1710.119 Loan Processing Priorities

One commentor requested clarification of paragraph (b)(4) of this section, which would allow priority based on other objectives of the RE Act, while another commentor suggested that it be deleted because it was too broad. Given these concerns, the paragraph has been deleted and a new specific priority has been added, namely the correction of serious safety problems.

Section 1710.151 Required Findings for all Loans

One commentor suggested that criteria were needed in paragraph (b) of this section to determine when the Administrator may require a borrower to demonstrate that its loan remains feasible. This has been done.

One commentor questioned the proposed requirement in paragraph (d) that satisfactory evidence must be provided to REA that funds requested to replace interim financing are necessary. This phrase was included to reinforce the requirement set forth in this paragraph that the interim financing must have been used for purposes approved by REA. The intent was not to impose an additional requirement on interim financing that is not imposed on most other REA financing. The phrase has been dropped.

Some commentors questioned the requirement in paragraph (f) that borrowers located in states having jurisdiction must provide satisfactory evidence based on the information available, such as an opinion of counsel, that the state regulatory authority will not prevent the borrower from obtaining sufficient revenues to repay REA's loans with interest. The main concern was that a borrower cannot guarantee what a state regulatory authority will do about allowing facilities in the rate base or otherwise allowing sufficient revenues to repay the borrower's debt.

REA understands that a borrower cannot guarantee what actions a state regulatory authority will take. What is required in this paragraph is that the borrower provide the best evidence available at the time a loan request is being considered by REA of what the state authority is most likely to do. This can be based on state law and the rules and policies of the state authority, on precedents in other similar cases, on statements made by the state authority, on any assurances given to the borrower by the state authority, and on other relevant information and experience. Paragraph (f) has been amended to include these examples of the types of information that may be used in providing the required evidence.

Subpart E, Power Requirements Studies

Sixty-one commentors made comments about the proposed requirements for power requirements studies (PRSs). Of the 61 commentors, 39 are associated with a single large power supply borrower.

Several commentors stated that the asset level of $100 million for determining whether a power supply borrower would have to prepare and maintain a current PRS on an ongoing basis was too low. Several recommended a minimum level of $300 million, while others recommended that the requirement be dropped entirely. REA has decided to set the asset level at $300 million. Borrowers with assets of this amount or more have adequate resources to maintain PRSs on an ongoing basis. They account for over 90

percent of the combined total assets of power supply borrowers and about the same proportion of lending activity.

Several commentors felt that the requirement that this group of large power supply borrowers must revise their PRS every 3 years and update it every year is too burdensome. REA disagrees since this is too burdensome. REA disagrees since this is typical practice throughout the electric utility industry. Nevertheless, the subpart has been revised to provide borrowers greater flexibility by offering them two options: Either revise the PRS every 3 years and update each intervening year, or revise the PRS every other year, with no intervening update. These options reflect the practice currently followed by several power supply borrowers.

The rule has also been revised to reduce the burden on those borrowers that are not required to maintain a current PRS on an ongoing basis but who must, under current practice and as set forth in the proposed rule, provide a current, acceptable PRS in support of a loan application. The rule has been revised so that a PRS is required from those borrowers only if the loan exceeds the lesser of 10 percent of total utility plant or either $3 million for a distribution borrower or $25 million for a power supply borrower. This change will reduce the burden on borrowers in comparison with both current requirements and the proposed rule.

Several commentors opposed the requirement that a consumer demand survey must be conducted at least every 3 years if the power supply borrower must maintain a PRS on an ongoing basis. This requirement is consistent with typical industry practice and remains in this rule. The subpart has been amended, however, to clarify that the survey may be conducted by aggregating the surveys of individual members or by a system-wide sample, which generally requires less coordination and is less expensive.

Several commentors criticized § 1710.203(e) as giving too much discretion to REA to require a borrower to prepare a PRS if required to determine loan feasibility or if required for other purposes, including the effective administration of the electric program. The latter purpose was especially criticized as too broad and vague, and it has been deleted from the rule.

Several commentors criticized the requirement for sensitivity analyses as being too broad and open ended. Given these concerns, § 1710.203(f)(6) has been revised to limit the number of scenarios that must be analyzed to five. To further ease the burden on borrowers and allow them time to gear up to meet this requirement, it will not be put into effect until January 1, 1993. Similarly, § 1710.203 has been amended to give a borrower the option of meeting the requirements of § 1719.203(f), with respect to what must be included in PRS, or corresponding requirements of REA Bulletin 120–1, if its PRS was submitted to REA for approval prior to the effective date of this rule, or if its PRS was prepared under a PRS work plan approved by REA prior to said date.

Subpart F, Construction Work Plans and Related Studies

Several comments were received on this subpart. They are addressed below section by section.

Section 1710.250 General

A question was raised as to whether construction work plans (CWPs) must include all applicable facilities or just those for which REA financing will be sought. All facilities, regardless of the source of financing, must be included in a CWP. Paragraph (b) of this section has been revised to make this clear.

One commentor requested clarification as to whether the engineering activities required by this subpart could be performed by either outside consulting engineers or in-house engineers employed by the borrower. Either type of qualified engineer is acceptable, and the section has been revised to make this clear.

Several commentors suggested that REA should consult with the borrower before adjusting the cost on an item included in the CWP when the cost of the item is in dispute. REA agrees and has so modified paragraph (e) of this section.

One commentor requested clarification as to whether the provision in paragraph (f) of this section that REA approval is required, prior to the start of construction, also applies to amendments of a CWP to change the cost estimates. It does not. It applies only to approval of the facilities included in the CWP, any significant physical changes to those facilities, and any additions of facilities to the CWP. The paragraph has been amended to make this clear. Moreover, the public is reminded that there has been no change in 7 CFR 1721.1 as to advances of insured funds being limited to 130 percent of the project cost estimate on the approved REA Form 740c.

One commentor asked whether the costs of engineering, environmental and other studies, and the development of plans and specifications required to support the construction of facilities are eligible for REA financing. They are, subject to the limitations of § 1710.106, provided that such costs are capitalized as part of the cost of the facilities. Sections 1710.251 and 1710.252 have been revised to make this clear.

Section 1710.252 Construction Work Plans—Power Supply borrowers

Some commentors objected to the requirement that power supply borrowers must maintain a current CWP for distribution and transmission plant and for any improvements, replacements, and retirements of generation plant. One commentor stated that REA did not have the resources to review and approve such plans on a timely basis.

The requirement that power supply borrowers maintain and receive REA approval of a current CWP for distribution facilities is not new, having been required by REA for many years. The new CWP requirement for improvements, replacements and retirements of generation plant is needed to improve the coordination of planning for these investments and the financing required. REA has the right under the REA mortgage to approve borrower investments in plant, regardless of the source of financing. The agency has sufficient resources to review all CWPs on a timely basis and does not anticipate and delays in this area.

One commentor suggested that sufficient flexibility be provided to allow for amendments to the CWP to deal with unforeseeable circumstances. REA agrees that reasonable flexibility is needed to allow for amendment of a CWP as circumstances change. Paragraph (h) of § 1710.250 provides for the amendment of a CWP, and a new paragraph (g) has been added to § 1710.250 to provide greater flexibility in dealing with unforeseen events.

Section 1710.254 Alternative Sources of Power

Several commentors expressed concern about the proposed requirement that applicants for a loan to add generation capacity must solicit proposals on a national basis from independent power producers. Some commentors said the requirement was too far reaching while others said it might not be possible to transmit power produced by a distant power producer.

This requirement applies only to loans for the addition of generation capacity, which, as been clarified in § 1710.254(b) of this final rule, includes the replacement of existing capacity. It does

not apply to separate transmission facilities.

The intent of this requirement, set forth in renumbered paragraph (c)(2) of this section, is to ensure that active consideration is given to the possibility of obtaining the needed power from an independent power producer. Such producers often operate nation-wide, building facilities in various parts of the country in response to local demands. Thus the concern of having to transmit power long distances does not enter the picture. Nevertheless, the requirement has been modified by deleting the reference to solicitation on a national basis, and adding that the solicitations must be placed in at least three national newspapers or trade publications. Renumbered paragraph (c) of this section has also been modified to make it clear that consideration of alternative sources of power and energy extends to both existing and new alternative sources.

Other commentors suggested that a minimum megawatt limit be established for the requirement to solicit bids from independent power producers. REA agrees and has modified renumbered paragraph (c)(2) to establish a minimum limit of 10 megawatts for additions of new capacity and replacements of existing capacity. Also, in the case of modification of an existing unit, the solicitation requirement will not apply unless the modification increases the capacity of the existing unit by more than 10 percent.

Several commentors expressed concern that renumbered paragraph (e) of this section would place REA in the middle of negotiations between the borrower and the power supplier and would lead to inordinate delays in obtaining REA approval of construction or power-purchase contracts. REA appreciates these concerns and has modified the paragraph to minimize any such unintended results. REA does not wish to impose itself into the negotiations between the borrower and the power supplier. The intent of the first sentence of renumbered paragraph (e) is to obtain assurance that the borrower has met the requirements of renumbered paragraph (d) of this section regarding the evaluation of alternative proposals before the borrower proceeds to final negotiations on the best acceptable offers. However, REA retains its long-established policy of granting approval of long-term power contracts and similar actions only when the proposed alternative is the most economical and effective alternative.

As to the process possibly resulting in inordinate delays in obtaining REA approval of the contracts negotiated by borrowers, a sentence has been added indicating that the Administrator will approve such contracts in a timely manner if the borrower has met all applicable requirements and provided adequate evidence that the alternative selected is the most economical and effective alternative.

One commentor also objected to the requirement that all construction or power-purchase contracts either be approved in advance by the Administrator or indicate that they are not valid until approved by the Administrator. This is a long-standing REA requirement exercised through loan contracts and mortgages. It has been retained in the final rule because construction and power-purchase contracts have a major effect on a borrower's financial condition and its ability to repay its loans and provide adequate loan security.

A commentor also questioned whether REA has the authority to deny a loan for facilities on the basis that one or more other available alternatives are more cost-effective and otherwise acceptable. In fact, REA has exercised such authority since at least 1969 when REA Bulletin 20–6 was reissued. This bulletin was cited in proposed paragraph (f) of this section (renumbered paragraph (g)) as an additional requirement that must be met. To clarify this point, the requirements of REA Bulletin 20–6, with minor editorial changes, have been set forth in a new paragraph (a) of this section, and the reference to Bulletin 20–6 in renumbered paragraph (g) has been deleted.

Some commentors expressed the concern that renumbered paragraph (f) of this section, wherein REA may make independent inquiries with potential power suppliers, could result in interference in the borrower's business and undue delays in obtaining REA approval of projects. Others suggested that any information obtained by REA should be shared with the borrower.

The intent of this provision is to allow REA to become better informed about potential sources of power so that it can effectively evaluate whether a borrower has met the requirements of renumbered paragraph (c) regarding searching out alternative sources of power. It is REA's intent to make such inquiries informally from time to time to keep abreast of market developments, as well as on a case-specific basis when such information may be needed to assure that the requirements of renumbered paragraph (c) have been met. Such information will be shared with borrowers upon request, and the paragraph has been modified to provide for this, as well as to make clear that the intent is not to limit REA's inquires only to specific loan applications.

REA does not believe that this provision will result in delays in approving a borrower's request for financing. If REA suspects that a borrower has not made an adequate effort to inquire into alternative sources of power, any independent inquiry made by REA would be made in a timely manner and as early in the process as feasible.

Some commentors expressed concerns that the requirements of this section could lead to delays in obtaining capacity that might threaten system reliability. In view of these concerns, a provision has been added to this section wherein a waiver could be granted for any requirements that would cause unreasonable delays that might threaten system reliability. A waiver provision has also been added to § 1710.253.

One commentor asked whether the solicitation of proposals from independent power producers under renumbered paragraph (c)(2) is meant to be a separate process from the solicitation of proposals from other potential sources of power under renumbered paragraph (c)(1). The two solicitations may be combined, although separate solicitations would appear to be a more logical approach.

Subpart G, Long-Range Financial Forecasts

The comments received on this section are discussed below section by section.

Section 1710.300 General

One commentor suggested that the provision in paragraph (c)(12) of this section that requires the borrower to analyze its historical experience in market competitiveness was too vague and too narrow in focus and may not be necessary in all cases. REA agrees, and has revised the paragraph to require only a discussion of historical market competitiveness by all borrowers, with the proviso that further data and analysis may be required of those borrowers with a history of serious competitive problems. Also, consideration of factors affecting competitiveness has been expanded beyond rates charged for electricity.

A similar criticism was made regarding paragraph (c)(13), which required an analysis of the effects of projected increases in rates on a borrower's future competitiveness. The requirement has been modified to include other factors that may affect competitiveness as well as to recognize that the competition may be with other

fuels as well as with neighboring utilities.

One commentor objected to having to report assumptions about wage rates as provided under paragraph (c)(8). Wages are an important component of cost, and failure to take escalation in wage rates into consideration would undermine the value of the financial forecast. Individual rate schedules are not required to be reported, only the assumptions made about the average per unit cost of labor.

Section 1710.302 Financial Forecasts—Power Supply Borrowers.

Some commentors questioned the provision in paragraph (d) that REA may request projections for a period longer than 10 years if it is deemed necessary. REA understands that financial projections become more uncertain further into the future, but believes that there may be some circumstances when a projection beyond 10 years may be helpful in assessing the feasibility of a loan for generation or transmission projects.

Several commentors questioned the value of the requirement in this section and in § 1710.303 that sensitivity analyses be completed of the major assumptions used in the forecast. Concern was also expressed that the number of sensitivity analyses required may be unlimited and onerous for borrowers.

REA appreciates these concerns and has no intention of requiring more sensitivity analyses than a prudent utility or lender would require for similar financial forecasts. It would not be prudent for REA to lend millions of dollars for a project without knowing how the financial forecast is affected by changing important assumptions. In view of the concerns raised, however, both sections have been modified to make it clear that the sensitivity analyses required will be limited to a reasonable range of assumptions. In addition, the sections have been revised to limit the requirement for such sensitivity analyses to cases where the financial forecast is used in support of a loan or loan guarantee that exceeds the smaller of 10 percent of the borrower's total utility plant or the following dollar amount: $25 million for power supply borrowers, or $3 million for distribution borrowers.

Concerns were also expressed as to whether duplicative sensitivity analyses were being required by this section and § 1710.303. In response to these concerns, § 1710.303(b)(4) has been amended to make it clear that duplicative sensitivity analyses are not required.

One commentor objected to the requirement in § 1710.302(d)(4) that power supply borrowers furnish REA with all information on operating and other agreements that affect costs. The same commentor also objected to the requirement in § 1710.302(e) that power supply borrowers' financial forecasts must be coordinated in advance with REA as to major assumptions and other factors.

Both of these requirements are similar to current REA practice. To allay concerns that unlimited information about agreements could be required under paragraph (d)(4), it has been modified to require only material information determined to be necessary by REA on a case by case basis. No change has been made to paragraph (e) of this section because REA believes the requirement to coordinate in advance on major aspects of the financial projections is reasonable and necessary and will generally save borrowers time and resources by minimizing the need to revise analyses later in the process.

One commentor asked whether the need to coordinate in advance with REA applies to all financial forecasts prepared by a power supply borrower or only to financial forecasts submitted in support of a loan from REA. This and the other requirements of this section apply only to financial forecasts used in support of a loan. Paragraph (a) of this section has been modified to make this clear.

Section 1710.303 Power Cost Studies—Power Supply Borrowers

A question was raised as to whether power cost studies were intended to be separate studies or integrated with the financial forecast. These studies are usually separate, but they may be integrated with the financial forecast. Paragraph (a) of this section has been amended to make this clear.

A concern was raised that the requirement in paragraph (c) of this section to use current, REA-approved power requirements data may not be consistent with sensitivity analyses required by paragraph (b)(4) of this section that may involve power costs higher or lower than those used in the REA-approved power requirements projections. This point is well taken, and paragraph (c) has been amended to provide that alternative assumptions about future power requirements may be used in conjunction with the sensitivity analyses.

List of Subjects in 7 CFR Part 1710

Administrative practices and procedures, Electric utilities, Guaranteed loan programs, Insured loan program, Loan programs.

For the reasons given in the preamble, REA amends 7 CFR chapter XVII by adding a new part 1710 to read as follows:

PART 1710—GENERAL AND PRE-LOAN POLICIES AND PROCEDURES COMMON TO INSURED AND GUARANTEED ELECTRIC LOANS

Subpart A—General

1710.1 General statement.
1710.2 Definitions and rules of construction.
1710.3 Form revisions.
1710.4 Exception authority.
1710.5 Availability of forms.
1710.6 Applicability of certain provisions to completed loan applications.
1710.7–1710.49 [Reserved]

Subpart B—Types of Loans and Loan Guarantees

1710.50 Insured loans.
1710.51 Loan guarantees.
1710.52–1710.99 [Reserved]

Subpart C—Loan Purposes and Basic Policies.

1710.100 General.
1710.101 Types of eligible borrowers.
1710.102 Borrower eligibility for different types of loans. [Reserved]
1710.103 Area coverage.
1710.104 Service to non-RE Act beneficiaries.
1710.105 State regulatory approvals.
1710.106 Uses of loan funds.
1710.107 Amount lent for acquisitions.
1710.108 Mergers and consolidations.
1710.109 Reimbursement of general funds and interim financing.
1710.110 Supplemental financing.
1710.111 Refinancing.
1710.112 Loan feasibility.
1710.113 Loan security.
1710.114 TIER and DSC requirements.
1710.115 Loan maturity.
1710.116 Equity development plan.
1710.117 Environmental considerations.
1710.118 Energy conservation and land management.
1710.119 Loan processing priorities.
1710.120 Construction standards and contracting.
1710.121 Insurance requirements.
1710.122 Equal opportunity and nondiscrimination.
1710.123 Debarment and suspension.
1710.124 Uniform relocation act.
1710.125 Restrictions on lobbying.
1710.126 Federal debt delinquency.
1710.127 Drug free workplace.
1710.128–1710.149 [Reserved]

Subpart D—Basic Requirements for Loan Approval

1710.150 General.
1710.151 Required findings for all loans.
1710.152 Primary support documents.
1710.153 Additional requirements and procedures.
1710.154–1710.199 [Reserved]

Subpart E-Power Requirements Studies

1710.200 Purpose.
1710.201 Requirement to prepare a PRS—power supply borrowers.
1710.202 Requirements to prepare a PRS—distribution borrowers.
1710.203 Basic policies and requirements for a PRS.
1710.204 PRS work plan requirements.
1710.205 Basic criteria for REA approval of a PRS.
1710.206 Waiver of borrower requirements.
1710.207–1710.249 [Reserved]

Subpart F—Construction Work Plans and Related Studies

1710.250 General.
1710.251 Construction work plans—distribution borrowers.
1710.252 Construction work plans—power supply borrowers.
1710.253 Engineering and cost studies—addition of generation capacity.
1710.254 Alternative sources of power.
1710.255–1710.299 [Reserved]

Subpart G—Long-Range Financial Forecasts

1710.300 General.
1710.301 Financial forecasts—distribution borrowers.
1710.302 Financial forecasts—power supply borrowers.
1710.303 Power cost studies—power supply borrowers.
1710.304–1710.349 [Reserved]

Subpart H—Credit Support of Power Supply Borrowers [Reserved]

Authority: 7 U.S.C. 901–950(b); Public Law 99–591; Delegation of Authority by the Secretary of Agriculture, 7 CFR 2.23; Delegation of Authority by the Under Secretary for Small Community and Rural Development, 7 CFR 2.72.

Subpart A—General

§ 1710.1 General statement.

(a) This part establishes general and pre-loan policies and requirements that apply to both insured and guaranteed loans to finance the construction and improvement of electric facilities in rural areas, including generation, transmission, and distribution facilities.

(b) Additional pre-loan policies, procedures, and requirements that apply specifically to guaranteed and/or insured loans are set forth elsewhere:

(1) For guaranteed loans, in 7 CFR part 1712 and REA Bulletins 20–2, 20–22, 60–10, 86–3, 105–5, 111–3, 112–3, and 145–1, or the successors to these bulletins; and

(2) For insured loans, in 7 CFR part 1714 and REA Bulletins 20–2, 20–14, 60–10, 86–3, 105–5, 111–3, 112–3, and 145–1, or the successors to these bulletins.

(c) This part supersedes those portions of the following REA Bulletins and supplements that are in conflict.

20–2 Electric Loan Policies and Application Procedures
20–5 Extensions of Payments of Principal and Interest
20–6 Loans for Generation and Transmission
20–14 Supplemental Financing for Loans Considered Under Section 4 of the Rural Electrification Act
20–20 Deferment of Principal Repayments for Investment in Supplemental Lending Institutions
20–22 Guarantee of Loans for Bulk Power Supply Facilities
20–23 Section 12 Extensions for Energy Resources Conservation Loans
60–10 Construction Work Plans, Electric Distribution Systems
86–3 Headquarters Facilities for Electric Borrowers
105–5 Financial Forecast—Electric Distribution Systems
111–3 Power Supply Surveys
112–3 Area Coverage Service
120–1 Development, Approval, and Use of Power Requirements Studies
145–1 Development, Approval, and Use of Irrigation Studies

(d) When parts 1710, 1712, and 1714 are published in final form, the bulletins cited in paragraph (b) of this section will be rescinded, in whole or in part, or revised.

§ 1710.2 Definitions and rules of construction.

(a) *Definitions.* For the purpose of this part, the following terms shall have the following meanings:

Administrator means the Administrator of REA or his or her designee.

APRR means Average Adjusted Plant Revenue Ratio calculated as a simple average of the adjusted plant revenue ratios for 1978, 1979 and 1980 as follows:

$$APRR = \frac{A+B}{C-D}$$

where:

A=Distribution (plant), which equals Part E, Line 14(e) of REA Form 7;

B=General Plant, which equals Part E, Line 24(e) of REA Form 7;

C=Operating Revenue and Patronage Capital, which equals Part A, Line 1 of REA Form 7; and

D=Cost of Power, which equals the sum of Part A, Lines 2, 3, and 4 of REA Form 7.

Area Coverage means the provision of adequate electric service to the widest practical number of rural users in the borrower's service area during the life of the loan.

Borrower means any organization that has an outstanding loan made or guaranteed by REA for rural electrification, or that is seeking such financing.

Bulk Transmission Facilities means the transmission facilities connecting power supply facilities to the subtransmission facilities, including both the high and low voltage sides of the transformer used to connect to the subtransmission facilities, as well as related supervisory control and data acquisition systems.

Consolidation means the combination of 2 or more borrower or nonborrower organizations, pursuant to state law, into a new successor organization that takes over the assets and assumes the liabilities of those organizations.

Distribution Borrower means a borrower that sells or intends to sell electric power and energy at retail in rural areas.

Distribution Facilities means all electrical lines and related facilities beginning at the consumer's meter base, and continuing back to and including the distribution substation.

DSC means Debt Service Coverage calculated as:

$$DSC = \frac{A+B+C}{C-D}$$

where:

A=Depreciation and Amortization Expense, which equals Part A, Line 12 of REA Form 7 (distribution borrowers) or Section A, Line 20 of REA Form 12a (power supply borrowers);

B=Interest on Long-term Debt, which equals part A, Line 15 of REA Form 7 or Section A Line 22 of REA Form 12a except that Interest on Long-term debt shall be increased by ⅓ of the amount, if any, by which the rentals of Restricted Property (Part M, Line 3 of REA Form 7 or Section K, Line 4 or REA Form 12h) exceeds 2 percent of Total Margins and Equities (Part C, Line 32 of REA Form 7 or Section B, Line 33 of REA Form 12a;

C=Patronage Capital or Margins, which equals Part A, Line 27 of REA Form 7 or Section A, Line 34 or REA Form 12a; and

D = Debt Service Billed (REA + other) which equals all interest and principal billed during the calendar year plus 1/3 of the amount, if any, by which the rentals of Restricted Property (Part M, Line 3 of REA Form 7 or Section K, Line 4 of REA Form 12h) exceeds 2 percent of Total Margins and Equities (Part C, Line 32 of REA Form 7 or Section B, Line 33 of REA Form 12A).

Equity means total margins and equities, which equals Part C, Line 32 of REA Form 7 (distribution borrowers) or Section B, Line 33 of REA Form 12a (power supply borrowers).

Generation Facilities means the generating plant and related facilities, including the building containing the plant, all fuel handling facilities, and the stepup substation used to convert the generator voltage to transmission voltage, as well as related energy management (dispatching) systems.

Insured Loan means a loan made pursuant to Section 305 of the RE Act, and may include a direct loan made under Section 4 of the RE Act.

Loan means any loan made or guaranteed by REA.

Loan Contract means the agreement, as amended, supplemented, or restated from time to time, between a borrower and REA providing for loans made or guaranteed pursuant to the RE Act.

Loan Feasibility means that the borrower has the capability of repaying the loan in full as scheduled, in accordance with the terms of the mortgage, note, and loan contract.

Loan Guarantee means a loan guarantee made by REA pursuant to the RE Act.

Loan Period means the period of time during which the facilities included in a loan application will be constructed. It commences with the date shown on page 1 of REA Form 740c, Cost Estimates and Loan Budget for Electric Borrowers. The loan period is generally 2 years for distribution borrowers and, except in the case of a loan for new generating and associated transmissions facilities, 3 years for the transmission facilities and improvements or replacements of generation facilities of power supply borrowers. The loan period for new generating facilities is determined on a case by case basis.

Merger means the combining, pursuant to state law, of borrower or nonborrower organizations into an existing survivor organization that takes over the assets and assumes the liabilities of the merged organizations.

Mortgage means any and all instruments creating a lien on or security interest in the borrower's assets in connection with loans or guarantees under the RE Act.

Ordinary Replacement means replacing one or more units of plant, called "retirement units", with similar units when made necessary by normal wear and tear, damage beyond repair, or obsolescence of the facilities.

Power Requirements Study (PRS) means the thorough study of a borrower's electric loads and the factors that affect those loads in order to determine, as accurately as practicable, the borrower's future requirements for energy and capacity.

Power Supply Borrower means a borrower that sells or intends to sell electric power at wholesale to distribution or power supply borrowers pursuant to REA wholesale power contracts.

PRR means Plant Revenue Ratio calculated as:

$$PRR = \frac{A}{B-C}$$

where:

A = Total Utility Plant, which equals Part C, Line 3 of REA Form 7;

B = Operating Revenue and Patronage Capital, which equals Part A, Line 1 of REA Form 7; and

C = Cost of Power, which equals the sum of Part A, Lines 2, 3, and 4 of REA Form 7.

PRS Work Plan means the plan that sets forth the resources, methods, schedules, and milestones to be used in the preparation and maintenance of a power requirements study.

RE Act means the Rural Electrification Act of 1936, as amended (7 U.S.C. 901 *et seq.).*

RE Act Beneficiary means a person, business, or other entity that is located in a rural area and is not receiving adequate central-station electric service, or that initially received central-station service through facilities financed by REA, or successors to such entities.

REA means the Rural Electrification Administration, an agency of the United States Department of Agriculture.

Retirement Unit means a substantial unit of property, which when retired, with or without being replaced, is accounted for by removing its book cost from the plant account.

Rural Area means any area of the United States, its territories and possessions (including any area within the Federated States of Micronesia, the Marshall Islands, and the Republic of Palau) not included within the boundaries of any incorporated or unincorporated city, village or borough having a population exceeding 1,500. The population figure is obtained from the most recent data available, such as from the Bureau of the Census and Rand McNally and Company. For purposes of the "rural area" definition, the character of an area is determined as of the time the initial loan for the system is made.

Subtransmission Facilities means the transmission facilities that connect the high voltage side of the distribution substation to the low voltage side of the bulk transmission or generating facilities, as well as related supervisory control and data acquisition facilities.

System Improvement means the change or addition to electric plant facilities to improve the quality of electric service or to increase the quantity of electric power available to RE Act beneficiaries.

TIER means Times Interest Earned Ratio calculated as:

$$TIER = \frac{A+B}{A}$$

where:

A = Interest on Long-Term Debt, which equals Part A, Line 15 of REA Form 7 (distribution borrowers) or Section A Line 22 of REA Form 12a (power supply borrowers), except that Interest on Long-Term debt shall be increased by ⅓ of the amount, if any, by which the rentals of Restricted Property (Part M, Line 3 of REA Form 7 or Section K, Line 4 of REA Form 12h) exceeds 2 percent of Total Margins and Equities (Part C, Line 32 of REA Form 7 or Section B, Line 33 of REA Form 12a; and

B = Patronage Capital or Margins, which equals Part A, Line 27 of REA Form 7 or Section A, Line 34 of REA Form 12a.

Total Assets means Part C, Line 25 of REA Form 7 (distribution borrowers) or Section B, Line 26 of REA Form 12a (power supply borrowers).

Total Utility Plant means Part C, Line 3 of REA Form 7 (distribution borrowers) or Section B, Line 3 of REA Form 12a (power supply borrowers).

Transmission Facilities means all electrical lines and related facilities, including certain substations, used to connect the distribution facilities to generation facilities. They include bulk transmission and subtransmission facilities.

(b) *Rules of Construction.* Unless the context otherwise indicates, "includes" and "including" are not limiting, and "or" is not exclusive. The terms defined in paragraph (a) of this part include the plural as well as the singular, and the singular as well as the plural.

§ 1710.3 Form revisions.

References in this part to REA forms or line numbers in REA forms will apply to corresponding information in future versions of the forms.

§ 1710.4 Exception authority.

Consistent with the RE Act and other applicable laws, the Administrator may waive or reduce any requirement imposed by this part or other REA regulations on an electric borrower, or a lender whose loan is guaranteed by REA, if the Administrator determines that imposition of the requirement

would adversely affect the Government's financial interest.

§ 1710.5 Availability of forms.

Information about the availability of REA forms and publications cited in this part is available from Administrative Services Division, Rural Electrification Administration, United States Department of Agriculture, Washington, DC 20250–1500. These REA forms and publications may be reproduced.

§ 1710.6 Applicability of certain provisions to completed loan applications.

(a) Certain new or revised policies and requirements set forth in this part, which are listed in this paragraph, shall not apply to a pending loan application that has been determined by REA to be complete as of the date such policies and requirements are published in final form in the **Federal Register**. This exception does not apply to loan applications received after said vote, nor to incomplete applications pending as of said date. This exception applies only to the following provisions:

(1) Paragraph 1710.115(b)—with respect to limiting loan maturities to the expected useful life of the facilities financed;

(2) Section 1710.116—with respect to the requirement to develop and follow an equity development plan;

(3) Paragraph 1710.151(f)—with respect to the borrower providing satisfactory evidence that a state regulatory authority will allow the facilities to be included in the rate base or otherwise allow sufficient revenues to repay the loan;

(4) Paragraphs 1710.250(b), 1710.251(a), and 1710.252(a)—with respect to the requirement that improvements, replacements, and retirements of generation plant be included in a Construction Work Plan; and

(5) Paragraph 1710.300(d)(5)—With respect to the requirement that a borrower's financial forecast include a sensitivity analysis of a reasonable range of assumptions for each of the major variables in the forecast.

(b) Certain provisions of this part apply only to loans made on or after the effective date of this rule. These provisions are identified in the individual sections of this part.

§§ 1710.7–1710.49 [Reserved]

Subpart B—Types of Loans and Loan Guarantees

§ 1710.50 Insured loans.

REA makes insured loans under section 305 of the RE Act for the extension and improvement of electric facilities in rural areas. Generally, insured loans are made for distribution and subtransmission facilities, including ordinary replacements and warehouse and garage facilities, and in the case of financial hardship, other headquarters facilities, general plant equipment, and working capital if required for the initial operation of a distribution system. These loans are made for a term of up to 35 years, and the standard interest rate is 5 percent per annum. Under certain circumstances, as set forth in the RE Act, the interest rate may be as low as 2 percent per annum.

§ 1710.51 Loan guarantees.

REA provides financing through 100 percent loan guarantees made under sections 306 and 306A of the RE Act. REA also provides 90 percent loan guarantes under sections 311 and 314 of the RE Act to enable borrowers to secure financing from certain private lenders. The loan guarantees are made for a term of up to 35 years, and the interest rate is established at a rate agreed to by the borrower and the lender, with REA concurrence. The guarantee applies to the repayment of both principal and interest.

§§ 1710.52–1710.99 [Reserved]

Subpart C—Loan Purposes and Basic Policies

§ 1710.100 General.

The Rural Electrification Administration (REA) makes loans and loan guarantees to finance the construction of electric distribution, transmission and generation facilities, including system improvements and replacements, required to provide adequate electric service in rural areas. In some circumstances, REA may finance selected operating expenses of its borrowers. Loans made or guaranteed by the Administrator of REA will be made in conformance with the Rural Electrification Act of 1936, as amended (7 U.S..C. 901 *et seq.*), and 7 CFR chapter XVII. REA provides certain technical assistance to borrowers when necessary to aid the development of rural electric service and to protect loan security.

§ 1710.101 Types of eligible borrowers.

(a) REA makes loans to corporations, states, territories, and subdivisions and agencies thereof; municipalities; people's utility districts; and cooperative, nonprofit, limited-dividend, or mutual associations that provide or propose to provide:

(1) The retail electric service needs of rural areas, or

(2) The power supply needs of distribution borrowers under the terms of power supply arrangements satisfactory to REA.

(b) In making loans, REA gives preference to states, territories, and subdivisions and agencies thereof; municipalities; people's utility districts; and cooperative, nonprofit, or limited-dividend associations. REA does not make loans to individual consumers.

(c) Former borrowers that have paid off all outstanding loans may reapply for a loan to serve RE Act beneficiary loans accruing from the time the former borrower's complete loan application is received by REA. The determination of whether an area is rural will be based on the population of the area at the time of the reapplication for a loan, if the area is not served by electric facilities financed by REA. If the area is served by electric facilities financed by REA, the original rural classification of the area will apply.

(d) Former borrowers that have prepaid all then outstanding insured and direct loans in accordance with section 306B of the RE Act must comply with the provisions of 7 CFR Part 1786 before being considered eligible to borrow additional funds from REA.

§ 1710.102 Borrower eligibility for different types of loans. [Reserved]

§ 1710.103 Area coverage.

(a) Borrowers shall make a diligent effort to extend electric service to all unserved persons within their service area who:

(1) Desire electric service; and

(2) Meet all reasonable requirements established by the borrower as a condition of service.

(b) If economically feasible and reasonable considering the cost of providing such service and/or the effects on all consumers' rates, such service shall be provided, to the maximum extent practicable, at the rates and minimum charges established in the borrower's rate schedules, without the payment by such persons, other than seasonal or temporary consumers, of a contribution in aid of construction. The loan contract shall contain provisions to this effect. A seasonal consumer is one that demands electric service only during certain seasons of the year. A temporary consumer is a seasonal or year-round consumer that demands electric service over a period of less than five years.

(c) Borrowers may assess contributions in aid of construction provided such assessments are

consistent with the policy set forth in this section.

§ 1710.104 Service to Non-RE Act beneficiaries.

(a) To the greatest extent practical, loans are limited to providing electric facilities that serve RE Act beneficiaries. When it is determined by the Administrator to be necessary in order to furnish or improve electric service in rural areas, loans may be made to finance electric facilities that will also serve consumers in nonrural areas, or consumers in rural areas who are already receiving adequate central station service.

(b) Loan funds may be approved for facilities to serve non-RE Act beneficiaries only if:

(1) The primary purpose of the loan is to furnish or improve service for RE Act beneficiaries; and

(2) The use of loan funds to serve non-RE Act beneficiaries is necessary and incidental to the primary purposes of the loan.

(c) The determination whether adequate central station service is being provided in a rural area will be made by the Administrator on a case by case basis. It will be based on current normal standards for electric service, taking factors such as the following into consideration:

(1) The continuity of service;

(2) Voltage and frequency regulation;

(3) The age and condition of the existing electric facilities;

(4) The adequacy of capacity to meet the requirements of existing consumers; and

(5) The ability of existing consumers to use modern electric appliances efficiently under the existing service.

§ 1710.105 State regulatory approvals.

(a) In states where a borrower is required to obtain approval of a project or its financing from a state regulatory authority, REA may require that such approvals be obtained, if feasible for the borrower to do so, before the following types of loans are approved by REA:

(1) Loans requiring an Environmental Impact Statement; and

(2) Loans to finance generation and transmission facilities, when the loan request for such facilities is $25 million or more.

(b) At minimum, in the case of all loans in states where state regulatory approval is required of the project or its financing, such state approvals will be required before loan funds are advanced.

(c) In case where state regulatory authority approval has been obtained, but the borrower has failed to proceed with the project in a timely manner according to the schedule contained in the borrower's project design manual, or if there are cost overruns or other developments that threaten loan feasibility or security, REA may require the borrower to obtain a reaffirmation of the project and its financing from the state authority before any additional loan funds are advanced.

§ 1710.106 Uses of loan funds.

(a) REA loan funds may be used to finance:

(1) *Distribution facilities.* (i) The construction of new distribution facilities or systems and the cost of system improvements and removals, less salvage value, needed to meet load growth requirements or improve the quality of service.

(ii) The purchase, rehabilitation and integration of existing distribution facilities and associated service territory when the acquisition is an incidental and necessary means of providing or improving service to persons in rural areas who are not receiving adequate central station service, and the borrower is unable to finance the acquisition from other sources. See § 1710.107.

(2) *Transmission and generation facilities.* (i) The construction of new transmission and generation facilities or systems and the cost of system improvements and removals, less salvage value, needed to meet load growth and improve the quality of service.

(ii) The purchase of an ownership interest in new or existing transmission or generation facilities to serve RE Act beneficiaries.

(3) *Ordinary plant replacements.* The excess of the total cost of ordinary replacements over the original cost of the facilities being replaced, unless financing of the total cost is specifically authorized by the Administrator.

(4) *Warehouse and garage facilities.* The purchase, remodeling, or construction of warehouse and garage facilities required for the operation of a borrower's system. See paragraph (b) of this section.

(5) *Interest.* The payment of interest on indebtedness incurred by a borrower to finance the construction of generation and transmission facilities during the period preceding the date such facilities are placed into service, if requested by the borrower and found necessary by REA.

(b) In cases of financial hardship, as determined by the Administrator, loans may also be made to finance the following items:

(1) The headquarters office and other headquarters facilities in addition to those cited in paragraph (a)(4) of this section;

(2) General plant equipment, including furniture, office, transportation, data processing and other work equipment; and

(3) Working capital required for the initial operation of a new system.

(c) REA will not make loans to finance the following items:

(1) Electric facilities, equipment, appliances, or wiring located inside the premises of the consumer, except certain load-management equipment;

(2) Facilities to serve consumers who are not beneficiaries of the RE Act unless those facilities are necessary and incidental to providing or improving electric service in rural areas (See § 1710.104); and

(3) Any facilities that a state regulatory authority having jurisdiction will not approve for inclusion in the borrower's rate base, or will not otherwise allow rates sufficient to repay with interest the debt incurred for the facilities.

(d) To make optimal use of available loan funds in furthering the purposes of the RE Act, the amount lent to any one borrower in a given year may be limited to less than the total amount eligible for REA financing, taking into consideration the amount of loan funds available and the size of REA's loan application inventory. Such limitation will not be imposed unless the amount authorized for lending in a given year is substantially less, as determined by the Administrator, than the amount of eligible loan funds requested. Such reductions will be made on an equal proportion basis for all applicants based on the amount of funds for which an applicant is eligible. The portion of a request for which a borrower is eligible that is not loaned in one year will be eligible for a loan in subsequent years, provided that a resolution is submitted to REA by the borrower's board of directors certifying that the funds are still needed to complete purposes contained in the original loan application.

§ 1710.107 Amount lent for acquisitions.

The maximum amount that will be lent for an acquisition is limited to the value of the property, as determined by REA. If the acquisition price exceeds this amount, the borrower shall provide the remainder without REA financial assistance.

§ 1710.108 Mergers and consolidations.

(a) REA encourages its borrowers to consider merging or consolidating with another electric borrower when such action will contribute to greater operating efficiency and financial soundness.

(b) After a merger or consolidation, REA will give priority consideration per § 1710.119 to the processing of loans for the surviving system to finance the integration and rehabilitation of electric facilities, if necessary, and the improvement or extension of electric service in rural areas. Such priority consideration will also be given in the case of a borrower that has merged or consolidated with an electric system that has not previously received REA financial assistance, if such system was serving primarily rural residents at the time of the merger or consolidation and such rural residents will continue to be served by the merged or consolidated system. REA does not make loans for costs incurred in effectuating mergers or consolidations, such as legal expenses or feasibility study costs.

§ 1710.109 Reimbursement of general funds and interim financing.

(a) Borrowers may request that a loan include funds to reimburse general funds and/or replace interim financing used to finance equipment and facilities that were included in an REA-approved construction work plan, work plan amendment or other REA-approved plan, and for which loan funds have not been provided by REA. Such reimbursement and/or replacement of interim financing may include the direct costs of procurement and construction, as well as the related cost of engineering, architectural, environmental and other studies and plans needed to support the project, when such cost is capitalized as part of the cost of the facilities.

(b) If procurement and/or construction of the equipment and facilities was completed prior to the current loan period, reimbursement, including replacement of interim financing, will be limited, except in cases of extreme financial hardship as determined by the Administrator, to the cost of procurement and construction completed during the period immediately preceding the current loan period, as specified in paragraph (c) of this section. As defined in § 1710.2, the loan period begins on the date shown on page 1 of REA Form 740c, Cost Estimates and Loan Budget for Electric Borrowers.

(c) The period immediately preceding the current loan period for which reimbursement and replacement of interim financing is authorized under paragraph (b) of this section is as follows:

(1) The number of months agreed to by REA and the borrower for complete loan applications received by REA before the effective date of this rule;

(2) 36 months for complete loan applications received on or up to one year after the effective date of this rule; or

(3) 24 months for complete loan applications received one or more years after the effective date of this rule.

(d) If the reimbursement of general funds and/or replacement of interim financing is for approved expenditures for equipment and facilities whose procurement and/or construction is completed during the current loan period, the time limits of paragraph (c) of this section do not apply.

§ 1710.110 Supplemental financing.

(a) Except in cases of financial hardship, as determined by the Administrator, applicants for an insured loan will be required to obtain a portion of their loan funds from a supplemental source without an REA guarantee, in the amounts set forth in paragraph (c) of this section. REA will consider granting a lien accommodation to the supplemental lender. REA does not require supplemental financing in conjunction with an REA guaranteed loan. However, if a borrower elects to obtain supplemental financing in conjunction with a guaranteed loan, the granting of REA's loan guarantee may be conditioned on the borrower's acquisition of the supplemental financing.

(b) The terms and conditions of supplemental financing and any security offered to the supplemental lender are subject to REA approval. Generally, supplemental loans must bear the same maturity and be amortized in the same manner as REA loans made concurrently. Borrowers may elect to repay the loans either in substantially equal periodic installments covering interest and principal, or in periodic installments that include interest and level amortization of principal.

(c) *Supplemental financing required for insured loans.*—(1) *Distribution borrowers.*

(i) Distribution borrowers that had, as of December 31, 1980, an average consumer density of 2 or fewer consumers per mile or an average adjusted plant revenue ratio (APRR), as defined in § 1710.2, of over 9.0 shall obtain supplemental financing equal to 10 percent of their loan request.

(ii) All other distribution borrowers must obtain supplemental financing based on their plant revenue ratio (PRR), as follows:

PRR	Supplemental loan percentage
9.00 and above	10
8.01—8.99	20
8.00 and below	30

(2) *Power supply borrowers.* The supplemental loan proportion required of a power supply borrower is based on the simple arithmetic mean of the supplemental loan proportions required of the borrower's distribution members.

§ 1710.111 Refinancing.

(a) REA makes loans or loan guarantees to refinance the outstanding indebtedness of borrowers in the following cases:

(1) Loans or loan guarantees to refinance long-term debt owed by borrowers to the Tennessee Valley Authority for credit extended under the terms of the Tennessee Valley Authority Act of 1933, as amended.

(2) Loan guarantees made in accordance with the provisions of section 306A of the RE Act to prepay a loan (or any loan advance thereunder) made by the Federal Financing Bank.

(b) In certain circumstances, REA may make a loan to replace interim financing obtained for the construction of facilities (See § 1710.109).

§ 1710.112 Loan feasibility.

(a) REA will make a loan only if there is reasonable assurance that the loan, together with all outstanding loans and other obligations of the borrower, will be repaid in full as scheduled, in accordance with the mortgage, notes, and loan contracts. The borrower must provide evidence satisfactory to the Administrator that the loan will be repaid in full as scheduled, and that all other obligations of the borrower will be met.

(b) Based on evidence submitted by the borrower and other information, REA will use the following criteria to evaluate loan feasibility:

(1) Projections of power requirements, rates, revenues, expenses, margins, and other factors for the present system and proposed additions are based on reasonable assumptions and adequate supporting data and analysis, including analysis of a range of assumptions for the significant variables, when required by § 1710.300(d)(5).

(2) Projected revenues from the rates proposed by the borrower are adequate to meet the required TIER and DSC

ratios based on the borrower's total costs, including the projected maximum debt service cost of the new loan.

(3) The economics of the borrower's operations and service area are such that consumers can reasonably be expected to pay the proposed rates required to cover all expenses and meet REA TIER and DSC requirements, and the borrower can reasonably compete with other utilities and other energy sources to prevent substantial loan loss while providing satisfactory service to its consumers.

(4) Risks of possible loss of substantial loads from large consumers or from load concentrations in particular industries will not substantially impair loan feasibility.

(5) Risks of loss of portions of the borrower's service territory from annexation or other causes will not substantially impair loan feasibility. If there appears to be a substantial risk, REA may require additional information from the borrower, such as a summary and analysis of the risk by the borrower; state, county or local planning reports having information on projected growth or expansion plans of local communities; annexation plans of the municipalities in question; and any other relevant information.

(6) In states where rates or investment decisions are subject to approval by state regulatory authorities, there is reasonable expectation that such approvals will be forthcoming to enable repayment of the loan in full according to its terms.

(7) The experience and performance of the system's management is acceptable.

(8) In the case of joint ventures, the borrower has sufficient management control or other contractual safeguards with respect to the construction and operation of the jointly owned facility to ensure that the borrower's interest are protected and the credit risk is minimized.

(9) The borrower has implemented adequate financial and management controls and there are and have been no significant financial or other irregularities.

§ 1710.113 Loan security.

(a) REA makes loans only if, in the judgment of the Administrator, the security therefor is reasonably adequate and the loan will be repaid according to its terms within the time agreed.

(b) REA generally requires that borrowers provide it with a first lien on all of the borrower's real and personal property, including intangible personal property and any property acquired after the date of the loan. This lien shall be in the form of a mortgage by the borrower to the Government or a deed of trust between the borrower and a trustee satisfactory to the Administrator, together with such security documents as REA may deem necessary in a particular case.

(c) When a borrower is unable by reason of preexisting encumbrances, or otherwise, to furnish a first mortgage lien on its entire system the Administrator may accept other forms of security, such as a pledge of revenues, if he or she determines such security is reasonably adequate and the form and nature thereof is otherwise acceptable.

(d) In the case of loans that include the financing of electric facilities that are operated as an integral component of a non-REA financed system (such as generation and transmission facilities co-owned with other electric utilities), the borrower shall, in addition to the mortgage lien on all of the borrower's electric facilities, furnish adequate assurance, in the form of contractual or other security arrangements, that the system will be operated on an efficient and continuous basis. Satisfactory evidence must also be provided that the non-REA financed system is financially sound and under capable management. Examples of such evidence include financial reports, annual reports, Security and Exchange Commission 10K reports if the system is required to file them, credit reports from Standard and Poor's, Moodys or other recognized sources, reports to state regulatory authorities and the Federal Energy Regulatory Commission, and evidence of a successful track record in related construction projects.

(e) Additional controls on the borrower's financial, investment and managerial activities appear in the loan contract and mortgage required by REA.

§ 1710.114 TIER and DSC requirements.

(a) *General.* TIER and DSC requirements are set forth in the borrower's mortgage, loan contract, or other contractual agreements with REA. The requirements set forth in this section apply to borrowers that receive a loan after the effective date of this rule. Nothing in this section, however, shall reduce the TIER or DSC requirements of a borrower that has contractually agreed with REA to a higher requirement.

(b) *TIER and DSC levels.* (1) The minimum TIER and DSC levels required, whether applied on an annual or average basis, are 1.50 and 1.25, respectively, for distribution borrowers, and 1.05 and 1.00, respectively, for power supply borrowers. The 1.05 TIER for power supply borrowers shall be phased in as follows: 1.0 in calendar year (CY) 1991, 1.03 in CY 1992, and 1.05 in CY 1993 and all subsequent years. The Administrator may, on a case by case basis, reduce the TIER level below 1.05 for power supply borrowers, but not below 1.0, if the Administrator determines that a 1.05 TIER will require said borrowers to raise the rates they charge for power so high as to substantially reduce kWh sales and revenues and threaten loan feasibility.

(2) If a distribution borrower has in service or under construction a substantial amount of generation and associated transmission plant financed at a cost of capital substantially higher than the standard cost of funds under section 305 of the RE Act, then the Administrator may establish, in his or her sole discretion, a blended TIER and DSC level based on the respective shares of total utility plant represented by said generation and associated transmission plant and by distribution and other transmission plant.

(c) *Requirements for loan feasibility.* To be eligible for a loan, borrowers must demonstrate to REA that they will, on a pro forma basis, earn the TIER and DSC levels required by 1710.114(b) in each of the years included in the borrower's long-range financial forecast prepared in support of its loan application, as set forth in subpart G of this part.

(d) *Requirements for maintenance of TIER and DSC.*—(1) *Prospective requirement.* Borrowers must design and implement rates for electric power and energy and other services to provide sufficient revenue to pay all fixed and variable expenses, to provide and maintain reasonable working capital and to maintain on an annual basis the TIER and DSC levels required by paragraph (b) of this section. Rates must be designed and implemented to produce at least enough revenue to meet the requirements of this paragraph under the assumption that average weather conditions in the borrower's service territory will prevail in the future, including average system damage and outages due to weather and the related costs. Failure to design and implement rates pursuant to the requirements of this paragraph shall be an event of default upon notice provided in accordance with the terms of the borrower's mortgage.

(2) *Retrospective requirement.* The average TIER and DSC levels achieved by a borrower in the 2 best years out of the 3 most recent calendar years must meet the levels required by paragraph (b) of this section. If a borrower fails to

achieve these average levels, it must immediately notify REA in writing. Within 30 days of such notification or of the borrower being notified in writing by REA, whichever is earlier, the borrower, in consultation with REA, must provide a written plan satisfactory to REA setting forth the actions that will be taken to achieve the required TIER and DSC levels on a timely basis. Failure to develop and implement a plan satisfactory to REA shall be an event of default upon notice provided in accordance with the terms of the borrower's mortgage.

(3) As used in this section, fixed and variable expenses include, but are not limited to: All taxes, depreciation, maintenance expenses, and the cost of electric power and energy and other operating expenses of the electric system, including all obligations under the wholesale power contract, all lease payments when due, and all principal and interest payments on outstanding indebtedness when due.

(e) *Requirements for advance of funds.* (1) If a borrower applying for a loan has failed to achieve the TIER or DSC levels required by paragraph (b) of this section during the latest 12 month period immediately preceding approval of the loan, or the borrower's average TIER or average DSC for the 2 best years out of the most recent 3 calendar years was below the levels required in said paragraph (b), REA may withhold the advance of loan funds until the borrower has adopted an annual financial plan and operating budget satisfactory to REA and taken such other action as REA may require to demonstrate that the required TIER and DSC levels will be maintained in the future and that the loan will be repaid with interest within the time agreed. Such other action may include, for example, increasing system operating efficiency and reducing costs or adopting a rate design that will achieve the required TIER and DSC levels, and either placing such rates into effect or taking action to obtain regulatory authority approval of such rates. If failure to meet TIER or DSC is due to unusual events beyond the control of the borrower, such as unusual weather, system outage due to a storm or regulatory delay in approving rate increases, then the Administrator may waive the requirement that the borrower take the remedial actions set forth in this paragraph, provided that such waiver will not threaten loan feasibility.

(2) With respect to any outstanding loan made after the effective date of this rule, if based on actual or projected financial performance of the borrower, REA determines that the borrower may not achieve its required TIER or DSC levels in the current or future years, REA may withhold the advance of loan funds until the borrower has taken remedial action satisfactory to REA.

§ 1710.115 Loan maturity.

(a) REA is authorized to make loans and loan guarantees with a maturity of up to 35 years. Most of the electric facilities financed by REA have a long useful life, often approximating 35 years. Some facilities, such as load management equipment and Supervisory Control and Data Acquisition equipment, have a much shorter useful life due to obsolescence. Operating loans to finance working capital required for the initial operation of a new system are a separate class of loans and usually have a maturity of less than 10 years.

(b) Except for operating loans, loans made or guaranteed by REA generally must be repaid with interest within a period, up to 35 years, that approximates the expected useful life of the facilities financed. The expected useful life shall be based on the weighted average of the depreciation rates that the borrower proposes for the facilities financed by the loan, provided that these rates are deemed appropriate by REA. In states where the borrower must obtain state regulatory authority approval of depreciation rates for rate making purposes, the depreciation rates used for the purposes of this paragraph shall be the rates currently approved by the state authority or rates for which the borrower plans to seek state authority approval, provided that these rates are deemed appropriate by REA. In other states, if the rates proposed by the borrower are not deemed appropriate by REA, REA will base expected useful life on the depreciation rates listed in Bulletin 183–1, or its successor, revising such rates as necessary to reflect current industry practice.

(c) Borrowers may request a repayment period shorter than the expected useful life of the facilities financed.

(d) The Administrator may approve a repayment period longer than the expected useful life of the facilities financed, up to 35 years, if a longer maturity is required to ensure repayment of the loan and loan security is adequate.

(e) The maturity of a loan established pursuant to the provisions of this section shall not be extended as a result of extending loan payments under section 12(a) of the RE Act.

§ 1710.116 Equity development plan.

(a) As a condition for obtaining a loan or loan guarantee, a borrower whose total equity as a percentage of its total assets is, or is projected to be, less than the target level set forth in this section, after taking into consideration the effects on the balance sheet of a new loan, is required to prepare and follow a 10-year equity development plan acceptable to REA. The plan must be consistent with the borrower's financial forecast required by subpart G of this part.

(b) Distribution borrowers are subject to a minimum equity target of 40 percent of total assets. Distribution borrowers with equity below this level are required to develop and follow a 10-year equity development plan designed to make reasonable progress toward achieving an equity of 40 percent. More than one 10-year planning cycle may be required to reach this equity target, with the number of cycles depending mainly on the borrower's beginning equity and the factors cited in paragraph (d) of this section. The Administrator, at his or her discretion, may approve an equity target lower than 40 percent if the higher target would unreasonably increase retail rates for electricity. In making such a determination, the Administrator will take into consideration the factors set forth in paragraph (d) of this section.

(c) Power supply borrowers that have equity of less than 20 percent must develop and follow a 10-year equity development plan designed to achieve reasonable progress toward increasing equity as a percentage of total assets. Once a power supply borrower reaches 20 percent equity, which may require more than one 10-year planning cycle, it must either maintain its equity at 20 percent or continue to make progress toward increasing its equity percentage, depending on the borrower's particular financial circumstances and needs.

(d) A borrower's 10-year equity development plan shall be designed to achieve reasonable progress toward increasing equity as a percentage of total assets without raising power costs or retail rates for electricity unreasonably, placing an unreasonable burden on rate payers, or substantially reducing the borrower's ability to compete with neighboring utilities or other energy sources. Among the factors to be considered in establishing the improvement in equity to be made during the 10-year period are the economic strength of the borrower's service territory, the inherent cost of providing service to the territory, the disparity in rates between the borrower and neighboring utilities, the intensity of

competition faced by the borrower from neighboring utilities and other power sources, and the relative amount of new capital investment required to serve existing or new loads. REA will determine the improvement to be made under each plan, case by case, based on the general principles of this paragraph and the information and recommendations provided by the borrower. At a borrower's request, REA may approve an amendment to an established equity development plan if necessary to eliminate undue burdens on the borrower or its members.

§ 1710.117 Environmental considerations.

Borrowers are required to comply with 7 CFR part 1794, which sets forth applicable requirements of the National Environmental Policy Act (NEPA), as amended (42 U.S.C. 4321 *et seq.*); the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500–1508); and certain other statutes, regulations and orders. Borrowers must also comply with any other applicable Federal or state environmental laws and regulations.

§ 1710.118 Energy conservation and load management.

Borrowers are encouraged to promote the efficient use of electric energy and to promote load management in order to improve system load factors, to reduce losses, to use existing facilities more effectively, and to reduce the need for new generating facilities.

§ 1710.119 Loan processing priorities

(a) Generally loans are processed in chronological order based on the date the complete application is received in the Regional office.

(b) The Administrator may give priority to processing loans that are required to meet the following needs:

(1) To restore electric service following a major storm or other catastrophe;

(2) To bring existing electric facilities into compliance with any environmental requirements imposed by Federal or state law that were not in effect at the time the facilities were originally constructed;

(3) To finance the capital needs of borrowers that have merged or consolidated after the effective date of this regulation, provided that the merger or consolidation has been approved by REA and determined to enhance the repayment or security of REA loans. Such priority will be considered for a period up to 5 years after REA approval of the merger or consolidation; or

(4) To correct serious safety problems, other than those resulting from borrower mismanagement or negligence.

(c) The Administrator may also change the normal order of processing loan applications when it is necessary to ensure that all loan authority for the fiscal year is utilized.

§ 1710.120 Construction standards and contracting.

Borrowers shall follow all REA requirements regarding construction work plans, construction standards, approved materials, construction and related contracts, inspection procedures, and bidding procedures.

§ 1710.121 Insurance requirements.

Borrowers are required to comply with certain requirements with respect to insurance and fidelity coverage as set forth in 7 CFR part 1788.

§ 1710.122 Equal opportunity and nondiscrimination.

Borrowers are required to comply with certain regulations on nondiscrimination in program services and benefits and on equal employment opportunity as set forth in REA Bulletins 20–15 and 20–19 or their successors; 7 CFR parts 15 and 15b; and 45 CFR part 90.

§ 1710.123 Debarment and suspension.

Borrowers are required to comply with certain requirements on debarment and suspension as set forth in 7 CFR part 3017.

§ 1710.124 Uniform Relocation Act.

Borrowers are required to comply with applicable provisions of 49 CFR part 24, which sets forth the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policy Act of 1970 (Pub. L. 91–646; 84 Stat. 1894), as amended by the Uniform Relocation Act Amendments of 1987 (Pub. L. 100–17; 101 Stat. 246–256) and the Intermodal Surface Transportation Efficiency Act of 1991.

§ 1710.125 Restrictions on lobbying.

Borrowers are required to comply with certain requirements with respect to restrictions on lobbying activities. See 7 CFR part 3018.

§ 1710.126 Federal debt delinquency.

(a) Prior to approval of a loan or advance of funds, a borrower must report to REA whether or not it is delinquent on any Federal debt, such as Federal income tax obligations or a loan or loan guarantee from another Federal agency. If delinquent, the reasons for the delinquency must be explained, and REA will take such explanation into consideration in deciding whether to approve the loan or advance of funds.

(b) Applicants for a loan or loan guarantee must also certify that they have been informed of the collection options the Federal government may use to collect delinquent debt.

§ 1710.127 Drug free workplace.

Borrowers are required to comply with the Drug Free Workplace Act of 1988 (Pub. L. 100–690, title V, subtitle D) and the Act's implementing regulations (7 CFR part 3017) when a borrower receives a Federal grant or enters into a procurement contract awarded pursuant to the provisions of the Federal Acquisition Regulation (title 48 CFR) to sell to a Federal agency property or services having a value of $25,000 or more.

§ 1710.128–1710.149 [Reserved]

Subpart D—Basic Requirements for Loan Approval

§ 1710.150 General.

The RE Act and prudent lending practice require that the Administrator make certain findings before approving an electric loan or loan guarantee. The borrower shall provide the evidence determined by the Administrator to be necessary to make these findings.

§ 1710.151 Required findings for all loans.

(a) *Area coverage.* Adequate electric service will be made available to the widest practical number of rural users in the borrower's service area during the life of the loan. See § 1710.103.

(b) *Feasibility.* The loan is feasible and it will be repaid on time according to the terms of the mortgage, note, and loan contract. At any time after the original determination of feasibility, the Administrator may require the borrower to demonstrate that the loan remains feasible if there have been, or are anticipated to be, material changes in the borrower's costs, loads, rates, rate disparity, revenues, or other relevant factors from the time that feasibility was originally determined. See § 1710.112 and subpart G of this part.

(c) *Security.* REA will have a first lien on the borrower's total system or other adequate security, and adequate financial and managerial controls will be included in loan documents. See § 1710.113.

(d) *Interim financing.* For loans that include funds to replace interim financing, there is satisfactory evidence that the interim financing was used for purposes approved by REA and that the loan meets all applicable requirements of this part.

(e) *Facilities for nonrural areas.* Whenever a borrower proposes to use loan funds for the improvement, expansion, construction, or acquisition of electric facilities for non-RE Act beneficiaries, there is satisfactory evidence that such funds are necessary and incidental to furnishing or improving electric service for RE Act beneficiaries. See § 1710.104.

(f) *Facilities to be included in rate base.* In states having jurisdiction, the borrower has provided satisfactory evidence based on the information available, such as an opinion of counsel, that the state regulatory authority will not exclude from the borrower's rate base any of the facilities included in the loan request, or otherwise prevent the borrower from charging rates sufficient to repay with interest the debt incurred for the facilities. Such evidence may be based on, but not necessarily limited to, the provisions of applicable state laws; the rules and policies of the state authority; precedents in other similar cases; statements made by the state authority; any assurances given to the borrower by the state authority; and other relevant information and experience.

§ 1710.152 Primary support documents.

The following primary support documents and studies must be prepared by the borrower for approval by REA in order to support a loan application:

(a) *Power requirements study (PRS).* This study provides the borrower and REA with an understanding of the borrower's system loads, the factors influencing those loads, and valid estimates of future loads. It provides a basis for projecting annual kWh sales and revenues, and for engineering estimates of plant additions required to accommodate the forecasted loads. The requirements for a PRS and the circumstances under which one must be submitted to REA are set forth in subpart E of this part.

(b) *Construction work plan (CWP).* The CWP shall specify and document the capital investments required to serve a borrower's planned new loads, improve service reliability and quality, and service the changing needs of existing loads. The requirements for a CWP are set forth in subpart F of this part.

(c) *Long-range financial forecasts.* REA encourages borrowers to maintain on a current basis a long-range financial forecast, which should be used by a borrower's board of directors and manager to guide the system toward its financial goals. The forecast submitted in support of a loan application shall show the projected results of future actions planned by the board of directors. The requirements for a long-range financial forecast are set forth in subpart G of this part.

(d) *Borrower's environmental report (BER).* This document is used to determine what effect the construction of the facilities included in the construction work plan will have on the environment. In developing a BER a borrower shall follow the policy and procedural requirements set forth in 7 CFR Part 1794. After reviewing the BER, REA will determine whether additional environmental studies will be required.

§ 1710.153 Additional requirements and procedures.

Additional requirements and procedures for obtaining REA financial assistance are set forth in 7 CFR part 1712 for loan guarantees, and in 7 CFR part 1714 for insured loans.

§§ 1710.154–1710.199 [Reserved]

Subpart E—Power Requirements Studies

§ 1710.200 Purpose.

This subpart sets forth the policies, procedures and criteria for the preparation, approval and use of power requirements studies (PRSs) and PRS work plans. A PRS is a thorough study of a borrower's electric loads and the factors that affect those loads in order to determine, as accurately as practicable, the borrower's future requirements for energy and capacity. The PRS of a power supply borrower includes and integrates the PRSs of its member systems.

§ 1710.201 Requirement to prepare a PRS—power supply borrowers.

(a) A power supply borrower having total assets of $300 million or more shall:

(1) Meet one of the following two requirements:

(i) Prepare and obtain REA approval of a new PRS not less frequently than every 3 years, which shall include new or revised equations and models, and annually update the PRS in the intervening years based on new data and assumptions, but not necessarily new or revised equations and models, and file the annual updates with REA; or

(ii) Prepare and obtain REA approval of a new PRS not less frequently than every 2 years, which shall include new or revised equations and models;

(2) Maintain a current PRS work plan approved by REA which shall set forth the resources, methods, schedules and milestones required for the preparation and maintenance of the PRS; and

(3) Provide a current PRS approved by REA in support of any request for REA financial assistance or for REA approval of long-term power contracts or other actions as appropriate.

(b) A power supply borrower with total assets of less than $300 million is not required to have a current, REA-approved PRS on an ongoing basis but is required to provide a current, REA-approved PRS in support of:

(1) An application for an REA loan or loan guarantee if said loan or guarantee exceeds $25 million or 10 percent of the borrower's total utility plant, whichever is smaller; and

(2) Requests for REA approval of long-term power contracts or other actions, as may be required by REA on a case by case basis.

(c) A power supply borrower that is a member of another power supply borrower that has total assets of $300 million or more is subject to the requirements of § 1710.201(a), except that such member is not required to have a separate PRS work plan. The distribution members of such a power supply borrower are also subject to the requirements of § 1710.201(a), except that such members are not required to have separate PRS work plans.

(d) At the borrower's request, REA may extend for up to 3 months the time frames set forth in § 1710.201(a)(1) if REA determines the borrower is in substantial compliance with its REA-approved work plan and significant changes in existing PRS models and assumptions are not required.

(e) For purposes of paragraphs (a)(3) and (b) of this section, the determination of whether a borrower's PRS is current will be made by REA at the time financial assistance or other REA action is requested. The borrower may be required to update the PRS to incorporate the most recently available operating data and other information.

§ 1710.202 Requirement to prepare a PRS—distribution borrowers.

(a) If a distribution borrower is a member of a power supply borrower that has total assets of $300 million or more, it must meet the requirements of § 1710.201(a), except for the requirement to prepare a work plan, which is the responsibility of the power supply borrower. Certain other distribution borrowers, as set forth in § 1710.201(c), are also subject to provisions of § 1710.201(a).

(b) All other distribution borrowers, including unaffiliated distribution systems as well as members of power supply borrowers with total assets of less than $300 million, must either:

(1) Meet the requirements of § 1710.201(a), if the distribution borrower owns generation and bulk transmission plant valued at $300 million or more, or

(2) Meet the requirements of § 1710.201(b), except that the loan threshold set forth in paragraph (b)(1) in the case of these distribution borrowers shall be $3 million and 10 percent of total utility plant.

§ 1710.203 Basic policies and requirements for a PRS.

(a) A PRS or PRS update must be completed and submitted to REA on a timely basis to enable prompt review by REA.

(b) A PRS completed more than 12 months prior to submission will not be considered by REA.

(c) Adequate coordination is required between power supply borrowers and their members in the preparation of their respective PRSs or PRS updates.

(d) To facilitate REA review of the PRS work plan and the PRS, the borrower shall make available to REA appropriate staff for consultation, and all essential documentation, data, and other relevant information, in formats acceptable to REA, that support the PRS work plan and the PRS.

(e) Notwithstanding any other provisions of this subpart, any power supply or distribution borrower may be required to prepare a new or updated PRS, or to maintain a current PRS on an ongoing basis, if required for REA to determine loan feasibility, to ensure loan security, or to consider requests submitted for approval under a borrower's loan contract or mortgage.

(f) All PRSs shall include the following information, using a format approved by REA, unless such information has already been provided to REA in the PRS work plan or other submissions:

(1) A discussion of the scope of the PRS, including the proposed uses of the information developed for planning load management and energy efficiency programs, plant investments, and financial requirements;

(2) A discussion of the borrower personnel, consultants, data, and other resources used in the preparation of the PRS;

(3) A discussion of the procedures used to collect, validate, process, and update the data used in the study;

(4) Documentation of the analysis and modeling of the borrower's electric system loads and other pertinent information used in the PRS. All relevant data, primary sensitivity analyses and other substantive procedures used to test significant assumptions and to generate the load estimates and related factors must be included in the PRS or otherwise made available to REA, and clearly identified, sourced and dated;

(5) An analysis of the borrower's past, existing, and future electric system loads of RE Act beneficiaries and others, including explanation and documentation of all substantive assumptions, primary sensitivity analyses and other substantive considerations used to prepare the estimates. Areas of analysis shall normally include, but are not limited to: developing land use patterns; potential losses of load due to annexation or other causes; prospective residential and commercial development; probable rate levels; the effects of rates and competition from neighboring utilities on loads; existing and anticipated patterns of energy usage and appliance saturation; and availability of alternative energy sources. Load management, conservation, and power marketing considerations must also be included;

(6) A discussion and analysis of alternative scenarios, which shall be required for all PRSs submitted to REA for approval after January 1, 1993. Normally, unless waived by REA under § 1710.206, the borrower shall provide a discussion and analysis of the following five scenarios:

(i) Most-probable economic assumptions, with normal weather;

(ii) Most-probable economic assumptions, with severe weather causing higher loads;

(iii) Most-probable economic assumptions, with mild weather causing lower loads;

(iv) Normal weather with more pessimistic macroeconomic assumptions causing lower loads; and

(v) Normal weather with more optimistic macroeconomic assumptions causing higher loads;

(7) Completed REA Forms 341 and 345 and 10 years data from REA Form 7 part R. Computer-generated facsimiles may be used if acceptable in form to REA. Graphs, tables, spreadsheets or other exhibits shall be included as appropriate;

(8) A discussion and documentation of the coordination activities between a power supply borrower and its REA-borrower members, as applicable, and between the borrower and REA. If a power supply borrower and any member disagree on an issue or estimate, REA will provide assistance, if requested, in attempting to resolve the disagreement;

(9) The borrower's general manager's recommendation to the board of directors on adoption of the PRS; and

(10) Approval of the PRS by the borrower's board of directors.

(g) A PRS and its essential supporting data and analysis shall be retained in the borrower's records until the next new PRS is approved by REA.

(h) Completed PRSs submitted to REA for approval prior to the effective date of this part, as well as PRSs prepared under work plans approved by REA prior to the effective date of this part, may meet the requirements of paragraph (f) of this section or corresponding requirements of REA Bulletin 120–1, at the option of the borrower. All other PRSs must meet the requirements of paragraph (f) of this section.

§ 1710.204 PRS work plan requirements.

(a) All borrowers are required to prepare and maintain a PRS on an ongoing basis are required to prepare and obtain REA approval of a PRS work plan, except for those borrowers that are members of a power supply borrower that is required to prepare a PRS work plan. The PRS work plan shall establish the resources, methods, schedules, and milestones to be used in the preparation and maintenance of the PRS.

(b) A power supply borrower's work plan shall include the member inputs and coordination mechanisms required for the preparation of its PRS as well as the PRSs of the system's members. Member concurrences in the work plan are required before the plan is submitted to REA for approval. The member systems, as well as the power supply borrower, are required to follow the work plan in preparing their respective PRS.

(c) A PRS work plan must be approved by the borrower's board of directors.

(d) A borrower may amend its work plan subject to REA approval. A new or revised work plan may be required by REA if REA concludes the existing plan will not result in a satisfactory PRS on a timely basis.

(e) In addition, a PRS work plan shall:

(1) Identify the borrower and, as applicable, member personnel that will serve as project leaders or liaisons with the authority to make decisions and commit resources within the scope of the work plan;

(2) Provide for residential consumer surveys at least every 3 years to obtain data on appliance and equipment saturation and electricity demand, when residential demand is 50 percent or more of total kWh sales. In the case of a

power supply borrower, such surveys shall be coordinated with the borrower's members. They may be based on the aggregation of member-based samples or on a system-wide sample, provided that the latter provides for relevant regional breakdowns as appropriate;

(3) Provide for all other data collection and verification, analyses, modeling, and documentation required in § 1710.203; and

(4) Provide for an ongoing REA review of the PRS.

(f) Generally, a work plan shall cover a period of 1 to 3 years.

§ 1710.205 Basic criteria for REA approval of a PRS.

REA will use the following basic criteria in deciding whether to approve a PRS:

(a) The borrower objectively analyzed all relevant factors that influence the consumption of electricity and the requirements for generation and transmission capacity;

(b) The borrower accurately analyzed power requirements stemming from RE Act beneficiaries and non-RE Act beneficiaries;

(c) The borrower developed adequate supporting data, used valid assumptions, analyzed a reasonable range of relevant alternative assumptions and scenarios, and used valid and verifiable analytical techniques and models;

(d) The borrower provided REA with adequate documentation and assistance to allow for a thorough and independent review;

(e) In the case of a power supply borrower, the preparation of the work plan and PRS was adequately coordinated with its members; and

(f) The PRS was recommended for approval by the borrower's general manager and has been approved by the borrower's board of directors.

§ 1710.206 Waiver of borrower requirements.

For good cause shown by the borrower, the Administrator may waive any of the requirements applicable to borrowers in this subpart if the Administrator determines that waiving the requirement will not significantly affect accomplishment of the objectives of this subpart and if the requirement imposes a substantial burden on the borrower. The waiver must be requested in writing by the borrower's general manager.

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§§ 1710.207-1710.249 [Reserved]

Subpart F—Construction Work Plans and Related Studies

§ 1710.250 General.

(a) An ongoing, integrated planning system is needed by borrowers to determine their short-term and long-term needs for plant additions, improvements, replacements, and retirements. The primary components of the system consist of long-range engineering plans, construction work plans (CWPs), CWP amendments, and special engineering and cost studies. Long range engineering plans identify plant investments required over a period of 10 years or more. CWPs specify and document plant requirements for the short-term, usually 2 to 3 years, and special engineering and cost studies are used to support CWPs and to identify and document requirements for specific items or purposes, such as load management equipment, System Control and Data Acquisition equipment, sectionalizing investments, and additions of generation capacity and associated transmission plant.

(b) Generally, all borrowers are required to maintain up-to-date long range engineering plans approved by their boards of directors and REA. Current CWPs approved by the borrower's board and REA must also be developed and maintained for distribution and transmission facilities and for improvements and replacements of generation facilities. All such distribution, transmission or generation facilities must be included in the respective CWPs regardless of the source of financing. Applications for REA financial assistance (new loans or budget reclassifications) must be supported by a current, approved CWP.

(c) A long range engineering plan specifies and supports the major system additions, improvements, replacements, and retirements needed for an orderly transition from the existing system to the system required 10 or more years in the future. The planned future system should be based on the most technically and economically sound means of serving the borrower's long-range loads in a reliable and environmentally acceptable manner, and it should ensure that planned facilities will not become obsolete prematurely.

(d) A CWP shall include investment cost estimates and supporting engineering and cost studies to demonstrate the need for each proposed facility or activity and the reasonableness of the investment projections and the engineering assumptions used in sizing the facilities. The CWP must be consistent with the borrower's long range engineering plan and both documents must be consistent with the borrower's REA-approved power requirements study.

(e) RES approval is required for all facilities included in a CWP or CWP amendment. If REA disagrees with a borrower's estimate of the cost of one or more facilities included in CWP or CWP amendment, REA may adjust the estimate after consulting with the borrower and explaining the reasons for the adjustment.

(f) Except as provided in paragraph (g) of this section, to be eligible for REA financing, the facilities, including equipment and other items, included in a CWP must be approved by REA before the start of construction. This requirement also applies to any amendments to a CWP required to add facilities to a CWP or to make significant physical changes in the facilities already included in a CWP.

(g) In the case of damage caused by storms and other natural catastrophes, a borrower may proceed with emergency repair work before a CWP or CWP amendment is prepared by the borrower and approved by REA, without loosing eligibility for REA financing of the repairs. The borrower must notify the REA regional office in writing, not later than 45 days after the natural catastrophe, of its preliminary estimates of damages and repair costs. Not later than 120 days after the natural catastrophe, the borrower must submit to REA for approval, a CWP or CWP amendment detailing the repairs.

(h) A CWP may be amended or augmented when the borrower can demonstrate the need for the changes.

(i) A borrower's CWP or special engineering studies must be supported by a Borrower's Environmental Report, and when necessary by an Environmental Analysis or Environmental Impact Statement, as set forth in 7 CFR 1794 or required by other Federal or state regulations or laws.

(j) All engineering activities required by this subpart must be performed by qualified engineers, who may be staff employees of the borrower or outside consultants.

§ 1710.251 Construction work plans—distribution borrowers.

(a) All distribution borrowers must maintain a current CWP approved by their board of directors and REA covering all new construction, improvements, replacements, and retirements of distribution and transmission plant, and improvements replacements, and retirements of any

generation plant. Construction of new generation capacity need not be included in a CWP but must be specified and supported by specific engineering and cost studies. (See § 1710.253.)

(b) A distribution borrower's CWP shall cover at least a 2-year construction period and include all facilities to be constructed, whether or not REA financial assistance will be sought or be available of certain facilities. Any REA financing provided for the facilities will be limited to a 2-year construction period.

(c) The facilities, equipment and other items included in distribution borrower's CWP may include:

(1) Line extensions required to connect consumers, improve service reliability or improve voltage conditions;

(2) Distribution tie lines to improve reliability of service and voltage regulation;

(3) Line conversions and changes required to improve existing services or provide additional capacity for new consumers;

(4) New substation facilities or additions to existing substations;

(5) Transmission and substation facilities required to support the distribution system;

(6) Distribution equipment required to serve new consumers or to provide adequate and dependable service to existing consumers, including replacement of existing plant facilities;

(7) Residential security lights;

(8) Communications equipment and meters;

(9) Headquarters facilities;

(10) Improvements, replacements, and retirements of generation facilities;

(11) Load management equipment, automatic sectionalizing facilities, and centralized System Control and Data Acquisition equipment. Load management equipment eligible for financing, including the related costs of installation, is limited to capital equipment designed to influence the time and manner of consumer use of electricity, which includes peak clipping and load shifting. To be eligible for financing, such equipment must be owned by the borrower, although it may be located inside or outside a consumer's premises; and

(12) The cost of engineering, architectural, environmental and other studies and plans needed to support the construction of facilities, when such cost is capitalized as part of the cost of the facilities.

§ 1710.252 Construction work plans—power supply borrowers.

(a) All power supply borrowers must maintain a current CWP approved by the borrower's board of directors and REA covering all new construction, improvements, replacements, and retirements of distribution and transmission plant, and improvements, replacements, and retirements of generation plant. Applications for REA financial assistance for such facilities must be supported by a current, REA-approved CWP. Construction of new generation capacity need not be included in a CWP but must be specified and supported by specific engineering and cost studies.

(b) Normally, a power supply borrower's CWP shall cover a period of 3 years. While comprehensive CWPs are desired, if there are extenuating circumstances REA may accept a single-purpose transmission or generation CWP in support of a loan application or budget reclassification.

(c) Facilities, equipment, and other items included in a power supply borrower's CWP may include:

(1) Distribution and related facilities as set forth in § 1710.251(c);

(2) Transmission facilities required to deliver the power needed to serve the existing and planned new loads of the borrower and its members, and to improve service reliability, including tie lines for improved reliability of service, line conversions, improvements and replacements, new substations and substation improvements and replacements, and Systems Control and Data Acquisition equipment, including communications, dispatching and sectionalizing equipment, and load management equipment;

(3) The borrower's proportionate share of transmission facilities required to tie together the operating systems of supporting power pools and to connect with adjacent power suppliers;

(4) Improvements and replacements of generation facilities; and

(5) The cost of engineering, architectural, environmental and other studies and plans needed to support the construction of facilities, when such cost is capitalized as part of the cost of the facilities.

(d) A CWP for transmission facilities shall normally include studies of load flows, voltage regulation, and stability characteristics to demonstrate system performance and needs.

§ 1710.253 Engineering and cost studies—addition of generation capacity.

(a) The construction or purchase of additional generation capacity and associated transmission facilities by a power supply or distribution borrower, including the replacement of existing capacity, shall be supported by comprehensive project-specific engineering and cost studies as specified by REA. The studies shall cover a period from the beginning of the project to at least 10 years after the start of commercial operation of the facilities.

(b) The studies must include comprehensive economic present-value analyses of the costs and revenues of the available self-generation, load management, energy conservation, and purchased-power options, including assessments of service reliability and financing requirements and risks. Requirements for analyzing purchased-power options are set forth in § 1710.254.

(c) Generally, studies of self-generation, load management, and energy conservation options shall include, as appropriate, analyses of:

(1) Capital and operating costs;

(2) Financing requirements and risks;

(3) System reliability;

(4) Alternative unit sizes;

(5) Alternative types of generation;

(6) Fuel alternatives;

(7) System stability;

(8) Load flows; and

(9) System dispatching.

(d) At the request of a borrower, REA, in its sole discretion, may waive specific requirements of this section if such requirements imposed a substantial burden on the borrower and if such waiver will not significantly affect the accomplishment of the objectives of this subpart.

§ 1710.254 Alternative sources of power.

(a) General. (1) REA will make loans to finance the construction of generation facilities by distribution or power supply borrowers and transmission facilities by power supply borrowers only under the following conditions if said borrowers do not already own and operate such types of facilities:

(i) Where no adequate and dependable source of power is available to meet the consumers' needs; or

(ii) Where the rates offered by other power sources would result in a higher cost of power to the consumers than the cost from facilities financed by REA, and the amount of the power cost savings that would result from the REA-financed facilities bears a significant relationship to the amount of the proposed loan.

(2) If a borrower already owns and operates the types of facilities included in a loan request, then a loan for the purposes set forth in paragraph (a)(1) of this section, as well as for the construction of transmission facilities by a distribution borrower, will be considered and evaluated by REA in terms of whether the proposed facilities constitute the most effective and

economical means of meeting the power requirements of the consumers.

(b) Loan requests for addition of generation capacity, including replacement of existing capacity, will be accepted by REA only when the applicant has satisfactorily completed the investigations of possible alternative sources of power as set forth in this section. The investigations must be coordinated in advance with REA. The capacity in question may be owned solely by the borrower or owned on an undivided ownership basis with other utilities.

(c) The applicant is required to search out and attempt to utilize capacity available from REA borrowers and other organizations before developing plans for additional generation capacity. The applicant shall:

(1) Solicit power and energy purchase proposals from all reasonable potential sources of power, such as other electric cooperatives, investor-owned utilities, municipal utility organizations, and Federal and state power authorities.

(2) Except as herein exempted, solicit proposals from independent power producers, including co-generators, to determine the terms and conditions under which these producers can supply the additional power and energy needs of the applicant, without REA financial assistance. Such solicitations shall be placed in at least three national newspapers or trade publications, and they shall meet all planning, coordination or other requirements imposed by state authorities, as well as REA's environmental requirements. The following projects are exempted from this requirement to solicit proposals:

(i) Additions to or replacements of generation capacity of less than 10 megawatts.

(ii) Modifications of existing generation units if any resulting increase in generation capacity does not exceed 10 percent of the capacity of the existing unit.

(d) The applicant will evaluate all alternative proposals on an economic, present-value basis, giving consideration to cost-effectiveness, reliability of service, the short- and long-term financial viability of the supplier, and the financial risk to the borrower and its creditors. The applicant will keep REA fully informed on these evaluations and provide supporting information and analysis as requested by REA.

(e) After evaluation of all proposals and having informed REA of the results, the applicant will be expected to negotiate final proposals with the entities submitting the best acceptable offers, if any, keeping REA fully informed. All contracts entered into shall either be approved in advance by the Administrator or contain language to the effect that the contract is not valid until approved in writing by the Administrator. The Administrator will approve such contracts in a timely manner provided that the borrower has met all applicable requirements, including REA's environmental requirements, and provided adequate evidence that the alternative selected is the most economical and effective alternative.

(f) REA may make independent inquiries with potential power suppliers as to the availability of power to meet borrowers' needs. Information developed by REA will be shared with borrowers at their request.

(g) Further details of REA requirements for financing of generation and bulk transmission facilities are set forth in 7 CFR part 1712.

(h) At the request of a borrower, REA, in its sole discretion, may waive specific requirements of paragraphs (b) through (e) of this section if such waiver is required to prevent unreasonable delays in obtaining generation capacity that could result in system reliability problems.

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§§ 1710.255-1710.299 [Reserved]

Subpart G—Long-Range Financial Forecasts

§ 1710.300 General.

(a) REA encourages borrowers to maintain a current long-range financial forecast. The forecast should be used by the board of directors and the manager to guide the system towards its financial goals.

(b) A borrower must prepare, for REA review and approval, a long-range financial forecast, approved by its board of directors, in support of its loan application. The forecast must demonstrate that the borrower's system is economically viable and that the proposed loan is financially feasible. Loan feasibility will be assessed based on the criteria set forth in § 1710.112.

(c) The financial forecast and related projections submitted in support of a loan application shall include:

(1) The projected results of future actions planned by the borrower's board of directors;

(2) The financial goals established for margins, TIER, DSC, equity, and levels of general funds to be invested in plant;

(3) A pro forma balance sheet, statement of operations, and general funds summary projected for each year during the forecast period;

(4) A full explanation of the assumptions, supporting data, and analysis used in the forecast, including the methodology used to project loads, rates, revenue, power costs, operating expenses, plant additions, and other factors having a material effect on the balance sheet and on financial ratios such as equity, TIER, and DSC;

(5) Current and projected cash flows;

(6) Projections of future borrowings and the associated interest and principal expenses required to meet the projected investment requirements of the system;

(7) Current and projected kW and kWh energy sales;

(8) Current and projected unit prices of significant variables such as retail and wholesale power prices, average labor costs, and interest;

(9) Current and projected system operating costs, including, but not limited to, wholesale power costs, depreciation expenses, labor costs, and debt service costs;

(10) Current and projected revenues from sales of electric power and energy;

(11) Current and projected non-operating income and expense;

(12) A discussion of the historical experience of the borrower, and in the case of a power supply borrower its member systems as appropriate, with respect to the borrower's market competitiveness as it relates to the rates charged for electricity, competition from other fuels, and other factors. Additional data and analysis may be required by REA on a case by case basis to assess the probable future competitiveness of those borrowers that have a history of serious competitive problems; and

(13) An analysis of the effects of major factors, such as projected increases in rates charged for electricity, on the ability of the borrower, and in the case of a power supply borrower its member systems, to compete with neighboring utilities and other energy sources.

(d) The following plans, studies and assumptions shall be used in developing the financial forecast:

(1) The REA-approved CWP;

(2) REA-approved power requirements data;

(3) The current rate schedules or new rates already approved by the board of directors;

(4) Future plant additions and operating expenses projected at anticipated future cost levels rather than in constant dollars, with the annual rate of inflation for major items specified; and

(5) A reasonable range of assumptions for each of the major variables to test the sensitivity of the results to changes in assumptions, if the financial forecast is used in support of a loan or loan guarantee that exceeds the smaller of 10 percent of the borrower's total utility plant or the following dollar amount: $25 million for power supply borrowers, or $3 million for distribution borrowers.

(e) The financial forecast shall use the accrual method, as approved by REA, for analyzing costs and revenues, and, as applicable, compare the economic results of the various alternatives on a present value basis.

(f) REA will obtain and review commercially available credit reports on applicants for a loan or loan guarantee to verify income, assets, and credit history, and to determine whether there are any outstanding delinquent Federal or other debts. Such reports will also be reviewed for parties that are or propose to be joint owners of a project with a borrower.

§ 1710.301 Financial forecasts—distribution borrowers.

(a) Financial forecasts prepared by distribution borrowers shall cover at least a ten-year period, unless a shorter period is authorized by other REA regulations.

(b) In addition to the requirements set forth in § 1710.300 of this part, financial forecasts prepared by distribution borrowers in support of a loan application shall:

(1) Include expenditures for any maintenance determined to be needed in the current system's operation and maintenance review and evaluation in order to comply with mortgage covenants and prudent utility practice;

(2) Fully explain the basis for the power cost projections used. Generally, the power supplier's most recent forecasted rates shall be used; and

(3) Use REA Form 325 or computer-generated equivalent reports.

§ 1710.302 Financial forecasts—power supply borrowers.

(a) The requirements of this section apply only to financial forecasts submitted by power supply borrowers in support of a loan from REA. The financial forecast prepared by power supply borrowers shall demonstrate the effects that the addition of generation, transmission and any distribution facilities will have on the power supply borrower's sales, costs, and revenues, and on the cost of power to the member distribution systems.

(b) The financial forecast shall cover a period beginning with the present and extending at least 10 years beyond the projected in-service date of proposed generation and transmission facilities.

(c) Financial forecasts prepared in support of loan applications to finance additional generation capacity shall include a power cost study as set forth in § 1710.303.

(d) In addition to the requirements set forth in § 1710.300, financial forecasts prepared by power supply borrowers shall:

(1) Identify all plans for generation and transmission capital additions and system operating expenses on a year-by-year basis, beginning with the present and running for a minimum of 10 years after initial commercial operation of the facilities. REA may request projections for a longer period of time if deemed necessary;

(2) Integrate projections of operation and maintenance expenses associated with existing plant with those of new proposed facilities to determine total costs of system operation as well as the costs of new generation and generation-related facilities;

(3) Provide an in-depth analysis of the regional markets for power if loan feasibility depends to any degree on a borrower's ability to sell surplus power while its system loads grow to meet the planned capacity of a proposed plant;

(4) If not previously submitted, furnish REA with all material information on operating agreements, ownership agreements, fuel contracts and any other special agreements that affect annual cost projections, as may be required by REA on a case by case basis; and

(5) Include sensitivity analysis as required by § 1710.300(d)(5). Examples of sensitivity analysis that might be used are:

(i) Effects of a 100 to 200 basis point increase in the financing interest rate;

(ii) Effects of a 50 percent reduction in the rate of projected RE Act beneficiary load growth;

(iii) Effects of a 10 to 20 percent increase in the projections for fuel costs;

(iv) Effects of a 20 percent or more increase in construction costs; and

(v) Effects of a 20 percent or more increase in maintenance, retrofit and decommissioning costs of nuclear power plants.

(e) The projections shall be coordinated in advance with REA so that agreement can be reached on major aspects of the economic studies. These include, but are not limited to, projections of future kW and kWh requirements, RE Act beneficiary loads, electricity prices, revenues from system and off-system power sales, the cost of prospective plant additions, interest and depreciation rates, fuel costs, cost escalation factors, the discount rate, and other factors.

(f) The projections, analysis, and supporting information must be included in a report that will provide REA with the information needed to:

(1) Understand and compare various power supply plans;

(2) Determine that the facilities to be financed will perform satisfactorily; and

(3) Determine that the overall system is economically viable and the loan is financially feasible and secure.

§ 1710.303 Power cost studies—power supply borrowers.

(a) All applications for financing of additional generation capacity and the associated bulk transmission facilities shall be supported by a power cost study to demonstrate that the proposed generation and associated transmission facilities are the most economical and effective means of meeting the borrower's power requirements. This study usually is a separate study but it may be integrated with the financial forecast required by § 1710.302.

(b) A power cost study shall include the following basic elements:

(1) A study of all reasonably available self-generation, purchased-power, load management, and energy conservation alternatives as set forth in §§ 1710.253 and 1710.254;

(2) A present-value analysis of the costs of the alternatives and their effects on total power costs, covering a period of at least 10 years beyond the projected in-service date of the facilities;

(3) A description of proposed new power-purchase contracts or revisions to existing contracts, and an analysis of the effects on power costs;

(4) Use of sensitivity analyses to determine the vulnerability of the alternatives to a reasonable range of assumptions about fuel costs, failure to achieve projected load growth, changes in operating and financing costs, and other major factors, if the financial forecast is used in support of a loan or loan guarantee that exceeds the smaller of $25 million or 10 percent of the borrower's total utility plant. Individual sensitivity analyses need not be duplicated if they have been included in other materials submitted to REA; and

(5) Assessment of the financial risks of the various alternatives, especially as between capital-intensive and non-capital-intensive alternatives, under the range of assumptions set forth in paragraph (b)(4) of this section.

(c) Power cost studies must use current, REA-approved power requirements data, and all major assumptions are subject to REA

approval. Alternative assumptions about projected power requirements may be used, however, in conjunction with the sensitivity analyses required by paragraph (b)(4) of this section.

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§§ 1710.304–1710.349 [Reserved]

Subpart H—Credit Support of Power Supply Borrowers [Reserved]

Dated: October 31, 1991.

Roland R. Vautour,

Under Secretary for Small Community and Rural Development.

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